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Acknowledgements

This report was written by Steve Owens and Professor Ian Robson who are grateful to Caitlin Watson and Robert Massey for proof reading. Any remaining errors are the sole responsibility of the authors.

Thanks are due also to the many others who contributed to the production of this report, and to the event organisers and participants who assisted in the evaluation.

This report reflects the vast range of activities that happened in the UK during IYA2009, and such a programme would not have been possible without the support and dedication of the UK astronomy community, both professional and amateur, and our thanks goes to all of those who made the year such a success. In particular we wish to thank the Executive Committee of David Elliot (Royal Astronomical Society), Caitlin Watson (Institute of Physics) and Robin Clegg (Science and Technology Facilities Council) for their encouragement and support during the preparation for, and in execution of, the Year.

We would also like to thank Quentin Stanley for his continued and professional assistance in creating and maintaining the IYA2009 UK website www.astronomy2009.co.uk, and to Robert Massey (RAS) and Joseph Winters (IOP) who did such great work for the publicity of IYA2009 in the UK.

A huge thanks also to all our project partners, and in particular the Society for Popular Astronomy, and their president during IYA2009, Helen Walker, who were central in delivering two of the key UK projects – Telescopes for Schools, and the Moonwatch weeks.

Executive Summary

The International Year of Astronomy 2009 (IYA2009) was launched by the International Astronomical Union (IAU) and UNESCO under the theme 'The Universe, Yours to Discover'. IYA2009 was a United Nations endorsed global undertaking of 140 countries along with many agencies and organisations to bring the wonders of astronomy and the night-time sky to the general public. It was also a celebration of 400 years since Galileo Galilei's use of the telescope opened up the modern scientific discipline of astronomy as we know it today and in which the UK is one of the leading nations in the world.

The UK played a prominent part in IYA2009, both in the organisation of the global events through membership of the International Executive Working Group and President of the IAU Commission 55 – 'Communicating Astronomy with the Public' as well as what was achieved within the country. The UK took part in all of the twelve global 'cornerstone projects' of the year and hosted its own special and unique 'cornerstone events'. Globally and within the UK there is widespread acceptance that the year has been a tremendous success, readily achieving its goals. Most importantly, projects have been put in place that will have a lasting legacy, thereby demonstrating that IYA2009 was not just a 'one-off' where astronomers and outreach specialists could enthuse about their subject but as a springboard for future work.

It was always clear that it would be the grass-roots organisations, especially the amateur astronomical community, that would be the success or otherwise to IYA2009. The UK was especially blessed in the number of astronomical societies that stepped up to the plate to communicate their passion of astronomy with the public. Special mention must go to the Society for Popular Astronomy, whose enthusiasm spurred on many local societies and groups and who led the very ambitious 'Telescopes for Schools Projects'. Many other societies contributed hugely, and their endeavours can be found in this report of the year in the UK. Especially pleasing was the way in which science centres and planetariums were involved, and in reflection it is clear that the Year offered them a number of opportunities to undertake different projects and to push the envelope, something that in all probability they would not have done without the additional stimulus. One glittering example of how the Year spurred organisers to greater heights was the award of the '*Best Tourism Experience'* by the 'Visit London Awards' (the premier tourist attraction oversight for London) to the Royal Observatory Greenwich for their highly successful contribution to the year-long IYA2009 celebrations. Another of the huge successes of the year was 'We are Astronomers', a fabulous digital planetarium show, sponsored by STFC and run in a number of planetariums in the UK – this will have a definite legacy value and hopefully a worldwide audience in due course.

However, it was not only the societies and organisations that made major contributions; at the end of the day success comes down to individuals, and in this we were especially fortunate in have a large cadre of highly dedicated and enthusiastic astronomers who led the way. These individuals organised events, drove societies, fought for funding, battled obstacles and the weather and still delivered a vibrant programme of events throughout the year. Without these people we would not be looking back with such pride and admiration for the way the year turned out, very hard work but hugely rewarding to all who took part.

Of course such success comes down to planning and while the year was delivered 'bottom-up', there was a lot of 'top-down' organisation going on behind the scenes to make the year successful. Planning started in 2006 and thanks must be given to those who took part in those early days, especially to those who supplied funding to make it all happen. While private funding initiatives essentially stalled in the financial crisis of 2008, nevertheless, the Royal Astronomical Society (RAS), Science and Technology Facilities Council (STFC) and the Institute of Physics all contributed major sums to provide both the organisation (the funding for the Coordinator and the Executive Committee) and grants for a huge range of events contributing to the Year.

Within the UK we had two overall aims for the Year: make the public more aware of the excitement and content of modern astronomy undertaken within the UK; engender interest in children to take up studies and careers in STEM subjects. We certainly succeeded in the first and hopefully we will have made inroads into the second, although only time will tell and evaluation will be almost impossible. Within these aims we had a

number of specific objectives, most of which have been conclusively met, and as demonstrated by the evaluations. So looking back this has been a vastly worthwhile achievement by many hundreds of individuals and it to them that the credit is due.

This Report outlines the organisation of IYA2009 within the UK, activities undertaken and the huge range of events; that to me is the highlight of the year. While we had the huge success of the world's first Dark Sky Part outside of the USA, other events such as public lectures and star parties were expected (and undertaken in vast numbers), but the range of 'out of the blue' activities that from a 'top-down' perspective were totally unexpected, was just amazing. Examples include portraits of astronomers by two photographers, an artistic rendering in the Tate Modern, well dressing in a Derbyshire village, numerous examples of 'guerrilla astronomy', astronomy at the Glastonbury Festival, 'Moonbounce' from Jodrell Bank, astronomy plays, shows and even a special choral work for the BBC Symphony Orchestra. The impact of the 'new media', especially Twitter, was a huge success, led by the UK, and this must be a signpost to how we need to consider ways of communicating astronomy with the younger generation in this mobile-media era.

This report is extensive because we wished to make a comprehensive record of the events and to acknowledge the efforts of all those who took part in some way. A short 'glossy' publication will also be produced and all of the information about IYA2009, including these two publications, will be on the IYA2009 webpage (www.astronomy2009.co.uk), which will be 'frozen' and its successor used in a legacy mode of 'astronomy events locator', one of the big successes of the year. Finally, I wish to record my huge thanks to Steve Owens, the UK IYA2009 Coordinator; without whom much of the success of the year would not have been possible. Well done Steve, a brilliant job.

Professor Ian Robson

Chapter 1 Introduction

The International Year of Astronomy 2009 (IYA2009) was an exciting global celebration of astronomy and its contributions to society and culture. Coinciding with the 400th anniversary of Galileo's first glimpses through a telescope, an event that heralded the birth of modern astronomy, it gave people all over the world the chance to get involved in this fascinating science and experience the wonders of the night-time sky.

With the participation of 140 countries worldwide, and with events taking place regionally, nationally and globally throughout the year, IYA2009 not only allowed people to observe first-hand some of the amazing celestial bodies that make up our Universe, but provided a wide variety of events and projects, from touring astronomy exhibitions to virtual blog interactions with practicing astronomers. It was by far and above the most successful and largest global science education and public outreach event in history[1].

Projects like "She is an Astronomer" provided positive role models for female students considering a future in science, while projects like the "Universe Awareness" focused on sharing the wonders of astronomy with young disadvantaged children.

Astronomy has come a long way in the last 400 years and has vastly changed our understanding of the Universe. IYA2009 gave those involved a chance to share some of these amazing and often breathtaking discoveries with the public and reveal why astronomy, one of the oldest sciences, is also one of the most exciting. The UK was a very active participant in IYA2009 and hosted an amazing series of events. These ranged from major activities such as Spring and Autumn Moonwatches, to a competition for 1,000 secondary schools to win a telescope; a national programme of dark-sky activities dedicated to having as many members of the public looking up at the night sky as possible, to thousands of local sidewalk astronomy events and many, many diverse activities that will be described in this report.

The Science and Technology Facilities Council (STFC), the Royal Astronomical Society (RAS) and the Institute of Physics (IOP) supported UK national co-ordination of the year and also many specific activities through their public engagement schemes.

The UK Single Point of Contact (SPoC) was Professor Ian Robson at the Royal Observatory Edinburgh, who is also Chair of the UK Executive Group. The UK Co-ordinator was Steve Owens. Both are employed by STFC.

1.1 Summary of the Goals and Objectives of IYA2009

The goals of IYA2009 in the UK were a major subset of those of the International IYA2009 and were:

1. Increase scientific awareness.
2. Promote widespread access to new knowledge and observing experiences, specifically observing through a telescope.
3. Support and improve formal and informal science education.
4. Provide a modern image of science and scientists.
5. Facilitate new networks and strengthen existing ones.
6. Improve the gender-balanced representation of scientists at all levels and promote greater involvement by underrepresented minorities in scientific and engineering careers.
7. Facilitate the preservation and protection of the UK's cultural and natural heritage of dark skies in places such as urban oases, national parks and astronomical sites.

The two main aims could be encapsulated by: making the public more aware of the excitement and content of modern astronomy undertaken within the UK; to engender interest in children to taking up studies and careers in STEM subjects.

[1] See IYA2009 Global Report http://www.eso.org/~lchriste/trans/IYA/IYA2009_Report_alpha_release_0.74_10.pdf

In order to meet the above goals a set of objectives and key performance indicators were set by the global secretariat. These were adapted by the UK executive group to form the UK goals and objectives.

Table 1: IYA2009 UK Goals and Objectives

Goals	Objectives	Key Performance Indicators
1. Increase scientific awareness among the UK public through the communication of scientific results in astronomy and related fields, as well as the process of research and critical thinking that leads to these results, with particular emphasis to UK astronomy.	• Make UK astronomical breakthroughs more visible in the daily lives of UK citizens through all available means of communication (TV/radio documentaries, newspapers, web pages, exhibitions, stamps, blogs, web portals, advertising campaigns etc). • Facilitate individual astronomical observing opportunities by working with the UK amateur and professional astronomy community and the professional science communication networks.	• The number of people reached within UK. • Number of press clippings and readership in UK media. • Number of people visiting www.astronomy2009.co.uk (web stats). • Number of activities run in the UK.
2. Promote widespread access to the universal knowledge of fundamental science through the excitement of astronomy and stargazing experiences.	• Enable as many people as possible, especially children, to look at the sky through a telescope and gain a basic understanding of the Universe.	• Number of people, especially young people and children, viewing the Universe through a telescope at astronomy events, star parties, professional observatory webcasts etc. • Number of new telescopes distributed to UK schools.
3. Support and improve formal and informal science education in UK schools as well as through science centres, planetariums and museums.	• Develop formal and informal educational material and distribute to schools. • Conduct focused training of teachers as part of their continued professional development.	• Number of participating teachers and schools. • Number of educational materials distributed. • Number of new teachers trained.
4. Provide a modern image of science and scientists to reinforce the links between science education and science careers, and thereby stimulate a long-term increase in student enrolment in the fields of science and technology, and an appreciation for lifelong learning.	• Popular talks by scientists of all ages and genders • Facilitate portraits - on TV, in web blogs, biographies - of scientists that break with the traditional "lab coat view" of scientists, showing the excitement of scientific discovery, the international aspect of scientific collaborations, and the UK's involvement in global astronomy	• Number of popular talks. • Number of scientist portraits. • Evidence for penetration of astronomy into popular culture (media, web, TV, radio) • Evaluation of long term effects should be monitored downstream
5. Facilitate new, and strengthen existing, networks by connecting amateur astronomers, educators, scientists and communication professionals through local, regional, and national UK activities.	• Connect as many individuals as well as organisations (amateur and professional) in networks, for instance by creating of new internal and external electronic communication infrastructures. These networks will become part of the heritage of IYA2009.	• Number of new networks and partnerships formed within UK.

6. Improve the gender-balanced representation of scientists at all levels and promote greater involvement by underrepresented minorities in scientific and engineering careers.	• Provide access to excellent role models and mentors, formally and informally, and publicise them. • Provide information about the female "dual-career" problem and possible solutions.	• Number of active new role models and mentors. • Number of new national and international partnerships, projects and activities. • Evaluation of long-term effects should be monitored downstream
7. Facilitate the preservation and protection of the UK's cultural and natural heritage of dark skies in places such as urban parks, national parks and astronomical sites, through the awareness of the importance and preservation of the dark skies and astronomical sites for the natural environment and humanity heritage	• Involve the existing UK dark-sky community in the IYA2009. • Collaborate on the implementation of the UNESCO and IAU "Astronomical and World Heritage" initiative. • Lobby the organizations, institutions, as well as local, regional and national governments to approve preservation laws for dark skies and historical astronomical sites. • Bring the issues of natural environment and energy preservation to the agenda of decision makers.	• Number of activities and events related with the night sky protection. • Number of countries/cities with the laws or guidelines for dark-sky preservation. • Areas protected by dark-sky laws. • Number of historical astronomical sites identified and protected under the UNESCO's World Heritage Convention

1.2 Evaluation

The evaluation of the goals and objectives of the IYA 2009 events in the UK was carried out by the IYA2009 UK Co-ordinator.

Quantitative evaluation was carried out in order to measure:

- Number of IYA2009 UK events
- Number of participants
- Range of event organisers
- Range and variety of projects
- Media impact

In addition, extended evaluation was carried out on two of the largest IYA2009 projects in the UK:

- From Earth to the Universe
- Telescopes for Schools

The resources available did not permit us to measure impact on participants beyond these two projects. The evaluation of the Cornerstone projects is described after each section in Chapter 3 and for other projects and the whole year in Chapters 4-7.

Chapter 2 IYA2009 Organisation in the UK

2.1 The Structure of the IYA2009 UK National Node

2.1.1 The UK Single Point of Contact for IYA2009 (SPoC)

Professor Ian Robson, Director of UK Astronomy Technology Centre[2] (UKATC) and President of the International Astronomical Union Commission 55 ("Communicating Astronomy with the Public")[3] was named in 2006 as the Single Point of Contact (SPoC) for IYA2009 in the UK.

2.1.2 Developing the IYA2009 UK National Node

During 2007-8 the IYA2009 UK National Node was developed in three main ways:

1. IYA2009 Executive Group established, consisting of
    a. Science and Technology Facilities Council (STFC)[4]
    b. Royal Astronomical Society (RAS)[5]
    c. Institute of Physics (IOP)[6]
2. Three meetings were held of the IYA2009 Working Group consisting of members of the Executive Group plus other astronomy organisations in the UK, including
    a. Society for Popular Astronomy (SPA)[7]
    b. British Astronomical Association (BAA)[8]
    c. National Astronomy Week Working Group (NAWG)[9]
    d. Federation of Astronomical Societies

    This group gave advice and opinion on what the astronomy community in the UK would like to see from IYA2009, and agreed dates for special events and project (see Chapters 2.4.1, 2.4.2 and 2.4.3). The group was wound down in 2008 following the appointment of the UK Co-ordinator and consolidation of plans for the major events.
3. Funding agreed (see Chapter 2.2) from the three member organisations of the IYA2009 Executive Group to establish a full-time IYA2009 UK Co-ordinator role to lead the day-to-day activities of the IYA2009 UK National Node. This role was funded from January 2008 to March 2010.

2.1.3 The UK Co-ordinator for IYA2009

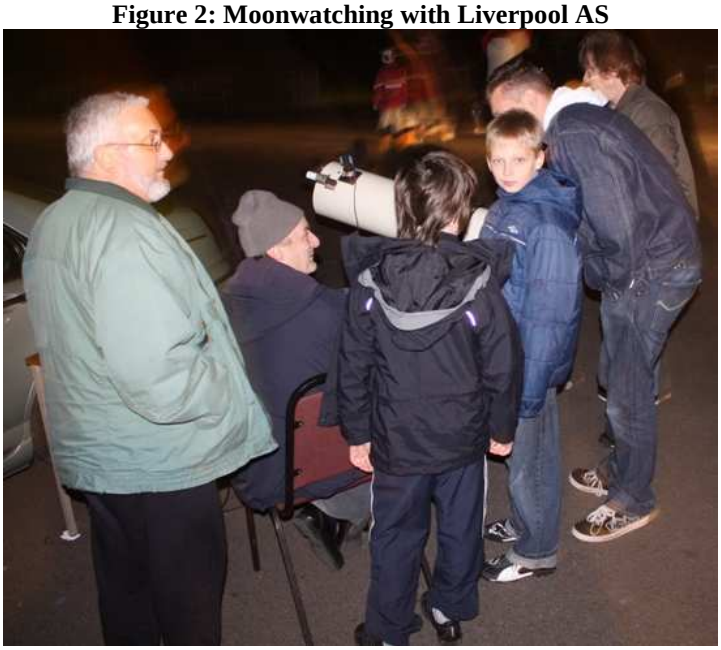
Steve Owens was employed as of 28 January 2008 in the role of UK Co-ordinator for IYA2009. He reported directly to Professor Ian Robson, and through him to the UK Executive Group. The role was created as an STFC position, operating under the organisational structure of the UK Astronomy Technology Centre (UKATC). However, due to the national nature of the role it was agreed that the day-to-day workings of the role would operate from a desk hired from Glasgow Science Centre (GSC)[10].

To ensure the role fulfilled its requirements, regular planning meetings were held throughout 2008 between Steve Owens and Ian Robson, and between Steve Owens and the IYA2009 UK Executive Group.

[2] http://www.roe.ac.uk/ukatc/
[3] http://www.communicatingastronomy.org/
[4] http://www.stfc.ac.uk/
[5] http://www.ras.org.uk/
[6] http://www.iop.org/
[7] http://www.popastro.com/
[8] http://britastro.org/baa/
[9] http://www.astronomyweek.org.uk/
[10] http://www.glasgowsciencecentre.org/

Figure 1: Stargazing at a Macclesfield AS Star Party

Figure 2: Moonwatching with Liverpool AS



2.2 Funding for IYA2009 UK

IYA2009 was funded in the UK in three distinct ways:

1. Central funding committed by the IYA2009 UK Executive Group member organisations to fund the UK Co-ordinator salary, travel, marketing materials, evaluation and report production (£105k)
2. Small and large award grant schemes from a range of organisations to which UK astronomers, both professional and amateur, along with others could bid to fund local and national events. The main sources of events grants were:
    a. STFC Small Awards[11] (£500 - £10k)
    b. STFC Large Awards[12] (up to £100k)
    c. STFC Science Centre Awards[13] (up to £20k)
    d. RAS IYA2009 Grant Scheme[14]
    e. IOP Public Engagement Grant Scheme[15]
    f. IOP Scotland Public Engagement Grant Scheme[16]
    g. Scottish Government IYA2009 Science Engagement Grants[17]
3. Other non-science based grant schemes which funded arts-based projects with an astronomy theme, as a result of IYA2009. Awards in 2 & 3 totalled £610k.

In addition to these funding routes, it is recognised that a huge amount of in-kind support was given by the astronomy community in the UK, who organised and ran events on a volunteer basis in virtually all cases.

Finally, the IOP and RAS press offices provided in-kind support to the tune of an estimated £24k.

2.2.1 Central Funding for IYA2009 in the UK

The IYA2009 UK Executive Group committed the following funds to the central organisational structure of IYA2009 in the UK:

1. STFC £40k
2. RAS £40k **Total £105K**
3. IOP £25k

This money was held operationally by the finance department of the UKATC, and spend was broken down as follows:

- IYA2009 UK Co-ordinator Salary (Feb 2008 to Mar 2010) ~£70k
- Travel/accommodation/expenses/conferences ~£15k
- Final report production/printing costs ~£3k
- Marketing, flyers and miscellaneous ~£5k
- Underspend ~£12k (contributing towards funding Beyond IYA – see Chapter xx)

[11] http://www.stfc.ac.uk/PandS/Fund/Sml/SmallWin.aspx
[12] http://www.stfc.ac.uk/PandS/Fund/Lge/LargeWin.aspx
[13] http://www.stfc.ac.uk/PandS/Fund/Centres/SciSchemeWin.aspx
[14] http://www.ras.org.uk/index.php?option=com_content&task=view&id=233&Itemid=105
[15] http://www.iop.org/about/grants/outreach/page_38843.html
[16] http://www.iopscotland.org/activity/Engaging%20the%20Public/page_25699.html
[17] http://www.scotland.gov.uk/Topics/Business-Industry/science/16607/Scienceengagement/engagement-grants

2.2.2 Grant Schemes Supporting IYA2009 UK

The following grant scheme supported IYA2009 UK activities:

Table 2: IYA2009 UK Grant Schemes

Organisation / Grant Scheme	Total Amount Awarded for IYA2009 events	Number of Projects Funded	Comments
STFC Small Awards 2008A	£10,000	1	
STFC Small Awards 2008B	£61,772	9	
STFC Large Awards 2007	£142,300	2	We Are Astronomers Planetarium Show & Explorers of the Universe photographic exhibition
STFC Large Awards 2008	£70,000	1	Journey Through the Cosmos (Teachers TV)
RAS IYA2009 grant scheme 2008A	£57,242	15	
RAS IYA2009 grant scheme 2008B	£92,127	45	
RAS IYA2009 grant scheme 2009A	£29,984	29	
IOP Public Engagement Grant 2008	£1,000	1	
IOP Public Engagement Grant 2009 round 1	£6,000	6	
IOP Public Engagement Grant 2009 round 2	£4,000	4	
IOP Scotland	£4,350	3	
Scottish Government Special Events Grants	£127,825	7	Fund specifically for IYA2009 and Darwin Year events
Scottish Government Grants 2008-09	2,868	1	Normal round of funding
TOTAL	£609,468	122	

Chapter 3 Global Cornerstone Projects in the UK

The International Year of Astronomy 2009 was supported globally by twelve Cornerstone projects. These were programmes of activities centred on specific themes and were some of the projects that helped to achieve IYA2009's main goals; whether it was the support and promotion of women in astronomy, the preservation of dark-sky sites around the world or educating and explaining the workings of the Universe to millions, the twelve Cornerstones were key elements in the success of IYA2009.

The involvement from the IYA2009 UK National Node in each of these twelve Cornerstone projects is outlined in chapters 3.1 – 3.10. The degree of involvement varied between each Cornerstone, from very active involvement, where the project was run by the UK Node, to interested support, to no central support. Nevertheless, even where there was no direct central support from the UK National Node, the UK was actively involved at some level in all Cornerstone projects.

Table 3: UK Involvement in Global Cornerstone Projects

Cornerstone Project Title	UK National Node Involvement	Chapter	UK involvement in Global Steering Group
From Earth to the Universe[18]	High level involvement – ran by UK Node	3.1	
Dark Skies Awareness[19]	High level involvement – ran by UK Node	3.2	Member
100 Hours of Astronomy[20]	High level involvement – ran by UK Node	3.3	Member
Galilean Nights[21]	High level involvement – ran by UK Node	3.4	
She is an Astronomer[22]	Active involvement, supported by UK Node	3.5	Chair
Astronomy and World Heritage[23]	Supported by UK Node	3.6	Member
Universe Awareness[24]	Supported by UK Node	3.7	
Galileo Teacher Training Programme[25]	No central involvement	3.8	Member
Galileoscope[26]	No central involvement	3.9	Member
Cosmic Diary[27]	No central involvement	3.10	

[18] http://www.fromearthtotheuniverse.org/
[19] http://www.darkskiesawareness.org/
[20] http://www.100hoursofastronomy.org/
[21] http://www.galileannights.org/
[22] http://www.sheisanastronomer.org/
[23] http://www.astronomy2009.org/globalprojects/cornerstones/astroworldheritage/
[24] http://www.unawe.org/
[25] http://www.galileoteachers.org/
[26] https://www.galileoscope.org/
[27] http://www.cosmicdiary.org/

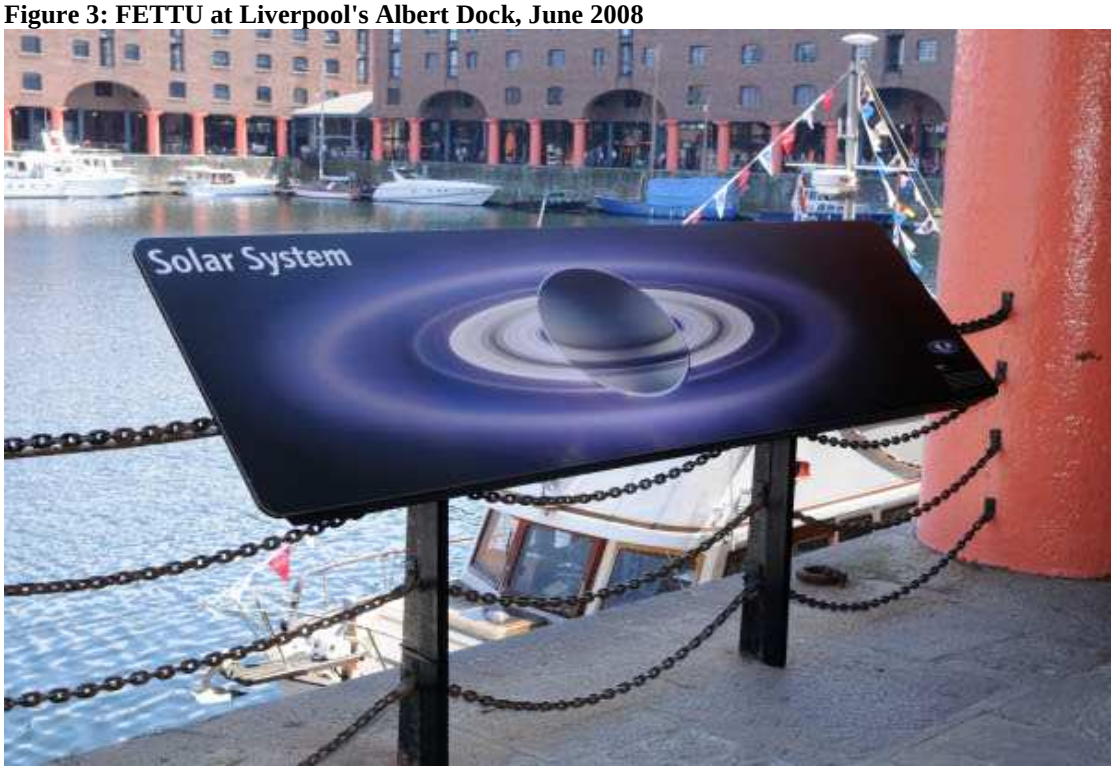
3.1 From Earth to the Universe

From the *From Earth to the Universe* page of www.astronomy2009.org

> With images taken from both ground- and space-based telescopes, 'From Earth to the Universe' (FETTU) showcased the incredible variety of astronomical objects that are known to exist. The exhibit also showed how these objects look when viewed across the electromagnetic spectrum, from the ultraviolet and visible light to infrared and radio and in X-rays and gamma rays.
>
> FETTU was shown in non-traditional public venues such as parks and gardens, shopping malls, metro stations and airports in major cities across the world. The FETTU images were selected for their stunning beauty to engage members of the general public who might normally ignore or avoid astronomy. With short, but informative captions on each panel, FETTU introduced some basics of the science involved once an individual has been drawn to the image.

Within the UK FETTU project 25 large (3m x 0.8m) full-colour, weatherproof outdoor image panels were produced using images from the Science Photo Library[28] (SPL). The prototype exhibition was first displayed at Liverpool's Albert Dock as part of the ASTRONET Infrastructure Roadmap Symposium[29] in June 2008.

Figure 3: FETTU at Liverpool's Albert Dock, June 2008



This installation was produced and installed by The Image Group UK[30]. The total cost of this prototype display was ~£10k, paid for by the SPL.

After being displayed in Liverpool the SPL graciously donated the panels to IYA2009 UK Node for use on-tour during 2009.

[28] http://www.sciencephoto.com/
[29] http://www.astro.ljmu.ac.uk/~airs2008/
[30] http://www.imagegroupuk.com/

Further funding was granted, to the tune of £30,000, from the Royal Astronomical Society to pay for all transport, storage, installation and take-down costs during IYA2009. The exhibition was project managed by Steve Owens, UK Co-ordinator.

The aims of FETTU UK were:

1. To tour the FETTU exhibition widely across the UK, visiting all four nations, and with as wide a geographical spread as possible
2. To situate the FETTU exhibition in as many "non-standard" venues as possible, i.e. to situate it in places where unsuspecting members of the public would encounter it, rather than in venues where visitors had already chosen to engage with science ('guerrilla astronomy')
3. Maximise the audience numbers seeing the FETTU exhibition by situating it in busy central locations
4. To encourage local organisation of astronomy events e.g. star-parties, sidewalk astronomy, talks and tours, to coincide with the installation of the FETTU exhibition at each venue
5. To formally evaluate the impact of the FETTU exhibition on visitors to a selection of the venues

Table 4: FETTU Exhibition Venues

Venue	Dates	Total # of Days	Visitor Numbers	Comments
Liverpool Albert Dock	08 Jun - 24 June	17	TBC	as part of ASTRONET
Royal Dublin Society, Dublin	04 – 16 January 2009	13	50,000*	as part of the BT Young Scientists and Technology Exhibition
Glasgow Science Centre, Glasgow	19 Feb – 23 Mar 2009	33	12,375	
St Andrew's Square, Edinburgh	24 Mar – 27 Apr 2009	35	135,000*	as part of Edinburgh International Science Festival
Eureka Children's Museum, Halifax	04 May – 06 June 2009	33	20,000	
Belfast City Hall, Belfast	13 June – 17 July 2009	35	150,000*	as part of the Belfast Carnival
Techniquest Science Centre, Cardiff	22 Jul – 10 Aug 2009	20	13,800	
Oxford University Parks, Oxford	29 Aug – 26 Sep 2009	29	15,000	
Museum of Science and Industry, Manchester	13 Oct – 15 Nov 2009	32	26,000	as part of Manchester Science Festival
Stonehenge, Wiltshire	11 Dec 2009 – 04 Jan 2010	25	15,000	as part of IYA2009 UK final event "Winter Solstice Observing at Stonehenge"
TOTAL		255	437,175	

* estimates of visitor numbers

3.1.1 Evaluating the Aims of FETTU

1. To tour the FETTU exhibition widely across the UK, visiting all four nations, and with as wide a geographical spread as possible

As the table above shows there was a wide spread of venues across the UK, with 2 venues in Scotland, 1 in Wales, 1 in Northern Ireland, and 6 in England. This demonstrates that Aim 1 was met.

One negative in this regard was the inability to secure a central London venue. This was as a result of time pressure to finalise the venue list, as well as a general difficulty in placing exhibitions in outdoor spaces in London.

2. To situate the FETTU exhibition in as many "non-standard" venues as possible, i.e. to situate it in places where unsuspecting members of the public would encounter it, rather than in venues where visitors had already chosen to engage with science

Of the ten venues where FETTU appeared only three of these were "standard" science centre venues (Glasgow, Cardiff and Manchester). These venues were chosen as they represented an expeditious way of securing venues within those cities. It turned out that these standard venues were significantly simpler to arrange than the "non-standard venues", but this was not part of the selection process.

While other venues hosted FETTU as part of a science festival or projects (e.g. Edinburgh as part of the Edinburgh International Science Festival; Dublin as part of BT Young Engineers Festival) the locations were in central public areas, and so these venues cannot be considered as "standard" science venues and definitely achieve the aim of 'guerrilla astronomy'.

3. Maximise the audience numbers seeing the FETTU exhibition by situating it in busy central locations

It is clear from the table above that by far the most successful venues were those where FETTU was situated in a central location in a city (Edinburgh and Belfast). The visitor figures for these venues are difficult to measure, and the figures in the table above represent an estimate based on measured average footfall in these venues during the exhibit period.

In total an estimated 437,000 people were exposed to FETTU in the UK. The actual multiplier for number of people who stopped and had a more in-depth experience is difficult to measure, but we estimate this at approx 20%, meaning that 87,400 people had a more extensive experience of FETTU.

4. To encourage local organisation of astronomy events e.g. star-parties, sidewalk astronomy, talks and tours, to coincide with the installation of the FETTU exhibition at each venue

Unfortunately, this aim was not widely met in many of the venues, the exceptions being Edinburgh (where astronomers ran stargazing sessions to coincide with FETTU and the Edinburgh International Science Festival), and Stonehenge (where FETTU featured as part of the "Winter Solstice" event organised by the Royal Astronomical Society's Astronomy Heritage Committee (see Chapter 3.6). The reasons for the lack of success are hard to pinpoint, but lack of general effort being one and conflicting with other events (e.g. the Moonwatches) being another.

5. To formally evaluate the impact of the FETTU exhibition on visitors to a selection of the venues
A formal evaluation of FETTU was carried out by Christine Murphy as part of a Masters in Science Communication project. The full evaluation report produced can be found online at www.astronomy2009.co.uk.

This evaluation was carried out at three of the ten venues: Belfast, Cardiff and Oxford

The aims of the FETTU evaluation project were:

- To investigate the intentions and expectations of the designer of From Earth to the Universe
- To quantitatively and qualitatively analyse visitors' profile, awareness of the International Year of Astronomy 2009 and reactions to the exhibition in three different venues
- To investigate how the layout of the exhibition at three contrasting venues (Cardiff Techniquest, Belfast Carnival, and Oxford University Parks) impacts on the engagement of the visitors with the exhibition.

The headline figures from the evaluation show that 90% of people thought that FETTU was either "very good" or "good", and 93% thought it was "very appealing" or "appealing" In addition 21 out of 56 people said they learned "a lot" or "something" compared to only 11 out of 56 who had learned "nothing"

3.1.2 Conclusion from FETTU Evaluation Report

We are very pleased with the overall success of FETTU UK. Most of the designer's intentions and expectations were met and the data collected at the three venues enabled conclusions to be drawn relating to visitors' profile, reactions and awareness of the IYA2009.

- The audience attracted to the FETTU exhibition spanned all age groups and consisted of both genders. The majority had a degree level of education and were taxpayers.
- Visitor reactions to the FETTU exhibition were positive with the vast majority of respondents considering the exhibition to be 'very good' and 'very appealing'.
- An increase in interest in astronomy was demonstrated amongst those who had less prior interest in astronomy.
- Although prior awareness of the IYA2009 was low, the FETTU exhibition provided a medium for advertising and increasing public awareness of the IYA2009.

Additional intention and expectations of the designer were met:

- The use of a 'non-traditional' science communication venue attracted a 'non-specialist' astronomy audience.
- The aesthetic nature of the FETTU exhibition provided a positive method of communicating astronomy to the public
- Those with less prior knowledge of astronomy demonstrated learning after viewing the FETTU exhibition.

The designer's intention to portray a narrative within the exhibition was most recognisably achieved at Cardiff Techniquest, where the use of a structured layout enabled a more efficient communication of the narrative and visitors engaged with the exhibition for a longer period of time.

Overall this event was well organised by Steve Owens and the Image Group UK. It proved good value for money in terms of the number of people it reached and the positive exposure to the general public. The personal feedback from people was extremely encouraging.

3.1.3 Reflecting on FETTU

Ian Robson and Steve Owens reflect on the successes, challenges and issues of FETTU in the UK:

From Earth to the Universe proved to be one of the more successful IYA2009 UK Cornerstone projects. As the evaluation above shows it was positively viewed by many tens of thousands of people, and generally met our aims well.

Overall we were very happy with the venues that hosted FETTU, but ultimately we would have preferred more "non-standard" city centre venues such as those we had in Edinburgh and Belfast. However, given the

resources and time available this was not possible, but in retrospect it may have been worthwhile sacrificing one or more of the standard science venues for an additional city centre venue, which although would have reduced the venue number, would have increased the display time at each venue, and dramatically increased the visitor footfall. In this light, although the tour was well distributed geographically, we were unable to secure a venue in either London or Birmingham, both of which were high on our list of preferred locations. We would recommend future projects to focus on a smaller number of venues and devote efforts to securing city-centre space in four or five major cities to truly maximise the impact.

As noted above, the one aim of FETTU that was not met was *4*. It may also be the case that we did not push the requirement from the top but left it to individual venues to organise and we were unable to offer a great deal of support in order to make it happen. If running FETTU again we would suggest building this aspect into the funding (providing a few hundred pounds per venue to support local astronomical societies in running events) and the project management of the overall tour package, rather than leaving it to individual venues where resources might be scarce to support such events.

Figure 4: FETTU in Oxford

Figure 5: FETTU in Edinburgh

3.2 Dark Skies Awareness

From the *Dark Skies Awareness* page of www.astronomy2009.org

> The arc of the Milky Way seen from a truly dark site is part of our planet's cultural and natural heritage. It is now more urgent than ever to preserve and protect dark night skies in places such as urban cultural landscapes, national parks and sites connected with astronomical observations, as well as to support the goals of UNESCO's thematic initiative, Astronomy and World Heritage, to preserve sites of astronomical importance for posterity. The ongoing loss of a dark night sky for much of the world's population is a serious and growing issue that not only impacts astronomical research, but also human health, ecology, safety, security, economics and energy conservation. According to the United Nations, around 3.3 billion people, over half of the world's population, live in cities. With the growth of large cities, the number of people living in cities could climb to 5 billion by 2030. As cities grow, so does their impact on the global environment.
>
> For this Cornerstone project the IAU and UNESCO collaborate with the US National Optical Astronomy Observatory, representatives of the International Dark-Sky Association, the Starlight Initiative and other national and international partners in dark-sky and environmental education on several related themes. The focus is on three main citizen-scientist programmes that measure local levels of light pollution. These programmes take the form of "star hunts" or "star counts", providing people with a fun and direct way of acquiring heightened awareness of light pollution through firsthand observations of the night sky. The three programmes cover the entire IYA2009, namely GLOBE at Night (in March), the Great World Wide Star Count (in October) and How Many Stars (January, February, April through September, November and December). During IYA2009, GLOBE at Night set a new record, with 80% more observations of the world's dark skies than the programme's previous best.[31]

The Dark Skies Awareness cornerstone project in the UK had two main components:

Dark Sky Parks, an effort to have UK parks adopt dark-sky friendly policies and to work towards formal recognition as International Dark Sky Parks or Reserves as part of the International Dark-sky Association's (IDA[32]) Dark Sky Places programme

Dark Sky Discovery[33], a community engagement programme focusing on dark-sky astronomy events for family and community group audiences. This was modelled on the hugely successful Dark Sky Scotland[34] project.

3.2.1 Dark Sky Parks in the UK

The IDA's International Dark Sky Places programme aims to

> certify locations with exceptional nightscapes as International Dark Sky Communities (IDSC), International Dark Sky Parks (IDSP), and International Dark Sky Reserves (IDSR). These locations serve as reminders that with quality outdoor lighting, the extraordinary wonders of the night-time sky and night environment are just as much a part of our lifestyle and history as are the daylight hours.[35]

Before IYA2009 there were only six certified International Dark Sky Places. These were:

- Flagstaff, Arizona (International Dark Sky Community)
- Borrego Springs, California (International Dark Sky Community)
- Natural Bridges National Monument, Utah (International Dark Sky Park)
- Cherry Springs State Park, Pennsylvania (International Dark Sky Park)
- Geauga Park, Ohio (International Dark Sky Park)
- Mont Megantic National Park, Quebec (International Dark Sky Reserve)

[31] From http://astronomy2009.org/globalprojects/cornerstones/darkskiesawareness/
[32] http://darksky.org
[33] http://www.darkskydiscovery.org.uk/
[34] www.darkskyscotland.org.uk
[35] From http://darksky.org/mc/page.do?sitePageId=56446&orgId=idsa

The aims of Dark Sky Parks UK were:

1. To identify those UK parks which meet the minimum criteria for International Dark Sky Park and Reserve status
2. To establish contact with each of the qualifying parks and raise awareness of the International Dark Sky Places programme
3. To support those parks interested in pursuing International Dark Sky Park or Reserve status
4. To establish the UK's first International Dark Sky Park or Reserve Status during IYA2009 or the following year

This project was driven by Steve Owens

Table 5: UK parks Eligible for International Dark Sky Park / Reserve Status

Park Name	Park Type	Contact Made?	Current Status
Galloway Forest Park	Forestry Commission Scotland park	Yes	Established November 2009 as UK's first International Dark Sky Park
Brecon Beacons National Park	UK National Park	Yes	Expression of interest
Broads National Park	UK National Park	No	No contact
Cairngorms National Park	UK National Park	Yes	Expression of interest
Dartmoor National Park	UK National Park	Yes	No further progress
Exmoor National Park	UK National Park	Yes	Actively pursuing International Dark Sky Reserve status
Lake District National Park	UK National Park	Yes	No further progress
Loch Lomond National Park	UK National Park	Yes	Actively pursuing International Dark Sky Reserve status
New Forest National Park	UK National Park	Yes	No further progress
Northumberland National Park	UK National Park	Yes	No further progress
North York Moors National Park	UK National Park	Yes	No further progress
Peak District National Park	UK National Park	Yes	Actively pursuing International Dark Sky Reserve status
Pembrokeshire Coast National Park	UK National Park	No	No contact
Snowdonia National Park	UK National Park	Yes	No further progress
South Downs National Park	UK National Park	No	No contact
Yorkshire Dales National Park	UK National Park	Yes	No further progress

In this table the "Contact Made?" column describes whether the park in question replied to the multiple emails sent from Steve Owens to all nation parks in early 2008. All national parks were contacted, but only some replied and established proper contact. It is not known why some parks chose not to participate.

Of those that replied, some did not pursue the status actively, and they are marked with "No further progress" on column four. Those that did not reply to initial emails are marked with "No contact".

3.2.2 Evaluating the Aims of Dark Skies Parks UK

1. Identify those UK parks which meet the minimum criteria for International Dark Sky Park and Reserve status

The IDA has two levels of status; that of International Dark Sky Park and International Dark Sky Reserve. Park status applies to those parks where the entire area of the park can be made night-sky friendly; for those parks where this is not possible there is Reserve status, where a core area can be designated as night-sky friendly, while the surrounding peripheral area does not need to meet such strict controls.

The eligibility criteria set by the IDA for International Dark Sky Parks are as follows:

A. All protected public lands, whether managed by national, state, provincial, or local agencies, are eligible. These may include parks, refuges, forests, wilderness areas, monuments, protected rivers, or other categories of protected lands.
B. Park must provide the opportunity for public night time access. A portion of designated land may meet this requirement, or access must be available for a portion of the night
C. Park must have an outstanding dark sky resource relative to the population it serves and have locally, regionally, or nationally significant dark sky resources;
D. Park night sky must be of minimum quality or better— at a minimum the Milky Way should be visible and sky conditions should approximately correspond to limiting magnitude 5.0 or Bortle Class 6
E. If a park unit is over 50,000 ha (123,550 acres/193 square miles), a portion of the park may be designated as a Dark Sky Park. This portion must incorporate relevant park developed areas that serve the designated DSP area[36]

The eligibility criteria set by the IDA for International Dark Sky Reserves are as follows:

A. The core of the IDSR must be a public or a private land protected for scientific, natural educational, cultural, heritage and/or public enjoyment mission
B. The core of the IDSR is encouraged to provide the opportunity for public night time access. A section of designated land (preferably within or near the core) may meet this requirement for a portion of time
C. The core of the IDSR must have identified the sources of light pollution through calculations, maps, photographs or any other proper method AND clearly identify actual and future threats to the sky quality. They must then define appropriate areas of protection outside the core
D. The peripheral area must be a minimum of 700 km² (435 miles squared) around the core (roughly equivalent to a 15 km/9.5 mile radius) OR an area sufficient to mitigate 80% of current and expected future light pollution threats
E. Core of the IDSR must have an outstanding dark sky resource relative to the population it serves and have local, regional and/or national significant dark sky resources.[37]

Given these eligibility criteria it was clear that all UK National Parks were eligible for both International Dark Sky Park and Reserves status. In addition to these 15 parks, Galloway Forest Park in the SW of Scotland was also identified as eligible.

2. To establish contact with each of the qualifying parks and raise awareness of the International Dark Sky Places programme

As can be seen from Table 2.3.2 above, Steve Owens made contact with all but two of the sixteen eligible parks in the UK. Contact was initially made by email, followed up by a telephone conversation with the interested park representative.

[36] http://data.nextrionet.com/site/idsa/dsp-international-dark-sky-park.pdf (PDF)
[37] http://data.nextrionet.com/site/idsa/IDSR.pdf (PDF)

Throughout 2008, Steve Owens gave talks on the International Dark Sky Places programme at Exmoor, Yorkshire Dales, Peak District, Cairngorm and Loch Lomond National Parks to relevant park representatives.

3. To support those parks interested in pursuing International Dark Sky Park or Reserve status

After preliminary contact and information exchange with interested parks, four parks expressed a desire to pursue International Dark Sky Park or Reserve status:

- Galloway Forest Park[38]
- Exmoor National Park[39]
- Loch Lomond National Park[40]
- Peak District National Park[41]

Support was given or is being given to these parks in the following manner:

- Loan of all-sky fisheye lens camera and sky quality meter, to allow measurements to be taken of sky brightness throughout the parks. This kit was purchased thanks to a grant of £2,022 from the Royal Astronomical Society.
- Contact established between park and local astronomical society to assist with carrying out dark sky survey
- Contact established between park and lighting engineer to assist with creation of a lighting management plan for the park
- Liaising between park and IDA in discussions about application

4. To establish the UK's first International Dark Sky Park or Reserve Status during IYA2009 or the following year 2010

As a result of the combined effort of IYA2009 UK Co-ordinator and Galloway Forest Park Head of Tourism, Recreation and Environment Keith Muir, Galloway Forest Park[42] was named as the UK's first International Dark Sky Park on 16 November 2009. This was a major achievement and was the result of an 18-month programme of work on the part of the park, their local astronomical society, lighting engineers and the IYA2009 UK Co-ordinator.

Steps in achieving the International Dark Sky Park status were as follows:

1. Initial contact made February 2008
2. Conversations between Forestry Commission Scotland and IYA2009 UK Co-ordinator ongoing throughout 2008 - 09
3. Dark Sky Survey carried out by Wigtownshire Astronomical Society November 2008
4. Lighting audit carried out by Forestry Commission staff supported by University of Glasgow postgraduate students July 2009
5. Lighting management plan created by lighting engineer James Patterson, Lighting Consultancy And Design Services Ltd., July 2009
6. Application[43] submitted to IDA October 2009
7. International Dark Sky Park status awarded 16 November 2009

3.2.3 Media Profile of UK Dark Sky Parks programme

Galloway Forest Park's status as the UK's first International Dark Sky Park garnered massive media attention in the UK (see Chapter 3.2.3).

[38] http://www.forestry.gov.uk/scotland
[39] http://www.exmoor-nationalpark.gov.uk/
[40] http://www.lochlomond-trossachs.org/
[41] http://www.peakdistrict.gov.uk/
[42] http://www.forestry.gov.uk/darkskygalloway
[43] http://www.forestry.gov.uk/pdf/GallowayDarkySkyApp.pdf/$FILE/GallowayDarkySkyApp.pdf (PDF)

Over a dozen news articles appeared in the Observer[44], Guardian[45 46], Times[47], Telegraph[48], Independent[49], Daily Mail[50], Express[51], Scotsman[52 53 54], Herald[55] as well as articles on BBC Online[56 57 58], television coverage on BBC News, ITN News[59], Scottish Television News[60], Channel 4 News, Sky News, and national as well as local radio stations.

Figure 6: The Skies over Galloway Forest Dark Sky Park

3.2.4 Dark Sky Discovery in the UK

From the Dark Sky Discovery website:

> The UK has some of the darkest skies, and also some of the most light polluted skies in Europe, but no matter where you are, there is always somewhere where you can enjoy a good view of the night sky. This project is linking organisations, individuals and resources in each part of the UK into Dark Sky Partnerships. These partnerships are delivering astronomy events throughout the UK during the International Year of Astronomy 2009.

[44] http://www.guardian.co.uk/uk/2008/nov/16/scotland-scotland
[45] http://www.guardian.co.uk/science/2008/dec/23/astronomy-galloway-dark-sky-park
[46] http://www.guardian.co.uk/science/2009/nov/16/galloway-forest-dark-skies-stargazing
[47] http://www.timesonline.co.uk/tol/news/science/space/article6887233.ece
[48] http://www.telegraph.co.uk/travel/picturegalleries/6580858/Best-places-to-see-the-night-sky.html
[49] http://www.independent.co.uk/news/science/black-sky-at-night-stargazers-delight-1806258.html
[50] http://www.dailymail.co.uk/sciencetech/article-1228059/Its-stars-Forest-park-Scotland-named-worlds-best-stargazing.html
[51] http://www.express.co.uk/posts/view/140712/Britain-s-stargazing-hotspot
[52] http://news.scotsman.com/scotland/Scots-urged-to--see.4699428.jp
[53] http://thescotsman.scotsman.com/scotland/Tourist-park-hopes-to-be.5739447.jp
[54] http://thescotsman.scotsman.com/scotland/It39s-the-latest-nightspot-where.5826182.jp
[55] http://www.heraldscotland.com/news/transport-environment/scots-forest-bids-for-first-dark-sky-park-outside-usa-1.926645
[56] http://news.bbc.co.uk/1/hi/scotland/south_of_scotland/8308535.stm
[57] http://news.bbc.co.uk/1/hi/scotland/south_of_scotland/8361244.stm
[58] http://news.bbc.co.uk/1/hi/magazine/8362265.stm
[59] http://itn.co.uk/45e94e8a0b8ab06e1ef3e994e66b7c9b.html
[60] http://entertainment.stv.tv/tv/137917-patrick-moore-takes-me-to-the-stars/

The Dark Sky Discovery project is based on some aspects of the highly successful Dark Sky Scotland[61] project. Each of the new Dark Sky Partnerships will run similar activities in 2009.[62]

Dark Sky Discovery has established Dark Sky Partnerships in 9 UK regions, in addition to the already-established programme in Scotland, Dark Sky Scotland. Each partnership has a lead organisation and a list of project partners. The project was driven by Dan Hillier of the Royal Observatory Edinburgh Visitor Centre.

The Dark Sky Discovery project worked hand-in-hand with a number of other projects, specifically:

- Scottish Solar System (run by University of Glasgow)
- Island Universe tour of the Western Isles (run by Glasgow Science Centre)
- Royal Observatory Edinburgh Visitor Centre events

Highlights include:

- World's first **Dark Sky Discovery Sites** launched, Newbattle Abbey (Dalkeith) and Glen Nevis (Fort William)
- Highly successful Telescope for Schools workshop for secondary teachers
- Two tours of Western Isles, by GSC and DSS
- Record 2,800 people attended ROE Open Days
- First ROE GLOWMeet web conference involved 27 schools
- Stargazers Welcome pack piloted with Galloway Forest Dark Sky Park
- First Dark Sky Discovery training workshop help with West Midlands Dark Sky partners
- Dark Sky Wales, Yorkshire, West Midlands all ran their first events
- Dark Sky model adopted by Republic of Ireland
- Dark Sky workshop for Royal Astronomical Society of New Zealand

Total attendance at these events:

- Public 8284
- School pupils 3613
- Teachers and Educators 403
  Total 12300

Table 6: Dark Sky Partnerships UK

Dark Sky Partnership Name	Lead Organisation
North	Durham University
Yorkshire & Humberside	Space Connections
West Midlands	Friends of Cannon Hill Park
South West	Exmoor National Park
East Midlands	Leicester University
North West	Daresbury Laboratory (Science and Technology Facilities Council)
East of England	Hertfordshire University
South	Rutherford Laboratory (Science and Technology Facilities Council)
London	To be confirmed

[61] http://www.darkskyscotland.org.uk/
[62] http://www.darkskydiscovery.org.uk/

3.2.5 Reflecting on Dark Skies Awareness

Ian Robson and Steve Owens reflect on the successes, challenges and issues of Dark Skies Awareness in the UK.

The Dark Sky Parks project was always anticipated to be an initial step in encouraging parks in the UK to value and preserve their dark skies, and so the achievement during IYA2009 of developing Europe's first International Dark Sky Park in Galloway Forest Park far exceeded expectations. The momentum generated by this project continues, with Exmoor, Peak District, Loch Lomond and the Trossachs, and Brecon Beacons National Parks all pursuing dark sky status.

The unqualified success of this project, coupled with the ongoing successes of Dark Sky Discovery mean that the Dark Skies Awareness cornerstone project is one of the central achievements of IYA2009 in the UK

3.3 100 Hours of Astronomy

From the *100 Hours of Astronomy* website:

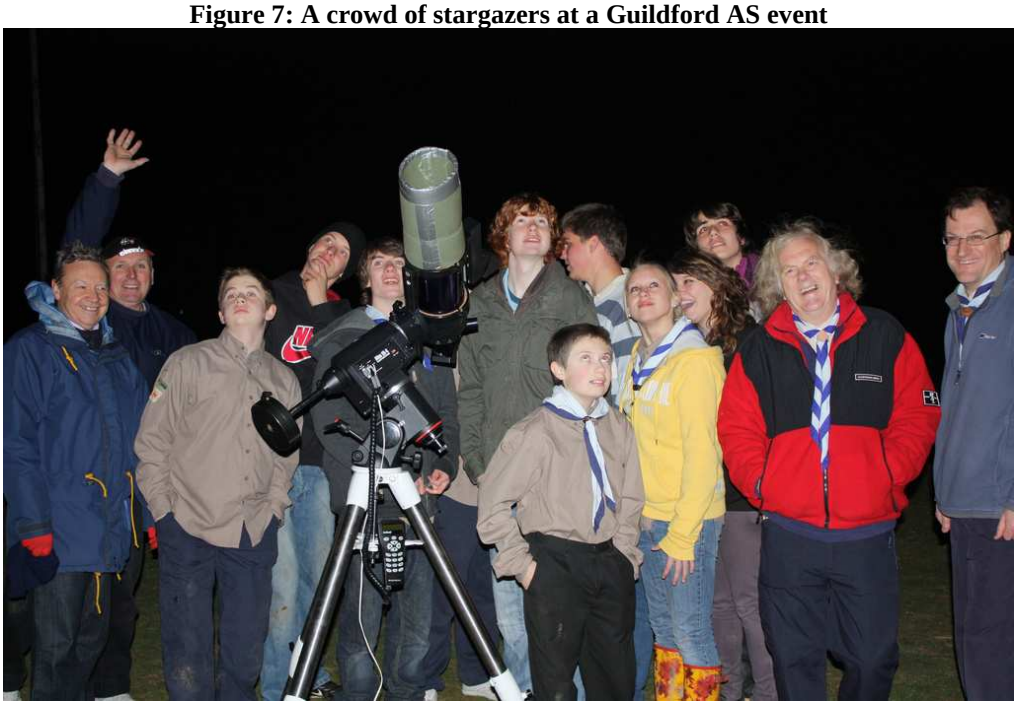
> 100 Hours of Astronomy, 2-5 April, brought over 100 countries together in a planet-wide celebration of astronomy. The world visited 80 professional observatories around the world during a 24-hour live online tour, and more than a million people had their first close-up views of the Moon, Saturn, the Sun and other objects of interest through telescopes. A Cornerstone Project of the International Year of Astronomy brought the Universe to all the world's citizens to discover for themselves.

In the UK, 100 Hours of Astronomy (100HA) fell within the longer event of Spring Moonwatch (see Chapter 4.3) (28 March – 05 April 2009), the dates of which were selected before the global cornerstone, which subsequently fitted in with these as a result of the selection criteria applied. It had been realised very early on that 100 hours was inadequate to guarantee success given the UK climate and that it would be opportune to hold two events, one in the Spring and one in the Autumn to maximise public participation and to cover the visibility of Saturn in the Spring and Jupiter in the Autumn. It was only after the success of the 100 nights that the International Organising Committee agreed to hold a second event in 2009, Galilean nights – again coinciding with the Autumn Moonwatch dates already selected by the UK.

As a result not all UK events that were run as part of Spring Moonwatch were registered as part of 100HA. In total there were 26 registered events in the UK running under the banner of 100HA. See Appendix 1 for a full list of events.

This is one of the key areas for the year – described more fully under Spring Moonwatch (chapter 4.3 and 4.4) - in which the community of astronomers (led by the amateurs) along with other interested parties came together and engaged the public in the excitement of astronomy today.

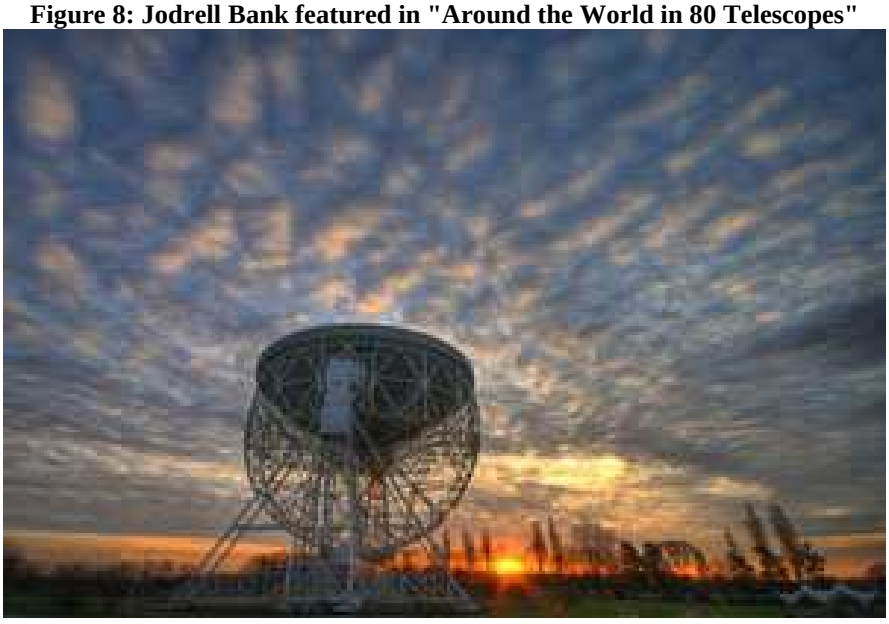
Figure 7: A crowd of stargazers at a Guildford AS event



3.3.1 Around the World in 80 Telescopes

A key event in the 100HA event was *Around the World in 80 Telescopes*, which featured live video transmissions from 80 observatories worldwide, ranging from tropical islands, space platforms, and underground observatories to the barren wastes of the Atacama Desert and Antarctica. The UK was represented by the University of Manchester's Jodrell Bank Observatory[63] as well as the two telescopes in Hawaii (UKIRT and the JCMT) and the WHT in the Canary Islands.

Figure 8: Jodrell Bank featured in "Around the World in 80 Telescopes"



The video from Jodrell Bank can be viewed at http://www.eso.org/public/videos/jodrellbank/

[63] http://www.100hoursofastronomy.org/component/content/article/166

Each facility was given a 15-minute slot where astronomers/engineers/technicians explained the workings of the facility and/or the science it was undertaking. These were orchestrated from ESO HQ and webcast to the world in real-time. Although it would have been an almost impossible effort to watch all the programmes in real-time, the entire sequence is held in an on-line repository[64] so that anyone can access their favourite telescope or just browse the amazing variety of facilities involved in astronomy today.

3.3.2 Reflecting on 100 Hours of Astronomy

Ian Robson and Steve Owens reflect on the successes, challenges and issues of 100 Hours of Astronomy in the UK.

Spring Moonwatch (see Chapter 4.3) in the UK overshadowed 100 Hours of Astronomy, with much of our press efforts being strategically focussed on the UK project rather than the global event. This being the case, and resource limited, relatively little effort was made to ensure that all UK events occurring within 100HA were appropriately registered, meaning that the UK may have looked a little under-represented in the global project. The same comments apply to the Galilean Nights project that directly follows below.

The UK featured heavily in the "Around the World in 80 Telescopes" project, but again impact in the UK was limited, as this project did not attract any media attention but the legacy of the material is an important repository for public access.

3.4 Galilean Nights

This was introduced following the great success of 100 Hours of Astronomy and was the second biggest event of the International Year of Astronomy 2009. More than 1300 public events took place in 88 countries, with well over 600 000 people seeing the skies through a telescope and having their own Galileo experience.[65]

As for 100HA, in the UK, Galilean Nights fell within the longer event of Autumn Moonwatch (see Chapter 4.4) (24 October – 01 November 2009). Similarly, not all UK events which were run as part of Autumn Moonwatch were registered as part of Galilean Nights. In total there were 55 registered events in the UK running under the banner of Galilean Nights. The full series of events occurring during this extended period is described under the Autumn Moonwatch (chapter 4.4).

A table of all Galilean Nights UK events can be found in Appendix 1.

3.5 She is an Astronomer

Form the *She is an Astronomer* section of the astronomy2009.org website:

> Promoting gender equality and empowering women is one of the United Nations Millennium Development Goals. The IYA2009 Cornerstone project, She is an Astronomer provides information to female professional and amateur astronomers, students, and those interested in the gender equality problem in science. Approximately one quarter of all professional astronomers are women. In some countries there are no female astronomers, whilst in others more than half the professional astronomers are female. The drop in numbers towards more senior levels suggests that scientific careers are heavily affected by social and cultural factors, and are not determined solely by ability.
>
> She is an Astronomer has its own dedicated website, where people can pick up information about the subject, ask questions and find answers. The main areas are: profiles of living and historical female astronomers (a largely invisible part of the astronomy community), resources available to female astronomers, events taking

[64] http://www.100hoursofastronomy.org/component/webcast/?id=6
[65] http://www.galileannights.org/

> place during the year, an area for ambassadors of She is an Astronomer, and a forum where issues, lessons-learned and challenges can be discussed. At the end of IYA2009 the information gathered will be retained and maintained as a legacy from IYA2009.[66]

The 'She is an Astronomer' (SIAA) project in the UK was led by Dr Helen Walker, STFC Rutherford Appleton Lab[67].

The global SIAA website[68] was launched at the UK National Astronomy Meeting (NAM) and the Joint European National Astronomy Meeting (JENAM), which were held together on 20-23 April 2009 at Hatfield in the UK.

The SIAA website remains a source of information, resources, downloads, and includes a timetable of SIAA events as well as an online forum.

The SIAA website had 85,049 hits since its launch, with 14656 unique visitors. Unfortunately, no further web stats are available.

A two-day SIAA conference[69] was held at the Royal Astronomical Society[70] on 22-23 April 2010, attended by approximately 40 people (note this was impacted by the Volcanic Ash problem affecting air travel).

3.5.1 SIAA and the UK Resource Centre for Women (UKRC)

The UKRC is

> the Government's lead organisation for the provision of advice, services and policy consultation regarding the under-representation of women in science, engineering, technology and the built environment (SET)[71]

The UKRC's 2009 conference featured the SIAA UK launch, attended by 275 people

In addition the UKRC hosted a monthly blog[72] throughout 2009, featuring posts from UK women astronomers This project was funded by the Royal Astronomical Society.

3.5.2 Reflecting on She is an Astronomer

Ian Robson, Steve Owens and Helen Walker reflect on the successes, challenges and issues of She is an Astronomer in the UK.

This project was one of the later-developing ones globally and also within the UK and as such suffered from lack of publicity and activities. Nevertheless, once Helen Walker took over the role of Chair to the Global Organising Committee, she did a sterling job within the UK. Probably the most important factor coming out of this project was not what it achieved during IYA2009 itself, but as a springboard for a coordinated future ongoing activity aimed at attracting young women into science.

From Helen Walker: I think the major success of She is an Astronomer in the UK (as well as internationally) was raising awareness of the issue of gender inequality. Younger UK female astronomers said, at the She is an Astronomer conference, they are very aware that they are in a culture which favours men and is orientated to 'male' values (competition, long-hours, inflexible), and the UK statistics show they are correct. They are frustrated that their career progression is slower and less certain than their male colleagues. The

[66] http://astronomy2009.org/globalprojects/cornerstones/sheisanastronomer/
[67] http://www.scitech.ac.uk/About/Conts/Find/RAL/Introduction.aspx
[68] http://www.sheisanastronomer.org/
[69] http://www.sheisanastronomer.org/index.php/conference
[70] http://www.ras.org.uk/
[71] http://www.ukrc4setwomen.org/
[72] http://www.ukrc4setwomen.org/html/projects-and-campaigns/astronomy-blog/blog-archive/

overwhelming endorsement by the IAU of the resolution proposed by She is an Astronomer shows that astronomers do want this to change. The challenge is to provide examples of how women can be 'supported and encouraged' and how the culture can be changed to support and encourage both men and women. Even though the year is over, there are activities on-going and examples are being picked up – there will be a women's lunch session at JENAM, following the example of the one held when JENAM was in the UK (and a regular feature of NAM). The UK's mentoring service MentorSET is being used as a model for an e-mentoring proposal. The She is an Astronomer website was a great success and the statistics provided for its use (with an average dwell time of over 5 minutes) proved that people want information and were interested in this website as a source of information. The UK has done some pioneering studies, and these can be used an examples. The challenge will be to find these studies and keep the website going after IYA2009 draws to a close. One year is enough to start this type of project, but it is a huge challenge to do enough for the longer-term difference.

3.6 Astronomy and World Heritage

From the *Astronomy and World Heritage* section of the astronomy2009.org website:

> The cosmos has captivated the imagination of civilisations throughout the ages. The desire to understand or interpret what they see in the sky are often reflected in architecture, petroglyphs, urban planning and other cultural representations. These "material testimonies" of astronomical observations, found in all geographical regions, span all periods from prehistory to today.
>
> UNESCO and the IAU are working together to promote research and education collaboration as part of UNESCO's Thematic Initiative "Astronomy and World Heritage". This project offers a possibility to evaluate and recognise the importance of astronomical heritage in terms of enrichment of the history of humanity, the promotion of cultural diversity and the development of international exchange.
>
> Support from the international community is needed to save the properties connected with astronomy from progressive deterioration and to recognise the astronomical heritage by the inclusion of the most representative of these properties on the World Heritage List.[73]

The Astronomy and World Heritage cornerstone project was supported in the UK by the Royal Astronomical Society's (RAS)[74] Astronomical Heritage Committee (AHC), together with English Heritage[75]. This resulted in a four-day event coinciding with the Winter Solstice at Stonehenge, an iconic part of the UK's astronomical heritage.A professional conference on Archaeoastronomy was also held at the University of Manchester Jodrell Bank in July and this included a specific one-day event open to the general public as part of IYA2009.

From the Winter Solstice event website:

What happened at Stonehenge between Dec 16 and 19:

> During normal opening hours, archaeologists and astronomers were on hand both around the site and in and around a marquee in the car park, where they engaged with visitors, offered tours and answered questions. Also present were a number of local astronomical societies with an impressive array of telescopes and binoculars. Finally there was FETTU, an exhibition of remarkable astronomical images that remained on-site until January 3rd.
>
> The weather was not too unkind: Day 1 was cloudy, and although there was a biting wind on Days 2 and 3 the remaining days were largely clear and sunny.
>
> The special access tours to the interior of the stones after dark were extremely well received, drawing participants from as far afield as the Isle of Wight and the Isle of Man, not to mention the USA!

[73] http://www.astronomy2009.org/globalprojects/cornerstones/astroworldheritage/
[74] http://www.ras.org.uk/
[75] http://www.english-heritage.org.uk/

We would like to thank all the archaeologists and astronomers who gave up their time to be guides during the event, and to the English Heritage site staff who were unstintingly helpful and supportive throughout.

Hearty thanks are also due to the local astronomical societies who brought along telescopes and binoculars and set up solar observing sessions outside the marquee during the day as well as night-time observing after dark. Andy Burns and the Wiltshire AS deserve a particular mention, having been present every day![76]

During the weeks running up to and following the event the *From Earth to the Universe* exhibition (see Chapter 3.1) was situated at Stonehenge, and formed part of the tour for visitors attending the Winter Solstice Event.

In addition, the Royal Astronomical Society's Astronomical Heritage Committee modified and reprinted their *"Stonehenge and Ancient Astronomy"* public information sheet.[77]

Figure 9: Visitors attending the IYA2009 Winter Solstice Event at Stonehenge

3.6.1 Evaluation of Winter Solstice Event at Stonehenge

Participants at the Winter Solstice were a combination of Friends of the RAS (i.e. those already with an interest in astronomy, and members of the public who had found out about the event online. People taking part were asked to complete a short questionnaire. The results were as follows:

1. Do you feel that this event increased your appreciation of astronomy?
(a) Yes: 75%
(b) No: 25%

2. Do you feel that this event increased your appreciation of archaeology?
(a) Yes: 88%
(b) No: 12%

3. What would you have liked to see done differently?
(a) Better organisation on site: 26% [e.g. the guides and English Heritage]:
(b) Tickets: 3% [more notice OR cheaper tickets (one suggestion was that there was no marquee next time).]
(c) Information : 3% [about the RAS to hand]
(d) Different time of year: 5% [i.e. not just before Christmas OR because of the bad weather conditions]:
(e) More Time: 18% [start earlier OR more time before/after the tour]:
(f) English Heritage site needs improvement: 8% [e.g. cafe facilities]:

[76] http://www.le.ac.uk/has/ahc/shws-event/
[77] http://www.ras.org.uk/images/stories/ras_pdfs/misc/Stonehenge.LowRes.pdf (PDF)

(g) Shelter: 3% [by the stones themselves]:
(h) Nothing!: 34%

4. What was the best aspect of the event for you?
(a) The Astronomy: 16% [e.g. sunset, Jupiter, moon, stars]
(b) Information boards in the car park: 2% [FETTU]
(c) The Guides: 22% [friendly, organised, the talks themselves]
(d) Being amongst the stones: 44%
(e) Whole experience: 16% [once in a lifetime experience OR the atmosphere]
5. Would you be interested in taking part in similar events in the future?
(a) Yes: 100%
(b) No: 0%

3.6.2 Reflecting on Astronomy and World Heritage

Ian Robson and Steve Owens reflect on the successes, challenges and issues of Astronomy and World Heritage in the UK.

The central IYA2009 node provided support to the Royal Astronomical Society's Astronomical Heritage Committee in running their Winter Solstice Event at Stonehenge, and to insist on the opening up of the Jodrell Bank conference for a public day. Both projects were deemed successful, achieving the albeit limited set of aims set out beforehand.

3.7 Universe Awareness

From the *Universe Awareness* website:

> Universe Awareness (UNAWE) is an international programme that exposes very young children in under-privileged environments to the scale and beauty of the Universe. Universe Awareness illustrates the multicultural origins of modern astronomy in an effort to broaden children's minds, awaken their curiosity in science and stimulate global citizenship and tolerance. Using the sky and children's natural fascination with it as common ground, UNAWE creates an international awareness of our place in the Universe and our place on Earth.

The Royal Astronomical Society awarded a Universe Awareness project about £3,000 for a project involving astronomy workshops in primary schools across the country. Partners in the project were Armagh Observatory, the Royal Observatory Edinburgh, the Ogden Centre for Cosmology at Durham University and the Centre for Astrophysics at the University of Central Lancashire. Due to a very busy year, the project was postponed to 2010 with permission of the RAS. The project will reach 500 primary schools nationwide and give pupils a sense of wonder over the scale of the Universe. Teachers will carry out activities in the classroom based around an inflatable ball printed with satellite images of the Earth and showing areas of light pollution with chemi-luminescent markers that glow in the dark. This links this with the Dark Skies Awareness Cornerstone Project (Chapter 3.2). Evaluation will be included.

More information about the global project can be found at http://www.unawe.org/

3.8 Galileo Teacher Training Programme

From the *Galileo Teacher Training Programme* website:

> The goal of the Galileo Teacher Training Program is to train teachers, the Galileo Ambassadors, in the effective use and transfer of astronomy tools and existing resources that are freely available on the internet, into classroom science curricula. Through workshops, online training tools and basic education kits, the products and techniques developed by this programme can be adapted to reach locations with few resources of their own, as well as computer-connected areas that can take advantage of access to robotic optical and radio

telescopes, webcams, astronomy exercises, cross-disciplinary resources, image processing and digital universes (web and desktop planetariums). The Galileo Ambassadors are equipped to train other teachers in these methodologies, leveraging the work begun during IYA2009 in classrooms everywhere.

3.8.1 List of training sessions in 2009

Table 7: Galileo Teacher Training Events

Date	Training Session Details	# Teachers
2nd March 2009	Science Learning Centre South East	12
27 June 2009	Yorkshire ASE Training	24
22-25 August 2009	EUHOU training session for 26 teachers across EU (15 partner countries).	26
20th October	Science Learning Centre London	35
26th Oct	GTTP taster day, Royal Astronomical Society, London	32
Total		**118 UK teacher trained**

In total 118 UK teachers were given Galileo Teacher Training during 2009.

More information about the global project can be found at http://www.galileoteachers.org/

3.9 Galileoscope

From the *Galileoscope* website:

> The Galileoscope™ is a high-quality, low-cost telescope kit developed for the International Year of Astronomy 2009 by a team of leading astronomers, optical engineers, and science educators. No matter where you live, with this easy-to-assemble, 50-mm (2-inch) diameter, 25- to 50-power achromatic refractor, you can see the celestial wonders that Galileo Galilei first glimpsed 400 years ago and that still delight stargazers today. These include lunar craters and mountains, four moons circling Jupiter, the phases of Venus, Saturn's rings, and countless stars invisible to the unaided eye.

Figure 10: The Galileoscope Kit

For a variety of reasons (including the fact that we had put a huge effort into the Telescope for Schools Project) the IYA 2009 UK executive group chose not to act as the UK's central support for the Galileoscope

project. Instead it was left to individuals and organisations within the UK to place their own orders directly with the US project group. This was a good decision given the delays that eventually beset this project.

To date 1,229 Galileoscopes have been shipped to the UK, mainly to private individuals. The exception was from the University of Central Lancashire who ordered 150 Galileoscopes as part of their "Measuring the Cosmos" project.

3.9.1 Reflecting on the Galileoscope

Ian Robson and Steve Owens reflect on the successes, challenges and issues of the Galileoscope project in the UK.

The anticipated lengthy delay in production and delivery of the Galileoscopes fully justified our strategic decision not to invest effort into supporting this project centrally within the UK. Nevertheless, the Galileoscopes are excellent optical devices and even at the current price of around £20 (£37 inc. shipping), represent very good value for money. Indeed, we are delighted that over 1,000 Galileoscopes have been shipped to the UK, and will continue to actively promote this project in the UK.

More information about the global project can be found at https://www.galileoscope.org/

3.10 Cosmic Diary

From the *Cosmic Diary* website:

> The Cosmic Diary is not just about astronomy. It's more about what it is like to be an astronomer.
>
> The Cosmic Diary aims to put a human face on astronomy: professional scientists will blog in text and images about their lives, families, friends, hobbies and interests, as well as their work, their latest research findings and the challenges that face them. The bloggers represent a vibrant cross-section of female and male working astronomers from around the world, coming from five different continents. Outside the observatories, labs and offices they are musicians, mothers, photographers, athletes, amateur astronomers. At work, they are managers, observers, graduate students, grant proposers, instrument builders and data analysts.
>
> Throughout this project, all the bloggers will be asked to explain one particular aspect of their work to the public. In a true exercise of science communication, these scientists will use easy-to-understand language to translate the nuts and bolts of their scientific research into a popular science article. This will be their challenge.[78]

There were five UK bloggers featured in Cosmic Diary:

Gaitee Hussain (ESO)[79]
Mark Kidger (ESA)[80]
Lee Pullen (Staff Writer and Live Blogger for IYA2009)[81]
Sotira Trifourki(Greater Manchester STEM Centre, Salford)[82]
Catherine Tryfona (University of Glamorgan & Cardiff University)[83]

More information about the global project can be found at http://www.cosmicdiary.org/

[78] http://www.cosmicdiary.org/
[79] http://cosmicdiary.org/blogs/eso/gaitee_hussain/
[80] http://cosmicdiary.org/blogs/esa/mark_kidger/
[81] http://www.cosmicdiary.org/lee_pullen/
[82] http://cosmicdiary.org/blogs/sotira_trifourki/
[83] http://cosmicdiary.org/blogs/catherine_tryfona/

3.10.1 Cosmic Diary 1894

The Royal Observatory Greenwich[84] provided a novel addition to Cosmic Diary, featuring "guest blogs" taken from the diaries of the Astronomer Royal and his Chief Assistant. From the Cosmic Diary 1894 website:

> Contributing to the 2009 International Year of Astronomy's Cosmic Diary, this blog reproduces the 1894 working Journals of the Astronomer Royal and Chief Assistant of the Royal Observatory, Greenwich, with comments from Rebekah Higgitt, a Curator at the Royal Observatory, Greenwich. The writers are:
>
> William H.M. Christie (Astronomer Royal 1881-1910)
> Herbert Hall Turner (Chief Assistant 1881-1894)
> Frank Watson Dyson (Chief Assistant 1894-1905)
>
> The manuscripts are at the Manuscripts Department of the University of Cambridge Library[85] (ref: RGO 7/29-30) and reproduced by kind permission of the Science and Technology Facilities Council[86] and the Syndics of Cambridge University Library.[87]

Figure 11: The Cosmic Diary 1894 Blog

In total 202 blog articles appeared in the Cosmic Diary 1894 blog. The Cosmic Diary 1894 blog received 4460 unique visits during 2009

[84] http://www.rog.nmm.ac.uk/
[85] http://www.lib.cam.ac.uk/MSS/
[86] http://www.scitech.ac.uk/
[87] http://www.cosmicdiary1894.blogspot.com/

Chapter 4 UK Special Projects

In addition to the global Cornerstone projects (see Chapter 3.1–3.10) the UK executive group identified several projects that were central to the IYA2009 efforts in the UK. These special projects were essentially UK Cornerstones, with strong support from the IYA2009 UK National Node. While the UK special projects outlined in this section were national in nature, there were other projects of a similar scope which are not included in this section. These projects will be outlined in Chapter 5–Grassroots Activities with public events.

4.1 Telescopes for Schools

From the Society for Popular Astronomy's (SPA)[88] *Telescopes for Schools* (TfS) website:

> To celebrate the International Year of Astronomy 2009, the SPA arranged the distribution of 1000 telescopes to give to secondary schools to help inspire young people (aged between 11 and 14) with the wonders of the night sky. The funding for the telescopes was provided by the Science and Technology Facilities Council (STFC)[89].
>
> The telescope is a 70mm refractor, which comes with a tripod and several eyepieces. To help teachers take full advantage of the telescope, the SPA has provided a DVD (funded by the Royal Astronomical Society[90]) showing how to set up the telescope, use a star chart, interviews, and much more.
>
> The SPA is organising Open Telescope evenings where members, astronomical societies and other groups with telescopes are encouraged to invite people to admire astronomical objects in the night sky 'up closer'.[91]

The UK National Node was involved in the *Telescopes for Schools* project in securing the funding (Ian Robson), assisting with the application process, assisting with the purchase and distribution process (Ian Robson), and carrying out the evaluation (Steve Owens).

Figure 12: The SPA's Telescope for Schools

[88] http://www.popastro.com
[89] http://www.stfc.ac.uk/
[90] http://www.ras.org.uk/
[91] http://www.popastro.com/moonwatch/schools_telescope/

4.1.1 The Aims of Telescopes for Schools

The aims of the TfS project were:

1. To procure and distribute 1,000 small 70mm telescopes to schools in the UK teaching pupils aged 11-14
2. To ensure even geographical distribution within the UK
3. To manage the development of supporting resources online and on DVD
4. To ship the telescopes to schools before 28 February 2009 in order that they be in place well in advance of Spring Moonwatch (28 March – 05 April 2009)
5. To establish contact between successful schools and their local astronomical societies to support the project
6. To co-ordinate the Schools Moonwatch (19 – 29 November 2009)
7. To evaluate the use of the telescopes by the schools

4.1.2 Telescopes for Schools Funding

The total project cost of the TfS project was almost £72000. The funding came from three sources:

- STFC £48,189
- SPA £9500 (approximate – since competition expenses outstanding)
- RAS £14,177 for production and distribution of the DVD

Final funding was confirmed in October 2008. Administrative time and effort from SPA volunteers given for free.

4.1.3 Telescopes for Schools Application Process

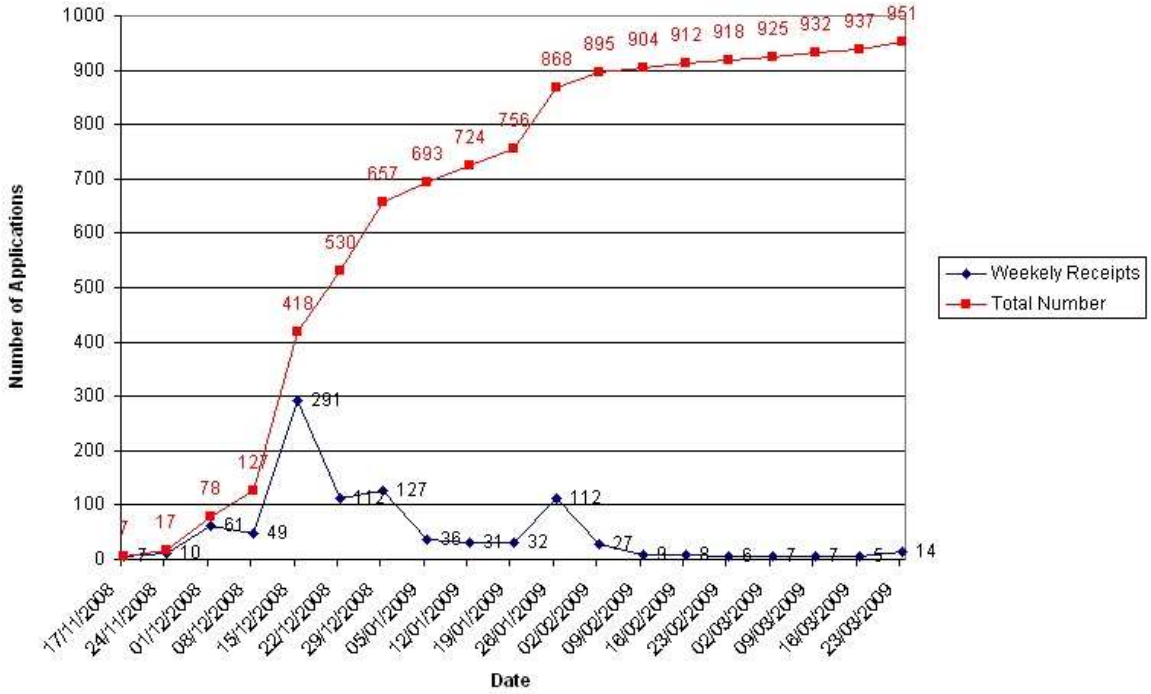
The announcement of the TfS project was made in November 2008.

The announcement was made through a variety of routes:

- Articles in IOP "Classroom Physics", SPA magazine 'Popular Astronomy' and Astronomy Now
- Online on the TfS website
- Via emails to teachers on existing email lists (e.g. science centres, STEMpoints etc)
- ASE article and exhibited at conferences
- Exhibited at events such as AstroFest and Big Bang, with fliers distributed there and at other astronomy-related events
- Press launch at Royal Observatory Greenwich

Applications were restricted to schools with pupils aged 11-14 only. In order to apply for a telescope a teacher within the school was asked to write up to 500 words on what the school planned to use the telescope for. It was agreed within the TfS steering group that the 1,000 telescopes would be ordered in two batches of 500. The first batch of 500 was ordered in late November 2008. The second batch of 500 was ordered in late December 2008 once the number of applications had approached 500. The project was open for applications for 19 weeks between 17 November 2008 and 30 March 2009

Figure 13: Weekly and Cumulative TfS Applications



As can be seen from chart 2.1 applications built rapidly in weeks 4, 5, 6 and 7, before beginning to fall off again (with the exception of week 11 commencing 26 January 2009 when a final information push was made).

After this 19 week period the total number of applications received was 951. However, 33 of these were incorrectly completed, and so in the end 918 schools were awarded a telescope.

4.1.4 TfS Distribution by Country within UK

Efforts were made within Scotland, Northern Ireland and Wales to ensure that a fair proportion of the telescopes went to these countries. Table 2.9 shows the final distribution per country within the UK:

Table 8: TfS Distribution per Country within UK

Country	% UK Population	# Telescopes	% Telescopes	# Schools	% Schools with Telescopes
England	84%	726	79.1%	3211	22.6%
Scotland	8%	91	9.9%	376	24.2%
Northern Ireland	3%	78	8.5%	223	35.0%
Wales	5%	23	2.5%	223	10.3%
TOTAL	100	**918**		**4033**	**22.8%**

Table 8 shows that across the UK 22.8% of all schools with pupils aged 11-14 received telescopes.

4.1.5 Distribution of the remaining telescopes

The remaining 82 telescopes that were not applied for by schools were distributed throughout the UK to the 55 STEM Points[92] for loan to schools within their area. Some of those STEM Points describe how they have been using the telescopes:

Devon and Cornwall STEM Point:

> So far they have been used by a local wildlife watch group (~20 children) and also loaned to family and friends of work colleagues (5 children). My plan now is to base them at Callington Space Centre, whose Director Mike Grocott has agreed to host them and use them on their outreach programme.

Cheshire and Warrington STEM Point:

> We have loaned the telescopes out to 3 primary schools on a one-term each loan. The other has been used by 2 secondary schools as a supplement to their own telescope.

East Scotland STEM Point:

> The two [telescopes] I received were handed in to the physics department at St Mungo's High school in Falkirk. A brand new school has been opened up just before the holidays and they were very keen to promote science at the new school and I thought this would be a good use of the equipment

HertfordShire STEM Point:

> We have had the telescopes out on loan to schools in Hertfordshire continually from September 09 to April 2010. They have not been requested much since then – I guess due to the evenings being much lighter now so after-school clubs can't use them! We anticipate another surge in demand for September. 10 schools have borrowed them for between 2 and 4 weeks each.

Hampshire STEM Point:

> Telescopes have been hired by: Elmbridge Museum (through Elmbridge Borough Council)
> Hill House School and Perins School. They are on our equipment library list which is regularly mailed to teachers, and available on our website (we think teachers are a little intimidated). They were used at the telescope amnesty run by Jenny Shipway, at INTECH Planetarium on two occasions and will be used at a further 2 this year. They were also used at the 'Rocketing STEM into Space' CPD for KS3 teachers, run jointly with SLC SE
> 28 Jan 2010 and this will be repeated next year.

4.1.6 Supporting Resources

The SPA developed a DVD of resources that was sent out with every telescope, featuring information on setting up the telescope, how to observe with it, and what might be seen. The DVD included a lesson plan addressing Key Stage 3 learning outcomes, information sheets and constellation cards.

Figure 14: Telescopes for Schools DVD

[92] http://www.stemnet.org.uk/

Clips of the DVD were made available online[93] on the Telescopes for Schools section of the SPA website.

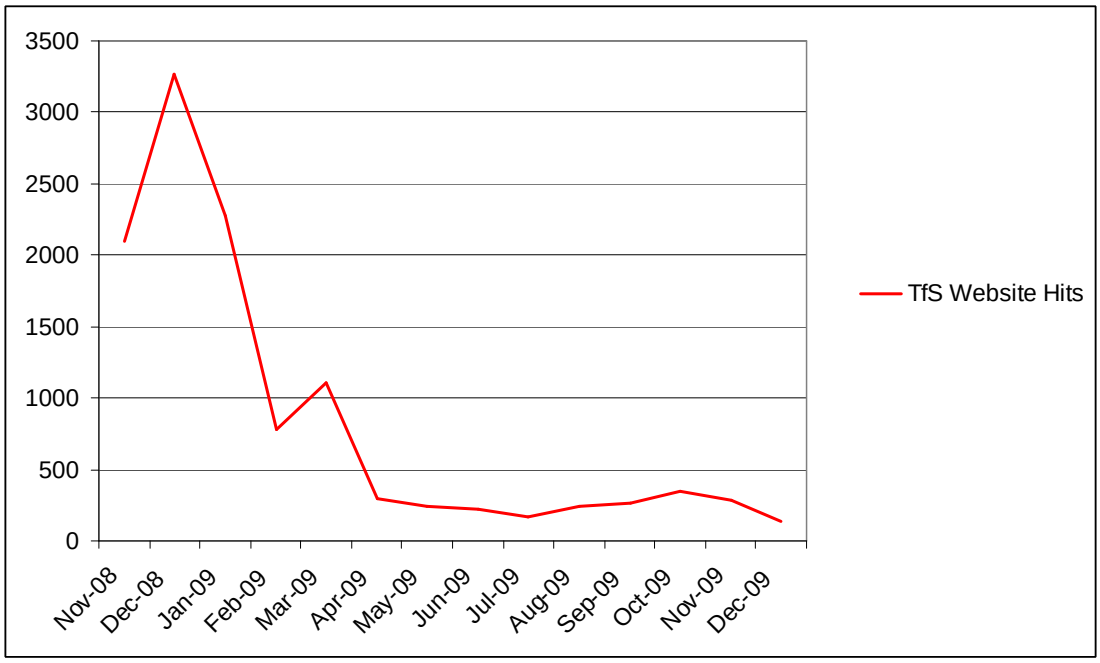
This website also had a wealth of information for schools on astronomy, telescopes and observing. The Telescopes for Schools section of the SPA website had a total of 11,725 hits between November 2008 and December 2010.

As Figure 15 shows, the website received most hits in the first three months after the project was launched (November, December 2008 and January 2009). There was a small spike of activity in March, possible as a result of

- Spring Moonwatch between 28 March and 05 April (see Chapter 4.3 Spring Moonwatch (28 March – 05 April 2009)
- the final rush before the application period ended
- the telescopes arriving in schools

After that point the web hits fell to only a few hundred per month. There was notably no significant rise in web hits around either Autumn Moonwatch or Schools Moonwatch (between 19 – 29 November 2009).

Figure 15: Telescopes for Schools Website Hits



The SPA also offered to put the schools in contact with a local astronomer to assist them with their observing and form links to the local astronomical society. Through agreement with STEMNET[94] these astronomers would be offered the opportunity to become Science and Engineering Ambassadors (STEM Ambassadors)[95]

4.1.7 Evaluation of the TfS project

Evaluation of the TfS project was carried out between December 2009 and February 2010 via an online survey sent to each of the teachers who received a telescope. The complete results of the survey can be found online at www.astronomy2009.co.uk.

[93] http://popastro.com/moonwatch/dvdclips/
[94] http://www.stemnet.org.uk
[95] http://www.stemnet.org.uk/ambassadors.cfm

The following summary is based on the data provided by the 429 teachers (out of 918, i.e. 47%) who replied to the survey, and so represents a lower limit. These numbers might actually be as much as doubled to give the true number.

In summary, the telescopes have seen 3,000 uses to date, with 12,500 pupils having used them (a more realistic figure is approx. 6,000 uses and 25,000 pupils over the 918 schools). The majority of teachers found the telescope easy to set up and to observe with, but there were a significant number (135 = 31.5%) that found it “tricky” or “really difficult” to observe with.

A substantial majority of teachers found the DVD and website resources either “very useful” or “quite useful” (DVD 68.5%: Website 65.1%). Of the remaining teachers most did not use these resources (DVD 23.1%: Website 29.0%). Only a small number found them “not too useful” (DVD 7.7%: Website 5.7%), while only three respondents (0.7%) found the DVD “useless” and one respondent (0.2%) found the website “useless”.

The support astronomer resource however was not as successful. The majority of teachers did not use this resource at all (66.9%), and only 28.5% of teachers found this resource either “very useful” or “quite useful”, while 3.6% found it “not too useful”, and four respondents (1.0%) found it “useless”.

One in three schools have established an astronomy club, and detailed responses to the survey show that many of these are as a result of receiving their telescopes, with a total of at least 135 new clubs in the UK.

Examples of teacher comments:

> “this has been a resource used by a number of members of the department as a visual aid as well as using the telescope for looking at objects. clear images have been observed especially in the winter months with clear skies”
>
> “Though there is increasing use of web-based telescopes and this is written into the new GCSE spec, there is still a place for using your real eyes on a cold night !”
>
> “This is a great resource and we will be writing it into our SOW now that it is a feature of the science dept. It is to be given a permanent rooftop place in our new outside eco lab.”
>
> “I would not have had the funds to finance a telescope - this was a luxury”
>
> “Even the sight of the telescope in class sparks discussion about "what can you see with that” sir?" etc "how far can you see with it?" etc”
>
> “It has definitely been worthwhile and gratefully received so thank you very much for providing it to us. Just having it on display raises student's interests and beyond that it works pretty well and has allowed students to see some remarkable sights. Many thanks!”

In terms of the project overview, final funding from STFC was confirmed in October 2008 and unfortunately this was later than ideal. A further problem arose around the allocation of the STFC money (the SPA did not wish to receive a grant) and this made the procurement rules very complex. Ian Robson received invaluable help from STFC Procurement (Gary Robbins) to smooth this along but it also caused a further delay in orders being placed. Once the orders were placed, the project flowed smoothly. As part of the procurement process, each school had to sign a letter of indemnity, countersigned by Ian Robson on behalf of STFC. The good part about this was that it gave an excellent record of the individual in the school who was responsible for the telescope.

4.1.8 Evaluation of the Aims of TfS Project

1. To procure and distribute 1,000 small 70mm telescopes to schools in the UK teaching pupils aged 11-14

1,000 telescopes were purchased, and 918 were applied for and distributed. The remaining 82 telescopes were distributed throughout the UK to the 55 STEM Points for loan to schools within their area.

2. To ensure even geographical distribution within the UK

While England and Scotland received a share of the telescopes roughly proportional to their populations, Northern Ireland received 8.5% of the telescopes with only 3% of the population, due mainly to effort of the Irish IYA2009 National Node to increase awareness of the project in that country. Unfortunately Wales received only 2.5% of the telescopes with 5% of the population. This was despite efforts in Wales to promote the project.

3. To manage the development of high-quality supporting resources online and on DVD

As per the evaluation above (see section 4.1.7):

> A substantial majority of teachers found the DVD and website resources either "very useful" or "quite useful" (DVD 68.5%: Website 65.1%). Of the remaining teachers most did not use these resources (DVD 23.1%: Website 29.0%). Only a small number found them "not too useful" (DVD 7.7%: Website 5.7%), while only three respondents (0.7%) found the DVD "useless" and only one respondent (0.2%) found the website "useless".

4. To ship the telescopes to schools before 28 February 2009 in order that they be in place well in advance of Spring Moonwatch (28 March – 05 April 2009)

Telescopes were delivered to schools between 13 March 2009 and 23 March 2009. The delay in delivery was a result of the delay in funding confirmation, and meant that many schools did not have time to practise setting up their telescope in time for Spring Moonwatch. Unfortunately, only 17% of schools used their telescopes during Spring Moonwatch.

5. To establish contact between successful schools and their local astronomical societies to support the project

This element of the project fell short of expectations. Many schools did not ask to be put in contact with their support astronomer. All those schools that did ask for help contacting an astronomer (about 120) were given it (see the evaluation in section 4.1.6):

> The majority of teachers did not use this resource at all (66.9%), and only 28.5% of teachers found this resource either "very useful" or "quite useful, while 3.6% found it not too useful, and four respondents (1.0%) found it useless.

On the other hand, setting up astronomy clubs was extremely successful and it may well be that the majority of teachers felt that they did not need the support of a local astronomer. Nevertheless, it was a pity to lose the link of getting more new blood into amateur astronomy societies but the new astronomy clubs is a good route to engendering interest and potential society membership downstream.

6. To co-ordinate the Schools Moonwatch (19 – 29 November 2009)

Schools Moonwatch ran as planned and 161 schools (37.5%) with telescopes took part. In addition 70 public events ran in the UK during Schools Moonwatch

7. To evaluate the use of the telescopes by the schools

See Section 4.1.7

4.1.9 Reflecting on Telescopes for Schools

Ian Robson, Steve Owens and Helen Walker reflect on the successes, challenges and issues of Telescopes for Schools in the UK.

Telescopes for Schools was one of the central projects of IYA2009 in the UK, and overall we felt it was a great success, with 918 schools receiving free telescopes, and approximately 25,000 pupils having used the telescopes.

A few of the aims were not fully met, however.

Specifically:

- there was not a perfectly even distribution of telescopes across the UK, with Wales receiving less than their proportional share (approximately only half the number that they should have received based on population, 23 telescopes rather than 43). This issue is relatively minor, but would have been addressed if we had found an individual or organisation in Wales to actively promote the project (as we had in Northern Ireland – Robert Hill – who secured 78 telescopes for NI where their proportional share would have been 27)
- more importantly, the telescopes did not arrive in schools until a week before Spring Moonwatch, meaning that many teachers were unable to plan events. This was reflected in the fact that only 17% of schools surveyed ran an event during Spring Moonwatch, compared with 28% during Autumn Moonwatch, and 40% during Schools Moonwatch later in the year. This was down to delays in funding confirmation. Everyone involved in the project worked their utmost to secure the money in time, but complicated procurement procedures slowed things down.
- the aim of providing contact details for support astronomers fell far short of expectations. Closer contact between TfS project staff and amateur astronomical societies may have improved this situation, although it is hard to see how the resources would have been available to support this top-down approach.

From Helen Walker: The SPA Telescopes for Schools project was an amazing success, and even now teachers are expressing their gratitude for the project. When setting up the project we listened to comments from teachers about what they needed and what would (and would not) work, and it paid off. I think we will have to wait a few years to see the impact on the children – our major hope was that more young people would pursue a scientific career, not necessarily in astronomy, and that they would remember using the telescope. Teachers are telling us that they are continuing to use the telescopes, and some have changed their curriculum to include some/more astronomy. The telescopes were also a focus of open evenings and special events at schools, so that children could involve their parents, and in some schools the telescopes were borrowed by pupils for weekends. This family activity and family support is promising for longer term interest in science. The challenge is to support the schools and the children now that IYA2009 is over, and to sustain the interest. Some of the telescopes were sent to STEMPOINTs, and the challenge to them is to ensure the SPA telescopes are loaned out with the supporting materials so that many more schools can use them. How do we grow the interest in science as the children get older?

4.2 Telescope400

From the *Telescope400* website:

> Four hundred years ago, an Englishman named Thomas Harriot turned a telescope on the Moon and marvelled at its rugged, cratered surface. The drawing he made that night is the oldest known depiction of a celestial object as seen through a telescope, beating Galileo by four months.
>
> Telescope400 celebrated the 400th anniversary of Harriot's achievement at an astronomically themed day for space enthusiasts young and old on the very site where Harriot made his observations – Syon Park, West

London[96]. Exciting and interesting activities ran for all the family: e.g. make a sundial, win a telescope! A memorial to record Harriot's achievements was unveiled by Lord Egremont. The Quatercentenary Lecture and Reception was given by Dr Allan Chapman. Those attending paid only the normal admission charge to Syon House and Gardens, all activities (except the planetarium and the Harriot Lecture) were free.[97]

Most professional astronomers had never heard of Thomas Harriot until IYA2009 and for the UK this was an obvious opportunity to sing the praises of one of its unsung heroes. Indeed, Harriot became an international figure during IYA2009 and his work was noted and published at conferences by a number of professional historians of astronomy. It was also an opportunity to compare and contrast the two men who looked at the Moon – Thomas Harriot and Galileo Galilei – their lifestyles, ambition and circumstances. This all played very well to the press.

A short biography of "England's Galileo" by Allan Chapman, can be found at:
http://telescope400.org.uk/harriot.htm

Figure 16: Thomas Harriot

4.2.1 Reflecting on Telescope 400

Teresa Cooper (Telescope 400 co-ordinator) reflects on the successes, challenges and issues of Telescope 400 in the UK.

> Telescope400 ran, very successfully, on Sunday 26th July 2009, and this [section] contains a brief account of the day. We were very fortunate to get good weather during an unsettled period. There were more than 600 visitors, especially families, and great fun was had by all. One highlight of the day was the unveiling of the Thomas Harriot Memorial by Lord Egremont. A copy of the memorial plaque can be seen here.[98]
>
> The planetarium, in a spectacular setting under the dome of the Great Conservatory, was particularly popular, with an extra show being run at the end of the day to satisfy the demand.
> "Create a Comet" created quite a stir! Robert Massey was at times almost obscured by clouds of gas from the dry ice, as he produced an evil looking simulated comet to the delight of the large audiences.

[96] http://www.syonpark.co.uk/
[97] http://www.telescope400.org.uk/
[98] http://telescope400.org.uk/images/09726%20Harriot_Memorial_Plaque%20(medium).jpg

> Herstmonceux Science Centre's "Make your own Rocket" had youngsters thrilled by the experience of launching their water rockets high into the air, powered by compressed air…
>
> The talks, held in the Northumberland Room of Syon house, were very popular… Thanks to all the speakers who did a terrific job.
>
> There were many displays of telescopes, where people could examine some superb examples of telescopes available to the serious amateur astronomy, and even look at the sun through specially adapted instruments. We were very grateful to all the Astronomy Societies that participated, and explained how their telescopes and other instruments worked…
>
> The solar telescopes were able, much of the time, to show a rather misty view of the sun, although as we are in a period of very low sunspot activity there were none visible to the author of this topic. We hope all the organisations that contributed were able to recruit some new members! Other activities included a space drawing workshop and opportunities for children to make a sundial and a starfinder.
>
> During the event, you might have been forgiven for wondering if there was a ghost present. Thomas Harriot was to be found wandering the grounds, talking about his achievements to the many visitors. He was to be seen looking covetously at the raffle prize; a far better telescope than available in his time. The actor, Alan Cheeseman, made a very convincing Harriot.
>
> The concert in the Great Hall by the traditional music group "Cantamus" was particularly memorable. The hall was a very appropriate venue in which to hear their performance of music from the time of Thomas Harriot. Cantamus also sang just before the unveiling, and at the reception.
>
> The Quatercentenary Lecture, by Allan Chapman, was quite an event. Allan spoke continuously for an hour without notes, never hesitating as he gave a marvellously evocative account of Thomas Harriot's life and achievements. He really brought that period 400 years ago to life with accounts of what it was like to be imprisoned in the Tower, and of Harriot's trip to Virginia. All in all, a splendid day.
>
> [Photos of the day are available in the online gallery[99]. A more detailed account has also been published in A&G magazine (News and Reviews in Astronomy and Geophysics) in the October edition[100].]

No formal evaluation of the Telescope400 event was carried out.

4.3 Spring Moonwatch (28 March – 05 April 2009)

From the *Moonwatch* section of the astronomy2009.co.uk website:

> One of the most fantastic sights you can see is the Moon through a good telescope - the craters and mountains provide a fantastic and memorable experience. The Moonwatch weeks will provide you with an opportunity to see the Moon through a telescope.
>
> This is the opportunity for you to experience of a wide range of public outreach activities, live science events, observing with telescopes, research observatory webcasts and sidewalk astronomy events. One of the key goals is to have as many people as possible look through a telescope, as Galileo did for the first time 400 years ago.
>
> Your local astronomical society, university or science centre will be putting on events during the Moonwatch weeks and you can find out what's on near you by visiting "Find Your Local Events" in the left-hand toolbar and entering your postcode.

Spring Moonwatch was the UK's response to the Global Cornerstone project *100 Hours of Astronomy* (see Chapter 3.3 100 Hours of Astronomy) and was one of the key events during the year on which engagement with the public was heavily focused.

[99] http://www.telescope400.org.uk/gallery/index.htm
[100] http://www.telescope400.org.uk/AAG_article_Vol50I510.pdf

During the early planning stages it was agreed within the IYA2009 Working Group that four days was too short a time to guarantee good weather in the UK, and that a longer event was necessary. It was decided that the obvious focus of this event would be the Moon, and therefore suitable dates were sought to match the first quarter visibility of the Moon. With this in mind, and the observability of Saturn, it was determined that the Spring Moonwatch would take place between 28 March and 05 April, a nine-day event, covering two weekends and the intervening week. Subsequently the second weekend coincided with the 100 Hours of Astronomy.

4.3.1 The Aims of Spring Moonwatch

The aims of the Spring Moonwatch project were:

1. To support the UK astronomy community in running public events to coincide with Spring Moonwatch
2. To encourage a significant proportion of UK amateur astronomy societies to put on public events during Spring Moonwatch
3. To publicise Spring Moonwatch to the general public at a national level
4. To support the publicising of Spring Moonwatch by UK amateur astronomy societies at the local level
5. To monitor and record the participation levels during Spring Moonwatch

4.3.2 Publicising Spring Moonwatch

Spring Moonwatch was publicised on the IYA2009 UK[101] and Society for Popular Astronomy websites[102] as well as via the Royal Astronomical Society's IYA2009 grant scheme[103], which favoured projects which would run within Spring Moonwatch.
The SPA's Moonwatch website received 68,014 hits between November 2008 and May 2010, with 30,320 unique visitors, 11% of which (3391) visited the site more than once. Flyers were also produced by Steve Owens and distributed widely through astronomical societies, organisations and others running events.

The Moonwatch section of the IYA2009 UK website received 12,787 hits over the same period, with 10,324 unique visitors.

The spike in website hits in December 2008 / January 2009 coincides with the announcement of the Moonwatch weeks and the launch of IYA2009.

There are spikes corresponding to Spring (28 March – 05 April 2009) and Autumn (24 October – 01 November 2009) Moonwatch, the latter spike being broader as it also coincides with Schools Moonwatch (19 – 29 November 2009). There is an unexplained spike on the SPA site in early 2010.

4.3.3 Events during Spring Moonwatch

There was a definite spike in the number of UK events during Spring Moonwatch, as can be seen from Figure 18.

There were 125 events organised in the UK as part of Spring Moonwatch. Ninety-two out of these 125 events (73%) have registered attendance figures, which total 9322. If we extrapolate this figure to the total 125 events we get an approximate attendance of 12,700 at Spring Moonwatch events across the UK.

A full list of all Spring Moonwatch events can be found in Appendix 1.

[101] http://astronomy2009.co.uk/
[102] http://www.popastro.com/moonwatch
[103] http://www.ras.org.uk

Figure 17: Moonwatch Website Hits

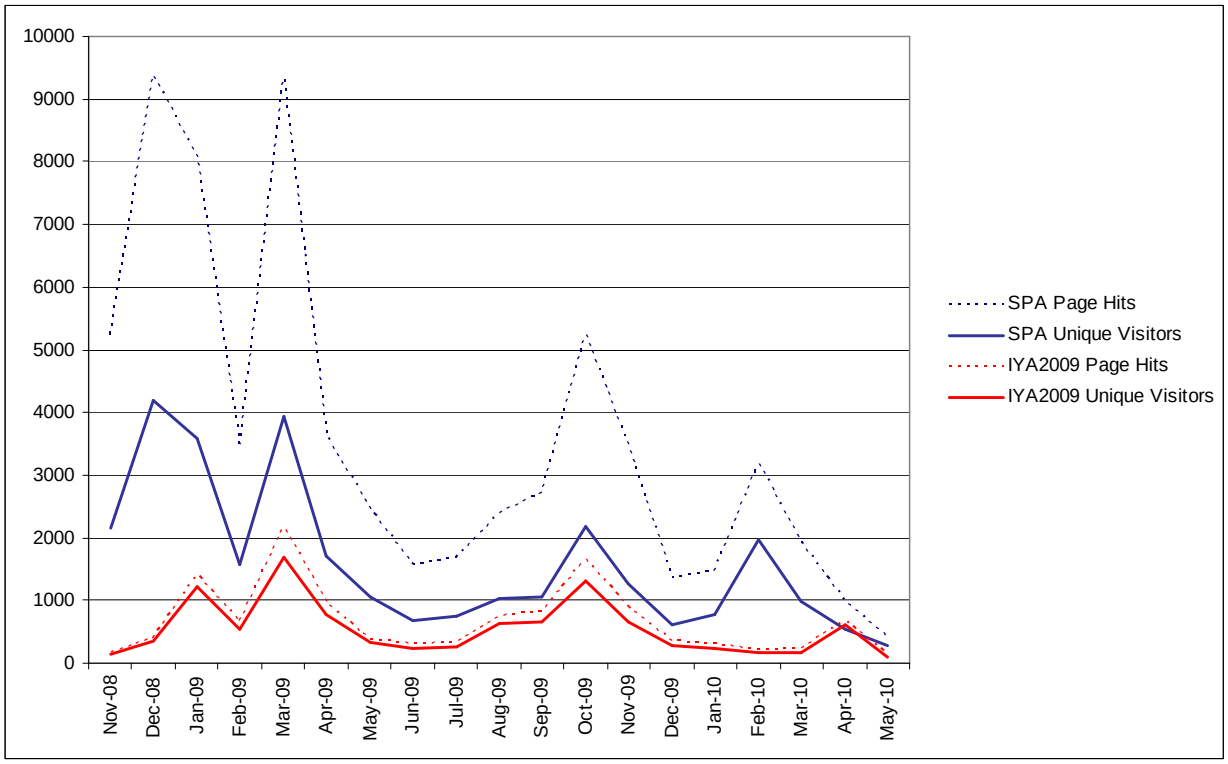
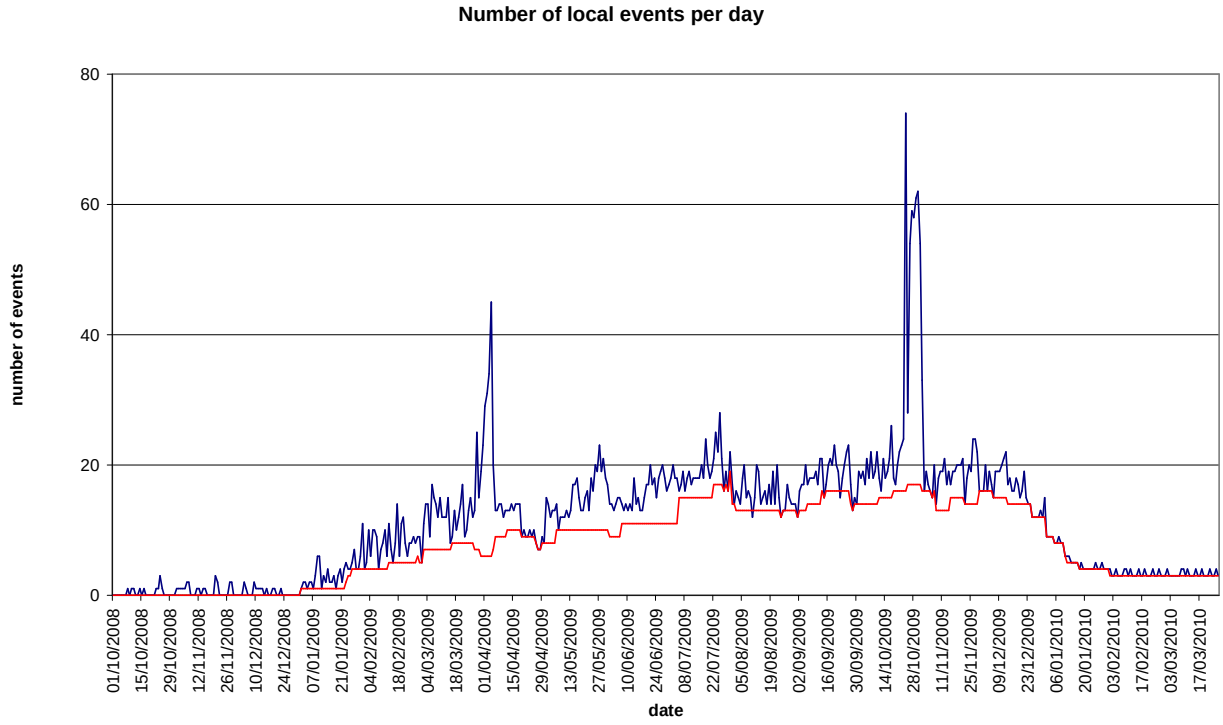


Figure 18: Number of IYA2009 UK Events per Day



4.4 Autumn Moonwatch

From the *Moonwatch* section of the astronomy2009.co.uk website:

> One of the most fantastic sights you can see is the Moon through a good telescope - the craters and mountains provide a fantastic and memorable experience. The Moonwatch weeks will provide you with an opportunity to see the Moon through a telescope.
>
> This is the opportunity for you to experience of a wide range of public outreach activities, live science events, observing with telescopes, research observatory webcasts and sidewalk astronomy events. One of the key goals is to have as many people as possible look through a telescope, as Galileo did for the first time 400 years ago.
>
> Your local astronomical society, university or science centre will be putting on events during the Moonwatch weeks and you can find out what's on near you by visiting "Find Your Local Events" in the left-hand toolbar and entering your postcode.

Autumn Moonwatch was the UK's second contribution to the Global Cornerstone project *100 Hours of Astronomy* (see Chapter3.3 100 Hours of Astronomy), albeit organised well before this eventually became the Galilean Nights (chapter 3.4).

As noted previously, in the initial planning stage the UK IYA2009 Working Group had early-on agreed that two slots should be undertaken during the year rather than just one and the autumn slot was determined to again showcase the Moon as well as Jupiter, reflecting one of the key themes of IYA2009 (Galileo's observations). The dates were set in the same manner as for the Spring Moonwatch and were from 24 October and 01 November 2009. Subsequently, the Global Cornerstone project *Galilean Nights* was chosen to coincide with these dates.

4.4.1 The Aims of Autumn Moonwatch

The aims of the Autumn Moonwatch project were:

1. To support the UK astronomy community in running public events to coincide with Autumn Moonwatch
2. To encourage a significant proportion of UK amateur astronomy societies to put on public events during Autumn Moonwatch
3. To publicise Autumn Moonwatch to the general public at a national level
4. To support the publicising of Autumn Moonwatch by UK amateur astronomy societies at the local level
5. To monitor and record the participation levels during Autumn Moonwatch

4.4.2 Publicising Autumn Moonwatch

The Autumn Moonwatch was publicised on the IYA2009 UK[104] and Society for Popular Astronomy (SPA) websites[105] as well as via the Royal Astronomical Society's IYA2009 grant scheme[106], which favoured projects which would run within Autumn Moonwatch. Flyers were also produced by Steve Owens and distributed widely through astronomical societies, organisations and others running events.

See Chapter 4.3.2 Publicising Spring Moonwatch for information on webstats during Autumn Moonwatch.

4.4.3 Events during Autumn Moonwatch

There was a definite spike in the number of UK events during Autumn Moonwatch, as can be seen from Figure 18. Autumn Moonwatch was more successful than Spring Moonwatch in this regard, possibly as a result of the addition preparation time and funding available to these later events.

There were 185 events organised in the UK as part of Autumn Moonwatch

[104] http://astronomy2009.co.uk/
[105] http://www.popastro.com/moonwatch
[106] http://www.ras.org.uk

Insufficient data was gathered for participant numbers of Autumn Moonwatch activities, but extrapolating from Spring Moonwatch numbers (12,700 over 125 events) gives approx. 18,800 people participating in events during Autumn Moonwatch. A full list of Autumn Moonwatch events can be found in Appendix 1.

4.4.4 Reflecting on Spring and Autumn Moonwatch

Ian Robson and Steve Owens reflect on the successes, challenges and issues of Spring and Autumn Moonwatches in the UK.

Spring and Autumn Moonwatch were another of the UK's major projects, and their success lay mainly with the efforts of the amateur astronomy community, supported by a generous grant scheme from the Royal Astronomical Society.

The number of events running during Spring and Autumn Moonwatch were well above the background level, the Autumn event showing a notable increase on the Spring Moonwatch numbers. This was due to an increased awareness of IYA2009 in the astronomy community as the year went on, and as a result of a more focussed branding exercise, with the production of flyers and posters specifically for the Autumn Moonwatch. The decision to go for the longer event rather than the weekend event of the Global Cornerstones was absolutely vindicated with the weather being unhelpful for some portions of both events.

What was really missing during both Moonwatches was a press hook. In hindsight we may have benefited from increased publicity had we been able to create an event that would attract the attention of mainstream media, even though this is somewhat artificial and possibly disingenuous.

4.5 Twitter Meteorwatch

From the Twitter Meteorwatch website:

> Newbury Astronomical Society @NewburyAS with the International Year of Astronomy 2009 UK @astronomy2009uk, amateur astronomers and societies, will be holding a Twitter Meteorwatch on Tuesday 11th and Wednesday 12th of August 2009. Everyone is welcome to join in, whether they are an astronomer or just have an interest in the night sky.
> This event follows on from the popular Twitter Moonwatch held in May 2009 http://tinyurl.com/m5lw4o
>
> Use the hash tag: #Meteorwatch and get involved, ask questions, follow the event and enjoy the night sky with us. Images and other information will be tweeted as it happens. Live!
> The highlight of the summer meteor showers : The Perseids, reach maximum around The 11th and 12th of August and may put on a display of aproximately 80 to 100 meteors per hour under ideal viewing conditions. Conditions this year aren't ideal but meteors every few minutes are still quite possible. Perseid meteors are often bright with persistent trails which can linger for a while after the meteor has burned up. Further information on the Perseid meteor shower and how to view it, will be posted closer to the time and during the Meteorwatch.
>
> Other main objects of interest on both evenings will be: The Planet Jupiter and the Moon. The planets Mars and Venus will also be visible if you stay up to the small hours.
> The Twitter Meteorwatch will start at 21.30 BST on the 11th of August and will continue through to the evening of the 12th of August. Amateur and professional astronomers from the US and other countries are invited to join in and take over from the UK, when the sun comes up here, helping make the event run for over 24 hours and be truly international. The event will close in the UK, in the early hours of the 13th of August 2009.

The Twitter Meteorwatch, run by Adrian West of Newbury Astronomical Society and Steve Owens, was one of the runaway successes of IYA2009 in the UK. This was a huge breakthrough in the 'New-Media' communication medium. Over the course of the three nights around the peak of the Perseid meteor shower

over 20,000 people on Twitter took part in the #meteorwatch, most of them going outside to view the meteors.

Twitter Meteorwatch received massive press coverage in the UK (and internationally). Indeed, on two of the three nights it was the top "trending topic" on Twitter. [Trending topics are those being most discussed worldwide - #meteorwatch was in first place, in front of American teen pop sensation Miley Cyrus.]

4.5.1 Reflecting on Twitter Meteorwatch

Ian Robson and Steve Owens reflect on the successes, challenges and issues of Twitter Meteorwatch in the UK.

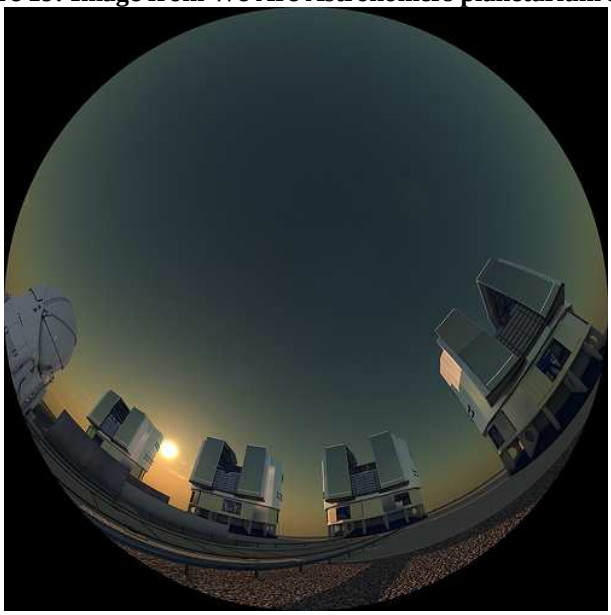
Totally out of the blue and unplanned, this was undoubtedly one of the runaway successes of IY2009. This event owes its success almost solely to Adrian West of Newbury Astronomical Society, along with the press support offered by Steve Owens and Robert Massey at the RAS. This shows that no matter how much the planning, spectacular success stories can just spring up and dominate proceedings. It also shows the power of the New Media, a fact that science communicators need to bear in mind in their dealing with the new generation.

4.6 We Are Astronomers planetarium show

From the *We Are Astronomers* website:

> Do you know what an astronomer does? Today's astronomer is not the lone observer of past centuries. We Are Astronomers reveals the global collaboration, technology and dedication required to answer the unresolved questions of the Universe.
>
> We Are Astronomers narrated by David Tennant is an exciting new 360° Fulldome digital planetarium show produced by NSC Creative with input from UK astronomers.
>
> The project is a collaboration between Armagh Planetarium, Centre For Life, INTECH Science Centre & Planetarium, National Space Centre, Our Dynamic Earth, Royal Observatory Greenwich, Spaceport with funding from the Science and Technology Facilities Council.[107]

Figure 19: Image from We Are Astronomers planetarium show



[107] http://weareastronomers.com/

We Are Astronomers is the UK's centrepiece planetarium show developed for IYA2009. The project was funded by a Large Award from STFC's Science in Society grant scheme[108], along with contributions from the seven partner planetariums, and from NCS Creative[109], who produced the show. The production was overseen by an editorial Board, on which IYA2009 UK was represented by Ian Robson. The venture was (and still is) a spectacular success, being launched by Ian Robson at the National Space Centre on May20th 2009 to a hugely appreciative audience of all ages. The STFC Director of Communications, who was also present at the launch, commented that this was an excellent return on investment from his point of view.

The total project cost for We Are Astronomers was £194,000 with contributions broken down as per Table 9:

Table 9: We Are Astronomers Funding Sources

Funding Source	Amount
STFC Large Award	£90,000
NCS Creative	£55,000
Armagh Planetarium[110]	£7,000
Centre for Life[111]	£7,000
INTECH[112]	£7,000
National Space Centre[113]	£7,000
Our Dynamic Earth[114]	£7,000
Royal Observatory Greenwich[115]	£7,000
Spaceport[116]	£7,000
TOTAL	**£194,000**

Table 10: Total Audience Figures for We Are Astronomers

Planetarium	Total Audience Numbers
Armagh Planetarium	6,944
Centre for Life	28,609
INTECH	6,700
National Space Centre	153,549
Our Dynamic Earth	107,612
Royal Observatory Greenwich	7,755*
Spaceport	Data not provided
TOTAL	**311,169**

* ROG only began showing WAA late in 2009

In total more than 311,000 people saw We Are Astronomers during 2009. All of the seven planetariums listed above are continuing to put on the show in 2010.

[108] http://www.scitech.ac.uk/PandS/Fund/Lge/contents2.aspx
[109] http://www.nsccreative.com/
[110] http://www.armaghplanet.com/
[111] http://www.life.org.uk
[112] http://www.intech-uk.com
[113] http://www.spacecentre.co.uk
[114] http://www.dynamicearth.co.uk
[115] http://www.nmm.ac.uk/places/royal-observatory/
[116] http://spaceport.org.uk

4.6.1 Reflecting on We Are Astronomers

Ian Robson and Steve Owens reflect on the successes, challenges and issues of We Are Astronomers in the UK:

This is one of those projects that gets rave reviews from everyone who has seen it. This is true of all ages and it is amazing how hugely positive all the feedback has been, not only from all ages, but also all types of viewer, from the scientific literate to the novice.

Reflections on 'We Are Astronomers' (WAA) by Paul Mowbray of NSC Creative:

> "Wow" what a year WAA has enjoyed. The show is fast approaching its target of 1 million views in the UK and has received rave reviews from a diverse array of people. The story of international collaboration really struck a chord with scientists from a range of disciplines as it was telling their story of how modern science is practised. The educators were very happy as it gives them the opportunity to inspire their school groups and hopefully get their students to consider how they might consider science and engineering in their future choices. Lastly the general public were just blown away. From young to old everyone comes out with a smile on their face with their own favourite bit, and hopefully next time they look at the night sky they'll have a little more insight into what is going on up there and the kind of things the worlds scientists are exploring.
>
> Making any kind of media that has to please so many different audiences is always a challenge. Making a digital dome film takes this to a whole new level as the dome format requires an immense amount of creative and technical skill to get the most out of it. The sheer size of the larger domes with their 360 degree field of view requires 40 times the amount of pixels per frame as a regular DVD. Most of the environments and camera moves created for the film would not be possible or practical in live action so the latest computer graphics techniques are employed. Beyond the technical challenges of making the dome film one of the biggest challenges was wrangling the various UK astronomers advising on the content who all had their own idea of what should and shouldn't be in the show!
>
> WAA was the first dome show to be launched nationwide across the UK at 7 sites. The show is now being shown around the world and at a recent planetarium conference one planetarium director said it was the best dome show they had ever seen and had to have it for their own dome!

Chapter 5 Public Events

Chapters 3 and 4 outlined those 'Cornerstone Projects' that took place globally and in the UK during IYA2009. In addition to these large programmes there was a host of public events run by 'grass roots' organisations and individuals – amateur astronomical societies, professional astronomers, science centres, planetariums, observatories and individuals from a variety of backgrounds.

The following sections outline the range of these public events and their success. It would have been preferred to have listed all the events, however, there were far too many to include even in an appendix and so for a complete list of these activities please refer to the astronomy 2009 UK website events calendar[117]. In addition, this section deals only with those events that were formally registered with us as IYA2009 UK events (see Section 6.1.5.1 for a description of the registration process). We are well aware that there were IYA2009 events that ran in the UK in 2009 that were not registered, and although we have attempted to contact the organisers to obtain a more complete record, the response has been very patchy. Therefore, we know for sure that the numbers in the following sections represent the minimum number of events, the actual number is definitely higher.

In total over 1,600 IYA2009 registered public events took place in the UK. These were spread over 400 venues throughout the country. Many of these were multi-day exhibitions, and so the total number of "event-days" that ran in the UK during IYA2009 was over 6,100. Appendix 1 gives a very good overview of many of these. See also Figure 18

Table 11: IYA2009 Event Organiser / Venue Type

Event Organiser / Venue Type	Approx % of Registered Events
Amateur Astronomy Societies	42%
Universities	8%
Science Centres / Planetariums / Observatories	31%
Museums and Galleries	8%
Other	11%

As Table 11 shows, the vast majority (73%) of registered IYA2009 events in the UK were run by the amateur astronomy societies (see Section 5.1) and the professional science communication community (science centres, planetariums and observatories) (see Section 5.3)

The professional astronomy (university) community (see Section 5.2) contributed approx. 8% of registered IYA2009 events, which was less than anticipated, and a few notable examples made up the bulk of those events.

It should also be noted that there are a substantial number (11%) of "other" organisers / venues (see Section 5.5) including libraries, churches, schools, parks, hotels and many more.

From the outset it had been expected that the majority of events would be hosted by the amateur societies but that the university/professional groups would come a relatively close second. The ability of the science centres/planetariums etc to step up to the plate was a very welcome outcome and will be discussed further in chapter 7. Furthermore, the sheer range of the grass-roots events was just staggering as can be seen from the list, which we know to be incomplete. This really demonstrated how astronomy can grasp the imagination and provide a vehicle for a number of messages. We will return to this in Chapter 7.

[117] http://astronomy2009.co.uk/calendar

5.1 Amateur Astronomical Societies Events

According to the Federation of Astronomical Societies[118] there are currently 170 astronomical societies that are members. Out of this group 103 (61%) astronomical societies ran events as part of IYA2009 in the UK. This may be giving us a clue as to how many really 'active' societies there may be in the UK as opposed to 'dormant' groups.

5.1.1 Evaluation of Amateur Astronomical Societies IYA2009 Activities

An online survey was sent to *all* 170 FAS member astronomical societies in the UK in February 2010 in order to gather data on membership numbers, total number of events, total audience figures. The complete results of the survey can be seen at www.astronomy2009.co.uk. Below is a summary of each substantive question asked in the survey. Where a question indicates an expanded response please see the full report.

In total 57 amateur astronomical societies replied to the survey (a response rate of 33.5% out of 170 total societies and 55.3% out of 103 IYA2009 active societies). This is a rather disappointing return but in fairness societies were requested to provide quantitative data, which some probably found too hard to do relying on volunteer effort. Extrapolation of these numbers is to the 103 active societies rather than the 170 total societies.

Amateur Astronomical Society Membership Numbers

The first section of the survey dealt with membership numbers, seeking to assess whether they had increased over the course or IYA2009 and if so whether that increase was attributable to IYA2009.

There was membership increase of 357 (8.9%) over these 57 societies, which extrapolates to an increase of 645 members in the 103 active societies. The societies were asked to explain why they thought this increase occurred, and the responses can be seen in the full report. Many suggest IYA2009 as a direct causal factor.

Amateur Astronomical Society Events

The second section of the survey dealt with the number of events run by the amateur astronomical societies, whether these were all branded as IYA2009 events, and whether they were registered with the IYA2009 events database.

69.5% of events run by amateur astronomical societies were branded as IYA2009 events. The majority of the remaining 30.5% represent society meeting which, while open to the public, were not publicised to the same extent as public events.

On average each amateur astronomical society in the UK held 10.65 IYA2009 events, which extrapolates to 1,097 IYA2009 events across the 103 societies. This compares to the 619 events that were formally registered with the IYA2009 events database.

Amateur Astronomical Society Event Attendance

The third section of the survey dealt with the attendance figures of events run by the amateur astronomical societies. The total attendance of IYA2009 events over the 57 societies was 72,024 which extrapolates to a total attendance of approx 130,000 over the 103 active societies.

[118] http://fedastro.org.uk

This equates to an approximate average attendance of 118 people per event.

5.1.2 Examples of Active Amateur Astronomy Societies' IYA2009 Events

While the efforts of the whole amateur astronomical community deserve praise, several societies' efforts stood out as exemplars of good practice during IYA2009. In this section three very active societies describe their IY2009 events:

Cardiff AS:

It was a very busy year for all concerned but we stuck to it and completed a very successful programme in as many different locations as possible. However far from being just about bringing astronomy to the wider public who may not have the opportunity to look through a telescope last year did widen my horizons.

I have been bird watching at an RSPB reserve, enjoyed a choral concert including works by William Herschel, been on a mountain bike trail in the Brecon Beacons (though in truth it was my husband who did the actual mountain biking), looked in envy at the floral displays in an Edwardian heritage garden, met my Assembly member and the Australian ambassador to the UK, did two interviews for Radio Wales, had a chat with Father Christmas and made friends with two of his reindeer. (He did give me an early present – very appropriately it was a Milky Way bar !) I was also invited to represent amateur astronomers, women in astronomy and Wales at a press conference in Greenwich Observatory – so no pressure then but I was ably assisted by Rosa Adams. We also both represented CAS at a Cardiff conference for women in science and technology. The Society held an all day festival at the National Museum of Wales which was very well attended and received.

Every event we held seemed to be enjoyed by the public and we were complimented by the UK Coordinator and the Chairman of IYA activities in the UK for the scope and variety of our programme. But onwards and upwards, we have many other ideas for the future. If you would like to join in with the merry band of volunteers at these events you would be very welcome, please come and see me or Dave Powell.

Guildford AS:

Guildford Astronomical Society held or attended 38 events during IYA2009 and met around 2000 people, many of whom used a telescope for the first time. We held five observing evenings for the public at a local beauty spot, with around 150 visitors each time. We organised a 'She's an astronomer' day when local school students came to the University of Surrey meet several female professional astronomers, to hear their stories and get information about careers in Astronomy and Space Science.

We were at the UK Space Conference with solar observing activities for children on two days, and we appeared at the Surrey County Show and numerous other local shows and festivals.
In collaboration with the University of Surrey we organised 'The Great Look Up' , a giant observing event to mark the start of the UK Science Festival. This event attracted 350 people on the night, and thousands more followed on 'Twitter'. "Surrey Life" magazine ran a 5-page article about GAS in their July issue and one of our members featured in a short BBC film about amateur astronomy.

We responded to many requests than usual during the year from school and youth groups, and we even held a 'pavement astronomy' session outside a local pub.

We've seen the success of IYA2009 reflected in a 30% increase in our membership, and a high demand for our outreach activities. We've already held another very well attended observing session in 2010 and have more planned for the end of this year and beyond.

Mexborough and Swinton AS:

Mexborough and Swinton Astronomical Society took a full and active part in International Year of Astronomy 2009. The events we provided were, 3 Fayre's – 17 Public Viewing Evening's – 13 Solar Sundays – 3 Star Parties – 1 Arts Centre Display – 6 Venue Visits – 12 Library Displays – 24 Guest & Member Speakers.

The 24 lectures from a wide range of speakers including talented amateurs such as Paul Money a well informed and excellent speaker from Horncastle and Dr Allan Chapman, Victorian Historian of Wadham College, Oxford.

The seventeen public viewing evening events attracted some 200 visitors; whilst 13 Sunday afternoon 'drop-in' solar viewing events gave some 40/50 visitors to our observatory at 'Hoober Stand' the opportunity to observe our local star.

We designed an astronomical travelling display and erected it in 12 Rotherham Borough Libraries totalling 226 days from an average of 14 days per library. The staff at each of the libraries said that they had about 30/40 people per day spending time at the display. This gave about 7,000 interested people over the period. The display was in the Mexborough Library for 29 days (13th June to 11th July). This resulted in the same kind of interest, about 800 people.

We provided a 'Astrophotography Display' in the Rotherham Borough Arts Centre for a total of 57 days (9th October 2009 to 5th January 2010). The display then moved onto Swinton Library for a similar period (11th January 2010 to 22nd February 2010) All the images were taken by our members. With this being for 'passing' visitors numbers were difficult to come by, however the staff told us that it was well in the hundreds.

Funding from IOP allowed the public to use good quality equipment under sound tuition and gain an insight into activities of the amateur astronomer, some 260 members of the public taking part in Star Parties.

MSAS is surprised and pleased with the uptake of interest and many visitors have had follow up visits to our observatory and a few have shown interest in joining the society. In addition a local telescope supplier has reported sales that can be traced back to at least one of the events.

We provided an observing evening for The Forestry Commission. Even though the night was extremely cold and windy the public showed their commitment to astronomy with an attendance of 100/150 people, young and old.

On 26th September of IYA we did the same thing at Thrybergh Country Park. The night was a success yet again with an attendance of 250/300 people.

5.2 Professional Astronomy / University Events

Professional astronomy departments within universities contributed approx. 8% of all IYA2009 registered events. All known IYA2009 university events (208) are shown in a table in Appendix 1. However, only 116 of these were registered on the IYA2009 events database during IYA2009, the remaining 92 events were reported after the year ended and enquiries by ourselves. This table almost certainly does not contain *all* events run by universities under the banner of IYA2009 but is the most accurate available at time of writing.

The University of Manchester's Jodrell Bank could be classed as either a Science Centre or a University Group and we have elected to describe the events taking place under the latter heading. Dr Tim O'Brien led a huge effort by the group and had many achievements; notably obtaining a monthly slot on the BBC TV Northwest News concerning 'astronomy now'; the 'guerrilla astronomy' events in Manchester City Centre during the Moonwatch weeks; the Moonbounce from the Lovell Telescope featuring the voices of Steven Hawking and Buzz Aldrin. This demonstrated what could be achieved with a coherent effort and dedicated individuals.

Two other examples of University-led efforts are demonstrated by London and Glasgow.

At University College London, Francisco Diego led a sterling effort to promote astronomy to family audiences through their 'Your Universe' festival. This was run on two occasions and showed fixed displays and several poster sessions, including life in the universe, extrasolar planets and dark energy. One of our major exhibits was at the University of London Observatory showing posters, videos and portable telescopes to observe the Sun, Venus, the Moon and Jupiter. Families and the general public were targeted in the summer event and school groups, families and the general public in the autumn event. Altogether, there were 9 days with nearly 30 public lectures given by members of the Department of Physics and Astronomy, reaching 800 children and 1200 adults. The success of this venture means that it will be continued and this provides a good legacy value.

Dr Martin Hendry led the Glasgow University 'Scottish Solar System' project, which identified locations (university groups, amateur societies and science centres) with the major bodies in the Solar System. During the autumn and winter approx. 50 schools and public events were held across the country, from Stranraer to Shetland, most being clustered around Autumn Moonwatch week. The programme featured engagement by 14 astronomy groups and societies, leading and promoting local events, reaching out to new audiences. The enthusiasm, commitment and support offered by the societies was outstanding. Also included was an 'Island Universe' schools outreach tour of the Western Isles and a sleepover event at Glasgow Science Centre. A series of science fair projects was held with over 50 primary schools in 6 local authorities, organised in conjunction with the Scottish Network for Able Pupils. On November 30th / December 1st two primary schools in Perth Scotland and Perth Australia joined up to take part in simultaneous lunar observing, allowing the Moon's distance to be estimated by terrestrial parallax. Several events attracted significant media coverage, particularly the 'Saturn' projection in Inverness, which featured on the BBC website front page. The Scottish Solar System project now features on Wikipedia as the world's biggest scale model of the Solar System.

5.3 Science Centres, Planetariums and Observatories

Table 12: UK Planetariums during IYA2009

Planetarium Name	Total Planetarium Show Audience Numbers	We Are Astronomers Audience Numbers*
Armagh Planetarium*	41,844	6,944
At-Bristol	108,932	-
Centre for Life*	73,560	28,609
Glasgow Science Centre	55,760	-
INTECH*	82,926	6,700
Manchester Museum of Science and Industry	numbers not supplied	-
National Space Centre*	221,000	153,549
Norman Lockyer Observatory		-
Our Dynamic Earth*	107,612	107,612
Royal Observatory Greenwich*	131,632	7,755
South Downs Planetarium	14,725	-
Southend Planetarium	4154	-
Spaceport*	numbers not supplied	numbers not supplied
Techniquest	24,610	-
World Museum Liverpool	90,600	-
Thinktank	53,500	-
Yorkshire Planetarium	numbers not supplied	-
TOTAL	**1,010,855**	**311,169**

* We Are Astronomers was only shown in seven venues during IYA2009; they are marked with an * in column 1

It should be noted that only a small number of these planetarium shows were registered with the IYA2009 events database, as they were running as part of the normal programme of activities in these planetariums. Furthermore, these are the figures for fixed dome planetariums in the UK only. In addition to these figures an extra 100,000+ people will have seen a planetarium show in one of the many portable planetariums touring the UK. Not all fixed domes planetariums provided information on audience numbers; this table includes only those that did.

Space does not permit a full description of the many events taking place at Science Centres around the UK; these ranged from large exhibitions (such as the Science Museum) to specific events such as sleepovers at Glasgow Science Centre Planetarium, Telescope Amnesties at INTECH Planetarium, Science Fiction film evenings at the Royal Observatory Greenwich and portrait exhibitions at the Centre for Life.

An overview from some very active science centres follows:

IYA 2009 at the Royal Observatory Greenwich

A major goal of IYA at the Royal Observatory was to bring new audiences to astronomy. In this spirit we decided to supplement our usual range of planetarium shows, public talks and observing sessions with a variety of other events and activities designed to broaden audiences and appeal to people who had never attended a science or astronomy event before. We tried to be as imaginative as possible, with events featuring poetry, music and literature as well as movie nights in the planetarium and a very successful link-up with the Sci-Fi London film festival. Did it work? Visitor numbers to the Observatory in 2009 were certainly up – at 1.6 million, the highest they've ever been – and the audiences for our public events had a markedly different demographic breakdown, with a younger and more diverse profile than in previous years. In November our IYA programme won Visit London's Gold Award for Best Tourism Experience of 2009 against stiff competition from established tourist attractions such as the London Dungeon. For us, the main legacies of IYA are the network of partnerships which we've developed with scientific, cultural and tourism organisations across London and a new confidence to programme challenging and innovative events for diverse and non-traditional audiences. It was a lot of work, but definitely worthwhile.

IYA2009 events at The Observatory Science Centre (Herstmonceux)

The Observatory Science Centre worked with Astronomical Societies and volunteers throughout the year making IYA 2009 a huge success. Schools activities developed for use within The Centre included an "Archive workshop" with telescope making activity and a Water Rocket/Lander team challenge. For Outreach a planetarium show with telescope making activity was delivered with help from Kew Astronomical Society. Four family activity weekends took place; three making simple refracting telescopes and one creating lunar craters. Families had great fun working together and a large number of telescopes were made, plus plenty of inspired lunar craters using all different kinds of make-shift "meteors and asteroids." During Spring Moon watch week there were lunar sketching evenings with Sally Russell, artist and amateur astronomer and some fantastic masterpieces were created. To celebrate the 40th anniversary of the lunar landings Worthing Astronomical Society spent the whole day at The Centre with a display from Sir Patrick Moore's personal collection. This was complemented in the evening with a lecture and viewing through the telescopes. The Centre attended the British Science Festival at Guildford with Guildford Astronomical Society where over 100 families took part in telescope making activities. More telescopes were made at the annual astronomy festival and during the beginner astronomy course for adults. All in all the celebrations were extremely well received and many families were able to take away simple refracting telescopes that hopefully encouraged young and older minds alike to look up at the stars and take a more active interest in astronomy.

IYA2009 at INTECH Planetarium (Hampshire)

We didn't run extra events specifically for IYA2009 (note we run many such events anyway), although we did use the IYA2009 branding and were inspired to run "Telescope Amnesty"s which are continuing past IYA2009 as "Stargazing Night (inc Telescope Clinic)"s. These helped build a strong relationship with regional astronomy groups (although this had already been our objective before IYA2009 came along).

The main effect we felt from IYA2009 was the production of the We are Astronomers planetarium show, which was, and remains, a core part of our programme. This was a great boost to the planetarium.

We didn't run any evaluation of whether visitors were aware of IYA2009 or where they had heard of our events so cannot state whether this affected the number of visitors. I would suspect that the general boost in coverage of astronomy through the year (because of both IYA2009 and also the Apollo anniversaries) did help, but I cannot back this up with data.

I thought the communication from IYA2009 was generally very good. I heard a lot about it from different places and certainly felt I was connected to the event as a whole.

IYA2009 at the Centre for Life (Newcastle)

> IYA was a great time for us. The planetarium show We Are Astronomers was a very successful collaboration and the resulting show has been wowing audiences ever since. They (and we) love it. In September 2009 we started running live planetarium shows. These are proving very popular and we will continue to do them.
>
> We were also fortunate to have the touring exhibition of portraits 'Explorers of the Universe' by photographer Max Alexander. We found it great to have a more contemplative part of the temporary exhibition space and using a section of the space as a gallery worked nicely. This over ran into 2010, and the early stages of 2010 were incredibly productive for Astronomy with many school space science workshops, live planetarium shows and brownie stargazer and cub astronomer badges.
>
> Out Mini astronomy series of six talks by guest speakers was sold to capacity, and we were pleased to invite Steve Owens, the UK co-ordinator for IYA as our final speaker.
>
> We have found that IYA helped us to draw a spotlight to the planetarium and our astronomy provision. This helped raise awareness of what is available in the region and it has helped us grow our reputation within the North East with regards to astronomy.
>
> It hasn't all been sunshine and roses, however. 2009 saw the launch of a new astronomical society to Newcastle, Luna, founded by two of our Mini Astronomy speakers. Luna has found it difficult to thrive with numbers and might not see 2010 through. It is always better to try these projects, and IYA was a great time to trial it.

IYA2009 at Glasgow Science Centre

> International Year of Astronomy 2009 provided a unique platform for Glasgow Science Centre to develop astronomy activities suitable for a range of audiences. During this global celebration of astronomy, we took the opportunity to inspire new and different audiences to engage with the cosmos in a variety of ways. Our main aims were in line with those of the International Year of Astronomy Cornerstone projects. This involved developing and delivering programmes for the Spring and Autumn MoonWatch weeks and 100 hours of Astronomy Project; collaborating with fellow astronomy enthusiasts including astronomy societies and universities; taking part in She is an Astronomer to encourage women to study science and extending the reach of astronomy programmes to remote locations to engage new and different audiences.
>
> The programme for International Year of Astronomy at Glasgow Science Centre reached 4275 people through the following activities: 2 sleepover events, 2 planetarium music events, 8 evening lectures, 4 Saturday classes, a Lunar Landings day celebration and a weekend event for Autumn MoonWatch. A further 1000 people are expected to be reached via the podcasting arm of the project that is due for completion at the end of March 2010.

Detailed reports of events run at a selection of science centres can be found online at www.astronomy2009.co.uk

5.4 Museums and Galleries

From large IYA2009 events at museums and galleries – such as *Cosmos and Culture* at the Science Museum, *Portraits of Astronomers* at the National Portrait Gallery, *Explorers of the Universe* at the Royal Albert Hall, *All the Dead Stars* at Tate Britain – to the smaller astronomy exhibitions in local museums, 8% of IYA2009 events in the UK took place in such venues.

This aspect was another of the pleasing outcomes of IYA that vastly exceeded expectations. The way that individuals and organisations used astronomy as a hook to convey a wider message in an artistic fashion was really rewarding. While the Science Museum's exhibition was spectacular, this was also an experiment in non-traditional display techniques, and will receive a full evaluation as part of their normal quality process. The two astronomy portrait exhibitions were both outstanding successes while *All the Dead Stars* shows how

astronomy data can be woven into a tapestry of an artistic rendering. A complete list of registered IYA2009 taking place in UK museums and galleries can be found in Appendix 1.

Figure 20: http://douglas-menzies.com/

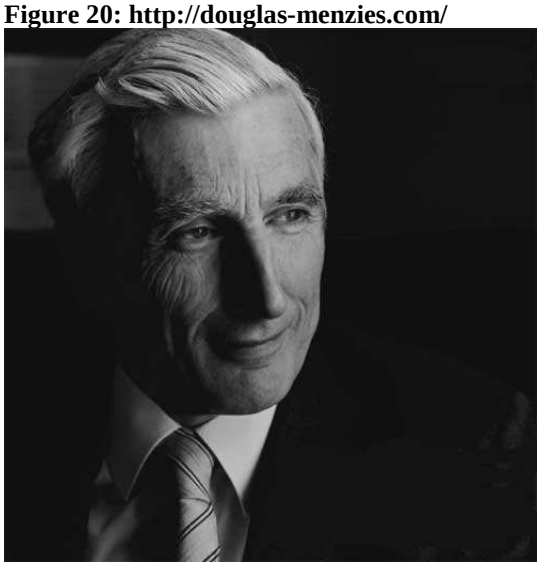


Figure 21: http://maxalexander.com

5.5 Other Organisers and Venues

This is where we come to the ‘everything else’ category, which for many reasons is perhaps the most interesting because it was the ‘way-out’ or ‘left-field’ activities that we had never thought would take place. There were some truly inspirational events in this category and although invidious, examples of the variety of events include: ‘A Cosmic Concert’ at All Saints Church, Penarth (Wales); ‘Dark Skies Canal Corridors: An Audience with the Astronomer Royal for Scotland’ at the Falkirk Wheel; Lincolnshire Wildlife Trust Starnights: The Ever-changing Aspect of the Night Sky at the Far Ings National Nature Reserve; ‘Well dressing at Bollington, Derbyshire, an annual festival dedicated to IYA2009; ‘Van Gogh's Night Skies’, a lecture at the Moreton Area Centre; ‘Twinkle Twinkle Little Bat’ - guided walk and astronomy by the National Trust for Scotland at the House of the Binns and other locations; ‘Sun-watch in North Berwick’ at the Scottish Seabird Centre; ‘Mission to the Moon with Captain Cosmos’ at the Vale and Downland Museum; ‘A Night Under the Stars’ at the Village Hall Westbury-on-Trym; Public Star Party at the Wirral Country Park; ‘Suntreck and Sun-worshiping’ at the Glastonbury Pop Festival; ‘The Search for Life in the Solar System’ a talk at the The Mozart Drive Community Centre; ‘Wonder: a Scientific Oratorio’ a special production for IYA2009UK given by the BBC Philharmonic and Salford Choral Society; ‘One Giant Leap’ a play by Wee Stories; July Lunar Landing – cheese and wine party at Herstmonceux Castle;

Such venues and organisers account for 11% of all IYA2009 UK events.

Chapter 6 Communicating IYA2009 in the UK

6.1 The IYA2009 UK Website Overview

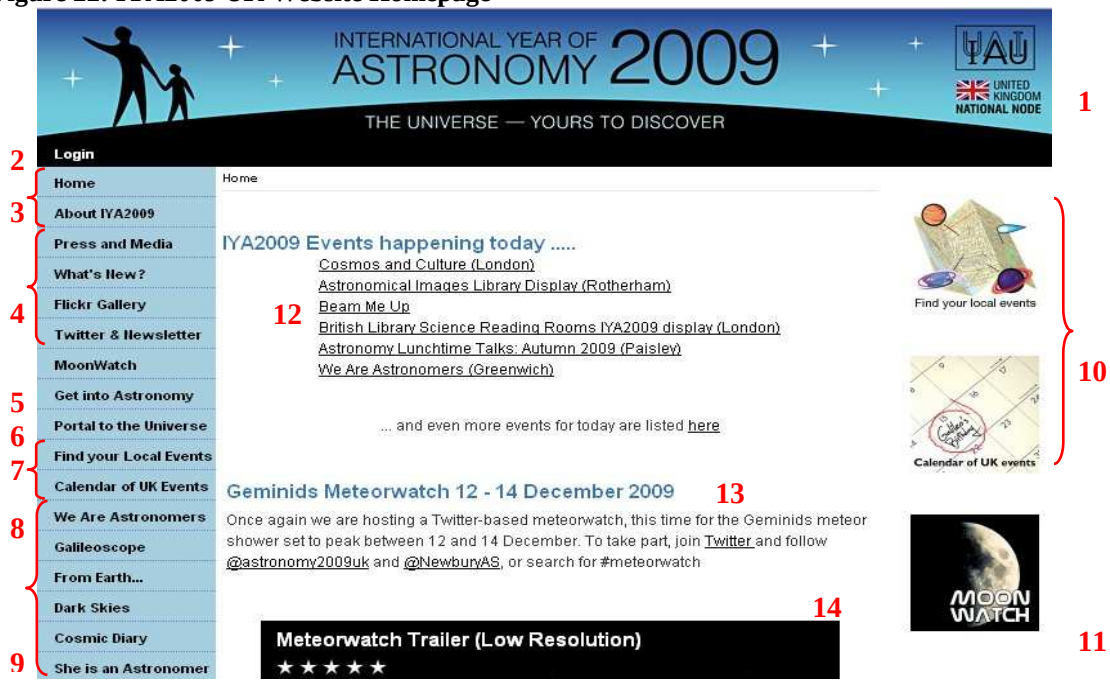
One of the key factors considered in the lead-up to IYA2009 was how best to communicate the existence of the year and related activities with the public. Like the global project, the web was the obvious tool and so significant effort was undertaken in setting this up; thinking hard about the design and how well it could be updated, maintained and supported. The resulting UK website[119] was the central repository for information on the programmes and events described in Chapters 3 - 5. This section outlines the structure of the website, web statistics, web-based communication channels, and the database of IYA2009 events.

The main use of the website was as a database of all UK events, using Google calendars and a bespoke interactive map, developed by Quentin Stanley and supported by the Royal Astronomical Society. The advantage of this approach was to make all registered events in the UK searchable by date and/or postcode. The website was maintained by the IYA2009 UK Co-ordinator who was solely responsible for the content of the website and all its sections. It was hosted by the Royal Astronomical Society[120] and the technical and developmental support was generously provided by Quentin Stanley[121].

6.1.1 Website Structure

Significant effort was put into the design of the layout of the site – experience from the style of the global site was put to good use in this context as we had very good contacts with this group. From the outset it was important that the site was easy to navigate, easy to update and easy to support and maintain. Given that the site was the shop-window of the IYA2009 UK 'brand' it was important that it had good user appeal. Trial users were exposed to the design at an early stage to get informed feedback. Getting the webpage right first time is definitely something that is critical to the overall success of such promotional activities.

Figure 22: IYA2009 UK Website Homepage



[119] http://www.astronomy2009.co.uk
[120] http://www.ras.org.uk/
[121] q@hpsresearch.com

Figure 22: IYA2009 UK Website Homepage shows the homepage of the IYA2009 UK website. The numbered labels are described in Table 13.

Table 13: IYA2009 UK Webpage Structure

Section Number	Description	Comments
1	Title Banner	All IYA2009 National Node websites used the same layout and graphics for their title banner. The UK website was identified by the "United Kingdom National Node" logo
2	Login	Webmaster access for website editing
3	Info Section	The "Home" and "About IYA2009" sections contained general information on IYA2009 globally and in the UK
4	Communications	The communication section had three separate areas: 1. Press and Media: see Section 6.2 2. Flickr Gallery: see Section 6.1.3.3 3. Twitter and Newsletter: see Section 6.1.3.1
5	Special Events	Any events that merited special prominence were placed higher up the menu list
6	Get into Astronomy	A short section for the general public on how to take up astronomy as a hobby
7	Portal to the Universe	A link to the Portal to the Universe website
8	Events Database	Access to the events database via a map search or calendar search
9	Cornerstones and Special Projects	A list of all currently active Cornerstone Projects and UK Special Projects
10	Events Database	Access to the events database via a map search or calendar search. These graphics were produced to especially highlight these sections.
11	Special Events	Any events that merited special prominence were given graphics which were produced to especially highlight these events.
12	Today's Events	An auto-generating list of events taken from the events database. The list was limited to six events, randomly selected from the complete list of the day's events.
13	News Section	News items that merited special attention were posted to the front page as well as the What's New page
14	Embedded media and graphics	News items often contained embedded media files and graphics to make them more impactful

6.1.2 Web statistics

This section outlines the webstats for the IYA2009 UK website. For a full report see www.astronomy2009.co.uk

6.1.2.1 Visitors Overview

Table 14: Website Visitor Numbers 01 Jan 2008 – 31 Dec 2008 (pre-IYA2009)

Number of visits	**10,298**
Number of unique visitors	7,334
Number of page views	35,438
Average number of visitors per day	20
Average page views per person	3.44

Average time on site	00:03:13
Bounce Rate	42.79%

Table 15: Website Visitor Numbers 01 Jan 2009 - 31 December 2009 (IYA2009)

Number of visits	**68,808**
Number of unique visitors	53,936
Number of page views	188,191
Average number of visitors per day	148
Average page views per person	2.74
Average time on site	00:02:20
Bounce Rate	54.05%

Table 16: Table 21: Website Visitor Numbers 01 Jan 2010 – 14 June 2010 (post-IYA2009)

Number of visits	**6,355**
Number of unique visitors	5,633
Number of page views	12,584
Average number of visitors per day	34
Average page views per person	1.98
Average time on site	00:01:12
Bounce Rate	84.31%

As can be seen from Table 22 an average of 148 people visited the site per day during IYA2009, compared to only 20 per day during 2008.

There were over 60,000 visitors to the IYA2009 UK website from January 2008 to the end of IYA2009, each visiting an average of 3 pages, each spending an average of just under two-and-a-half minutes on the site.

The statistics for average page views, average time on site, and bounce rate, are consistent when comparing visits during the calendar year 2009 to visits over the entire duration of the website.

Figure 23: Website Visitor Numbers during 2009

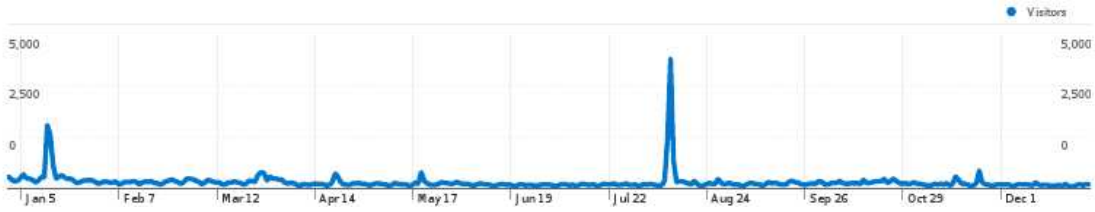


Figure 23 shows the main spikes in traffic to the IYA2009 UK website. The traffic spikes are detailed below in Table 17

Table 17: Traffic Spikes to the IYA2009 UK Website during 2009

Traffic spike date	Number of visitors each day	Event
14 – 16 January 2009	2060, 1730, 722	Thomas Harriot article and link on BBC News Online[122]
11 – 13 August 2009	1661, **4244**, 902	Twitter Meteorwatch (see Section 4.5)

[122] http://news.bbc.co.uk/1/hi/sci/tech/7827732.stm

6.1.2.2 Traffic Sources Overview

Figure 24: Traffic Sources to the IYA2009 UK Website

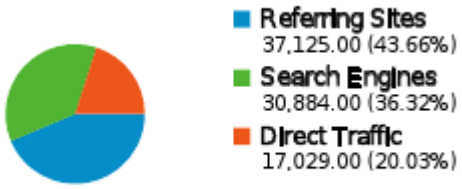


Table 18: Top 5 Traffic Sources to the IYA2009 UK Website 01 Jan 2009 – 31 Dec 2009

Source	% Visits
Google search (see Table 19)	33.01%
Direct traffic	20.02%
Astronomy2009.org (referral)	6.65%
twitter.com (referral)	3.07%
news.bbc.co.uk (referral)	2.97%

Table 19: Top 5 Key Words in Search Engines 01 Jan 2009 – 31 Dec 2009

Key Words	% Visits
international year of astronomy	7.80%
year of astronomy	3.77%
moonwatch	3.57%
Iya	3.06%
international year of astronomy 2009	2.82%

This shows that people knew what they were looking for, i.e. that they did not just search for "astronomy" and stumble across the website; they already knew that it existed.

6.1.2.3 Content Overview

Table 20: Total Page Views 01 Jan 2009 – 31 Dec 2009

Total Page views	**188,191**
Unique Page Views	156,008

Table 21: Top 10 Most Popular Pages 01 Jan 2009 – 31 Dec 2009

Page	Total Views	Unique Views	Average Time	Bounce Rate
Homepage	41,218	33,010	00:01:23	40.65%
Events Map (see Section 6.1.5.3)	12,404	10,291	00:01:26	40.25%
Events Calendar (see Section 6.1.5.2)	11,498	9,216	00:01:33	71.76%
Moonwatch	10,273	8,209	00:01:28	62.85%
About IYA2009	10,234	8,723	00:01:19	74.67%
Main Menu	6,295	5,217	00:01:20	61.90%
Dark Skies	5,117	3,874	00:01:27	49.98%
Get Into Astronomy	5,116	4,349	00:01:57	55.27%

Resources	3,456	2,465	00:01:35	50.49%
Telescopes for Schools	3,287	2,763	00:01:20	70.47%

6.1.3 Other Web-based Communication Channels

In addition to the IYA2009 UK website there were a number of other communication channels used to disseminate information.

6.1.3.1 Twitter

From the Wikipedia entry on Twitter:

> Twitter is a social networking and micro-blogging service that enables its users to send and read messages known as tweets. Tweets are text-based posts of up to 140 characters displayed on the author's profile page and delivered to the author's subscribers who are known as followers. Senders can restrict delivery to those in their circle of friends or, by default, allow open access.[123]

The IYA2009 UK Twitter account @astronomy2009[124] was launched in February 2009. Twitter has proven to be a very effective means of disseminating information about IYA2009.

Figure 25: @astronomy2009uk Twitter page

While uptake in the first few months was slow (only a few hundred followers), after the Twitter Meteorwatch event (Chapter 4.5) the number of followers increased rapidly.

The total number of people following the @astronomy2009 Twitter feed is currently 4054 [125], representing an average increase of 4.9 followers per day, although the bulk of these followers (approx. 3,000) were amassed during the Twitter Meteorwatch. To date 1389 tweets have been sent from @astronomy2009, an average of one or two tweets per day.

Table 22: Other IYA2009 Twitter Feeds

Twitter Feed	Number of Followers as of 25/05/2010
@astronomy2009 (central Twitter feed of IYA2009)	5235
@astronomy2009uk	**4054**
@IYA_US (USA)	849

[123] http://en.wikipedia.org/wiki/Twitter
[124] http://twitter.com/astronomy2009uk
[125] as of 25 May 2010

@astronomy2009nz (New Zealand)	531
@astronomy2009ie (Ireland)	343
@astronomy2009ns (Nova Scotia)	103
@astronomi2009 (Sweden)	99

Table 22 shows that the @astronomy2009uk Twitter feed was the most subscribed of all national node Twitter feeds, only a short way behind the global IYA2009 Twitter feed. This is an amazing achievement given the use of Twitter globally.

Measured against other astronomy/science twitter feeds in the UK, the @astronomy2009uk feed is amongst the most heavily subscribed, ahead of @popastro (Society for Popular Astronomy), @RoyalAstroSoc (Royal Astronomical Society), @STFC_Matters (STFC), and well ahead of all science centre feeds. It also compares favourably with @physicsnews (IOP) and @sciencemuseum (London Science Museum).

6.1.3.2 eNewsletters and the "What's New" page

A total of 40 eNewsletters were sent to the email distribution list of approx. 500 individuals throughout IYA2009. Each eNewsletter was based upon an article in the "What's New" section of the IYA2009 UK website.

Table 23: eNewletter Articles

Article Title	Date Published
Win a Galileoscope! What's been your highlight of IYA2009?	17/12/2009
Bluemoonwalk	16/12/2009
Geminids Meteorwatch 12 - 14 December 2009	07/12/2009
Explorers of the Universe	24/11/2009
The UK's First International Dark Sky Park	16/11/2009
Campaign for Dark Skies e-petition	30/10/2009
Royal Astronomical Society Special Discussion Meeting	30/10/2009
#Moonwatch Slideshow	26/10/2009
#Moonwatch Twitterfall *	26/10/2009
Cosmic Collections Website Competition	20/10/2009
Autumn Moonwatch	16/10/2009
Twitter Moonwatch Competition - Your Chance to Control a Professional Telescope!	15/10/2009
Twitter Moonwatch 26/27 October	15/10/2009
She Is an Astronomer Forum *	14/10/2009
Galileo Teacher Training *	14/10/2009
Galloway Forest Dark Sky Park	14/10/2009
Galilean Nights	14/10/2009
Explorers of the Universe	21/09/2009
Winter Solstice Event at Stonehenge	21/09/2009
Autumn Moonwatch Call to Action	08/09/2009
Astronomy Photographer of the Year	01/09/2009
Twitter Meteorwatch Report	19/08/2009
Win a Galileoscope!	15/08/2009
Twitter Meteorwatch	07/08/2009
Open Letter to Astronomy Societies	28/07/2009
What Would Harriot Tweet? Competition Winners *	24/07/2009
Watch the 2009 Eclipse Live Online!	21/07/2009
What Would Harriot Tweet?	13/07/2009

Celebrating the 1919 Eclipse at Principe	12/06/2009
IYA2009UK on Flickr	12/06/2009
Scottish Constellation	09/06/2009
Twitter Moonwatch!	01/06/2009
Twitter Haiku Competition	01/06/2009
European Hands-On Universe Wins Silver Medal *	29/05/2009
Tickets on sale for Thomas Harriot Lecture and Reception	07/05/2009
JENAM2009 *	15/04/2009
World's First Dark Sky Discovery Site Announced!	26/03/2009
Can you see the stars?	11/03/2009
IYA2009 features in IoP Physics World (March 2009) *	03/03/2009
Observing the Sun Safely	26/02/2009
IYA2009 UK Opening Ceremony	24/02/2009
IYA2009 UK on Twitter!	23/02/2009
RAS announce extended IYA2009 grant scheme	15/12/2008
Telescopes for Schools Announcement	19/11/2008
IYA2009 at the Party Conferences	17/09/2008
Welcome to the International Year of Astronomy in the UK!	14/02/2008
United Nations endorses IYA2009 *	21/12/2007
What is the International Year of Astronomy 2009? *	15/04/2007
Report on CAP2007 *	25/10/2007
Talk on IYA2009 by Professor Ian Robson at NAM2007 *	15/04/2007
Major Events for 2009 *	26/01/2008
UK IYA2009 Coordinator appointed *	19/12/2007
Amazing new and bright comet from nowhere *	26/10/2007
UK IYA2009 Coordinator - new post *	04/10/2007
IYA2009 Brochure Now Available *	23/09/2007

* News articles not published as eNewsletters

6.1.3.3 Flickr Group

From the Wikipedia entry on Flickr:

> Flickr is an image hosting and video hosting website, web services suite, and online community. In addition to being a popular website for users to share and embed personal photographs, the service is widely used by bloggers to host images that they embed in blogs and social media [126].

There was an IYA2009 UK Flickr group[127] which to date has 29 members and 209 images, mainly taken at star parties and other IYA2009 UK events. This is a very useful repository of image material for 'engaging the public'.

6.1.4 Web-based Resources

The Resources page on the IYA2009 UK website had many downloadable resources that were used by events organisers to brand and publicise their events. Each of these resources is shown in Appendix 4. A total of 3,286 people visited the resources page, and just under 10% (302) made downloads.

Examples of downloadable material include: the logo, available in .jpg, .eps, .ai and .tiff formats, in both black-and-white and colour, horizontal and vertical; a special version of Ian Robson's "IYA2009 in the UK" Powerpoint presentation; special flyers for the Autumn Moonwatch and special events (of which 50,000

[126] http://en.wikipedia.org/wiki/Flickr
[127] http://www.flickr.com/groups/astronomy2009uk/

were printed in A6 format and distributed around the UK during IYA2009); posters; the events registration form (Chapter 6.1.5).

6.1.5 Database of Events

The IYA2009 UK website was the central repository for information on the programmes and events described in Chapters 3 – 5. All events were required to be registered using the downloadable form (see below) with the IYA2009 UK Co-ordinator, who was also responsible for inputting the data into the events database. This ensured that a common standard could be attained and that all essential information was presented for the public. The database was built by Quentin Stanley around the Google calendar and Google maps API.

Once an event was registered and entered into the database it automatically appeared in the "IYA2009 UK Events" Google calendar (6.1.5.2) and generated a venue location pin on the interactive Google map (6.1.5.3)

6.1.5.1 Registering IYA2009 UK Events

Events were registered via a simple one-page word document that could be downloaded, completed and emailed to the IYA2009 UK Co-ordinator. The registration form is reproduced below.

6.1.5.2 IYA2009 UK Events Calendar

The data from the events database was represented in a Google Calendar. This calendar could be added to an existing Google account, so that users could personalise their own calendars by adding IYA2009 events. The calendar displayed events by day, week, or month.

Figure 26: IYA2009 UK Event Registration Form

International Year of Astronomy 2009 (UK)
Registration Document

Please note you can double-click on the grey boxes below and input your text in the "default text" section

Project Name:
(The title of your event / project that you would want used in any publicity or marketing material. It will appear **as you have written it**)

Project Leader:
(The name of the person running the project, along with their email address)

Project Description:
(Text that describes your event / project that you would want used in any publicity or marketing material. It will also appear **as you have written it** on the IYA2009 website)

Project Timings

Start Date: **Start Time:**

End Date: **End Time:**

(If your event is a one-day event, please enter the start date and end date as the same date)

Project Venue:
(Please include a full address, inc. post code)

Project Website:
(So people can to find more about your project, it would be useful to include a website that we can link to from the IYA2009 page. If your project doesn't have a website, then you might link to your organisation's own page i.e. astronomy society, university department)

Any other info:
(i.e. is your event ticketed? If so, how can people get tickets?)

Project Type (Double-click on the grey check box and select "checked")

☐ All ☐ Competition ☐ Demonstration

☐ Debate / Discussion ☐ Drama / Performance ☐ Exhibition / Display

☐ Hands-on activities ☐ Lecture / talk / presentation ☐ Observing Session

☐ Open Day ☐ Workshop

☐ Other (please specify):

Target Audience

☐ All ☐ Adults ☐ Families

☐ Amateur Astronomers ☐ Professional astronomers

☐ Under 5s ☐ Schools: primary ☐ Schools: secondary

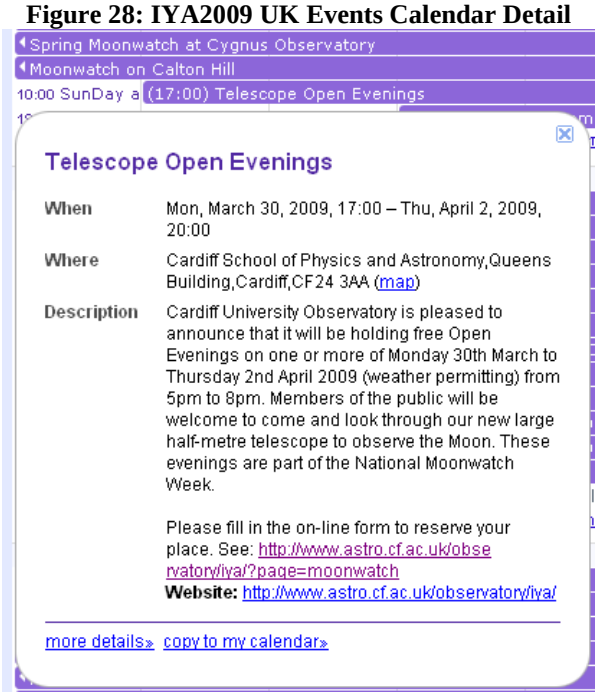
☐ University Students ☐ Private Event

☐ Other (please specify):

Figure 27: IYA2009 UK Events Calendar, Month View, April 2009

Each entry in this calendar was clickable and yielded more information on the event.

Figure 28: IYA2009 UK Events Calendar Detail



6.1.5.3 IYA2009 "Find Your Local Events" Map

The data from the events database was represented in an interactive Google map, which was one of the key features of the communicating with the public in terms of simple information transfer. Under the "Find Your Local Events" section of the website it was possible to enter a UK postcode, a date range, and a search radius (25, 50, 100, 200 miles or "everywhere") to personalise a search. Each venue returned a clickable pin on the embedded Google map where more information was provided.

Figure 29: IYA2009 UK Events Map

6.2 Press and Media Overview

Because it was understood that communicating with the public also relied on 'push' with the media in terms of press releases etc, a specialist 'press group' was set up to oversee publicity and media during IYA2009 in the UK. This section details the activities of this group, and the publicity generated as a result of that activity.

6.2.1 The Press Group

The IYA2009 press group consisted of four members:

1. Joseph Winters, Institute of Physics (IOP)
2. Robert Massey, Royal Astronomical Society (RAS)
3. Julia Maddock, Science and Technology Facilities Council (STFC)
4. Steve Owens, IYA2009 UK Co-ordinator

The press group met on three occasions during 2008 and 2009 to plan the press strategy. Individual projects were managed by individual members of the group, with Joseph Winters and Robert Massey carrying out the majority of the work.

In addition to the press releases that were issued (see Section 6.2.2) eight meetings were arranged in late 2008 with science journalists at the Guardian, Telegraph, and Metro newspapers, as well as the BBC. These informal meetings generated a great deal of very useful publicity for IYA2009.

6.2.1.1 IYA2009 Launches in the UK

The formal launch of IYA2009 in the UK was held under the auspices and at the venue of the Royal Observatory Greenwich on February 18th 2009. It was a glittering occasion and the ceremonies were hosted by Kevin Fewster, Director of the National Maritime Museum and Professor Ian Robson. The guest of honour, Lord Rees of Ludlow, the Astronomer Royal and President of the Royal Society, undertook the

official opening with a thought-provoking address. Over 150 invitees were also able to tour the exhibits and to see a planetarium show.

The Scottish launch was held at the Royal Observatory Edinburgh on February 25th, where the Astronomer Royal for Scotland, Professor John Brown, and the Chief Scientific Adviser to the Scottish Government, Professor Anne Glover opened the proceedings. The event took the form of a series of presentations by individuals and groups who had planned IYA2009 events already in the pipeline and covered the length and breadth of the country.

6.2.2 List of Press Releases

During 2009 the UK press group issued ten press releases specifically relating to IYA2009 events and activities.

Table 24: List of IYA2009 Press Releases

Press release number / name	Date of Issue
RAS PN 08/53: SPACE AND ASTRONOMY A HIT WITH PUPILS AS 1000 SCHOOLS GET FREE TELESCOPES	17/11/2008
RAS PN 09/2: THOMAS HARRIOT: A TELESCOPIC ASTRONOMER BEFORE GALILEO	14/01/2009
RAS PN 09/6: WHAT DID GALILEO ACTUALLY DO?	19/02/2009
RAS PN 09/12: TENS OF THOUSANDS TO GET A FIRST GOOD LOOK AT THE MOON	25/03/2009
ROE01: WORLD'S FIRST DARK SKY DISCOVERY SITES ANNOUNCED IN SCOTLAND	25/03/2009
RAS PN 09/45: A CELESTIAL MOUSE: SCOTTISH CHILDREN MAKE A NEW CONSTELLATION	20/06/2009
RAS PN 09/47: CELEBRATING THOMAS HARRIOT, THE WORLD'S FIRST TELESCOPIC ASTRONOMER	14/07/2009
RAS PN 09/50: TWEETING SHOOTING STARS	10/08/2009
RAS PN 09/62: FLURRY OF GEMINID METEORS TO LIGHT UP DECEMBER SKY	11/12/2009
RAS PN 09/63: CELEBRATING 5000 YEARS OF ASTRONOMY	11/12/2009

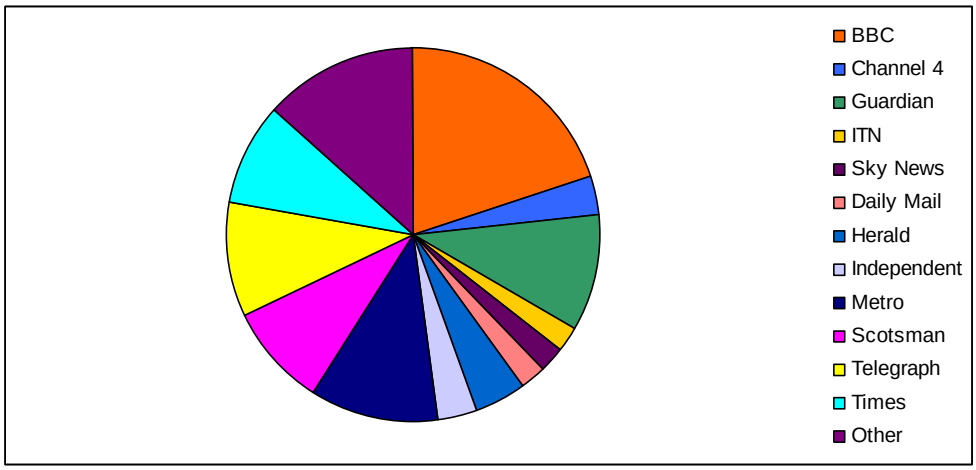
This is the complete list of press releases issued *specifically* for IYA2009 events. Other astronomy-related releases were issued by the press group that made mention of IYA2009 as well as press releases issued by other organisations running local and regional events using templates provided by the IYA2009 Press Group.

6.2.3 IYA2009 UK Media Features

All of the media coverage recorded via Google news alerts during 2008-2009 can be found in Appendix 2. For links to these articles visit the Press and Media section of the IYA2009 UK website[128]. This list is not exhaustive and includes only articles with the phrase "international year of astronomy 2009" found by the Google news alerts service. Local and regional news may have been missed, as many events that did not make explicit reference to IYA2009.

[128] http://astronomy2009.co.uk/index.php/press-and-media

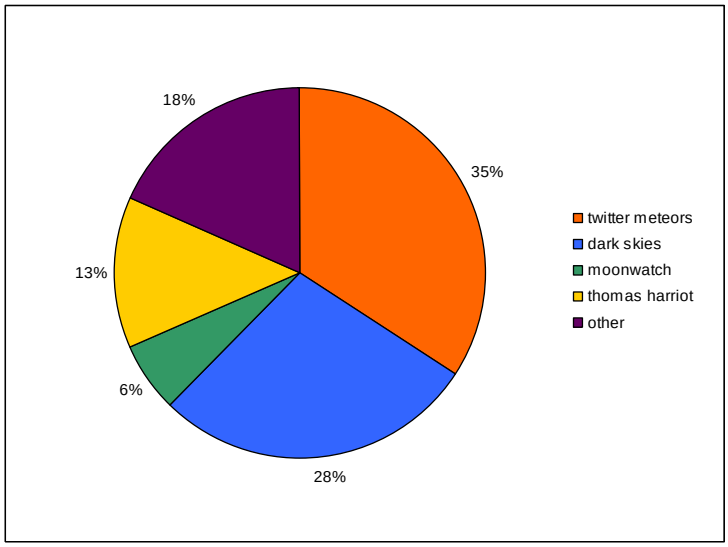
Figure 30: Media Coverage by Outlet



In general the coverage related to four main category groups:

1. Dark Skies
2. Twitter Meteorwatch
3. Spring Moonwatch
4. Thomas Harriot and IYA2009
5. Other

Figure 31: IYA2009 UK Media Coverage by Topic



The obvious media highlights, accounting for almost two-thirds of all media coverage during IYA2009, were the Twitter Meteorwatch event (see Section 4.5 and Dark Skies, especially relating to Galloway Forest Dark Sky Park (see Section 3.2.1) Special mention should be made of a series of excellent Metro articles by Ben Gililand that gave very good publicity to IYA2009, astronomy and space in general.

6.2.4 Press and Media Highlights

Two topics received more media coverage than any others, accounting for 63% of all media references to IYA2009. Those were:

Twitter Meteorwatch (Chapter 4.5)

Galloway Forest Dark Sky Park (and dark skies in general) (Chapter 3.2.1)

For both of these media spikes, IYA2009 received near blanket media coverage in the UK, with articles in most broadsheet and tabloid newspapers, and significant TV and radio coverage.

Publicity for the Twitter Meteorwatch was generated by a press release RAS PN 09/50: TWEETING SHOOTING STARS written by the IYA2009 UK Co-ordinator and issued by Robert Massy, RAS press office.

Publicity for the dark sky park was started in late 2008 during meetings with science journalists organised by Joseph Winters, IOP press office, and continued by a press release issued by the Forestry Commission Scotland.

6.2.5 Press and Media: What worked and what didn't?

Overall the press strategy worked very well, yielding significant UK-wide media presence for the two events just discussed above along with moderate coverage of two other projects (Thomas Harriot and Moonwatch). Nevertheless, only these four out of the ten issued press releases garnered significant media attention. Why was this? One factor in common is that these related to projects that were 'different' or 'special'. Twitter Meteorwatch was unique and had never been done before, and the celebrations of Thomas Harriot was a UK-specific good news story, while Spring Moonwatch was simply a new spin on the theme of an "astronomy week".

Other press releases, such as that issued for Telescopes for Schools, were not picked up, mainly due to the lack of a news "hook" within those stories. Indeed, while background coverage was light in the first seven months of the year, out of the blue in late July 2009 the Guardian ran an unsolicited editorial "In Praise of Astronomers". Following this, other articles on general astronomy topics began referencing IY2009 without prompting from the press group.

More media attention may have been attracted had mention of IYA2009 been made in all astronomy-related press releases from the STFC and the RAS during 2009. While the RAS made regular mention in their releases, fewer mentions occur in the STFC releases.

The most effective actions of the press group were the early meetings with science correspondents in the major newspapers, particularly Ian Sample (the Guardian) and Ben Gilliland (the Metro), both of whom gave good coverage of IYA2009 throughout the year.

In 2008 serious discussions had been held concerning two TV initiatives being aired in 2009, one being a short series for the autumn and one being a single programme centred on Dark Skies. However, neither of these proposals from independent producers came to fruition.

6.2.6 Reflecting on the Press Strategy

Robert Massey (RAS) and Joe Winters (IOP) reflect on the successes, challenges and issues of the UK IYA2009 press strategy:

Joe Winters:

> Preparation in late-2008, via a selection of meetings with key science journalists, led to some early press success, including a feature on dark skies in The Guardian and a series of weekly features in the Metro. Opportunistic efforts to attach the IYA-tag to stories led to news being printed in national press throughout the year. The local astronomy societies were also successful in generating their own local coverage with template press releases that the central press team had devised.

The most significant challenges to success were a lack of immediate news-worth and media cynicism surrounding any kind of 'International Year'. It was also necessary to overcome the desire of individual organisations to be recognised in the press coverage when the objective was to raise profile of the year and not profile of any one organisation. We were also a little dogged by Darwin 200. With a very large advertising campaign behind them, it felt as though we were in competition with a far fuller-resourced campaign.

With particular regard to the issue of struggling for news-worth, some of the key events and initiatives did not have the press impact that, I suspect, many desired. Instead some of the less likely initiatives such as the Galloway Forest Park's campaign for dark sky recognition or the story of England's 'Galileo' Thomas Harriot were of more appeal to the press than, say, the launch event.

In all however I think we ran a successful campaign that led, by the end of 2009, to most being aware of IYA2009 and, I suspect, although I haven't seen the figures, many more having looked at some point down the lens of a telescope towards the night sky!

Robert Massey:

We were always unlikely to get much coverage at the outset of the Year itself (certainly not of the launch) but that doesn't mean that our efforts weren't successful. The initial work paid off, many of the UK projects (Twitter Meteorwatch and the Harriot papers in January) received wide coverage and ultimately did raise the profile of IYA2009 with the press, even if they didn't write about the Year that much. Getting Guardian editorials, Metro coverage (actually Ben doesn't seem to have stopped since then) and a big mention in 'Thought for the Day' is a good outcome. The real achievement of getting the Dark Sky Park established probably did so well with the media because it amounted to a tangible impact – something that an event alone always struggles with. Importantly, the small pieces of local coverage had a big impact too. Even getting a paragraph into a freesheet can reach hundreds of thousands of people, including those that would normally go nowhere near the regular 'science' press or national broadsheets. When we called local radio stations to push stories, they generally responded enthusiastically too (e.g. for the Stonehenge closing event).

Chapter 7: Evaluation of Goals and Objectives

At the start of the planning for IYA2009 in the UK we set out to identify as many quantitative measures as possible to evaluate the activities. This turned out to be quite difficult in terms of comparing with other such events (like Einstein Year) and so we focused on a set of Key Performance Indicators (KPIs) as the major impact, with quantitative figures where practicable. As an example, one of the hoped-for (but never made prominent) goals was to have 1 million people in the UK look through a telescope during IYA2009. This was always recognised to be a challenging target and in reality it also turned out to be very difficult to measure in the field and to get the data back for inclusion in our evaluation. From looking at the returns, it is clear that we did not achieve this target but exactly what the actual figure was remains very difficult to say. We can say with confidence that at least 87,000 people looked through a telescope during IYA2009. Perhaps if we had made a major publicity drive to achieve this objective we would have made more impact and had better measurable results, but probably at the expense of other activities that were equally important.

Table 25 lists the KPIs for the IYA2009 UK goals along with the results

Table 25: IYA2009 UK Goals and Objectives

Goals	Objectives	Key Performance Indicators	Results
1. Increase scientific awareness among the UK public through the communication of scientific results in astronomy and related fields, as well as the process of research and critical thinking that leads to these results, with particular emphasis to UK astronomy.	• Make UK astronomical breakthroughs more visible in the daily lives of UK citizens through all available means of communication (TV/radio documentaries, newspapers, web pages, exhibitions, stamps, blogs, web portals, advertising campaigns etc). • Facilitate individual astronomical observing opportunities by working with the UK amateur and professional astronomy community and the professional science communication networks.	• The number of people reached within UK. • Number of press clippings and readership in UK media. • Number of people visiting www.astronomy2009.co.uk (web stats). • Number of activities run in the UK.	Approx. 943,000 84 recorded press mentions 54,000 during 2009 (67000 overall) 1,600+
2. Promote widespread access to the universal knowledge of fundamental science through the excitement of astronomy and stargazing experiences.	• Enable as many people as possible, especially children, to look at the sky through a telescope and gain a basic understanding of the Universe.	• Number of people, especially young people and children, viewing the Universe through a telescope at astronomy events, star parties, professional observatory webcasts etc. • Number of new telescope distributed to UK schools.	Approx. 87,000 1,000
3. Support and improve formal and informal	• Develop formal and informal educational	• Number of participating teachers and schools.	1,000

science education in UK schools as well as through science centres, planetariums and museums.	material and distribute to schools. • Conduct focused training of teachers as part of their continued professional development.	• Number of educational materials distributed. • Number of new teachers trained.	1,000 TfS scopes and DVDs 118 through GTTP
4. Provide a modern image of science and scientists to reinforce the links between science education and science careers, and thereby stimulate a long-term increase in student enrolment in the fields of science and technology, and an appreciation for lifelong learning.	• Popular talks by scientists of all ages and genders • Facilitate portraits - on TV, in web blogs, biographies - of scientists that break with the traditional "lab coat view" of scientists, showing the excitement of scientific discovery, the international aspect of scientific collaborations, and the UK's involvement in global astronomy	• Number of popular talks. • Number of scientist portraits. • Evidence for penetration of astronomy into popular culture (media, web, TV, radio)	301 registered lectures Two high-profile portrait exhibitions 84 press features
5. Facilitate new, and strengthen existing, networks by connecting amateur astronomers, educators, scientists and communication professionals through local, regional, and national UK activities.	• Connect as many individuals as well as organisations (amateur and professional) in networks, for instance by creating of new internal and external electronic communication infrastructures. These networks will become part of the heritage of IYA2009.	• Number of new networks and partnerships formed within UK.	Uncounted but extensive e.g. 'We Are Astronomers' planetarium consortium; also much closer links between science centres and centres and other bodies
6. Improve the gender-balanced representation of scientists at all levels and promote greater involvement by underrepresented minorities in scientific and engineering careers.	• Provide access to excellent role models and mentors, formally and informally, and publicise them. • Provide information about the female "dual-career" problem and possible solutions.	• Number of active new role models and mentors. • Number of new national and international partnerships, projects and activities.	SIAA project managed from UK
7. Facilitate the preservation and protection of the UK's cultural and natural heritage of dark skies in places such as urban parks, national parks and astronomical sites, through the awareness of the importance and preservation of the dark	• Involve the existing UK dark-sky community in the IYA2009. • Collaborate on the implementation of the UNESCO and IAU "Astronomical and World Heritage" initiative.	• Number of activities and events related with the night sky protection. • Number of countries/cities with the laws or guidelines for dark sky preservation. • Areas protected by dark sky laws.	UK's first International Dark Sky Park announced. 12000 people participate in Dark Sky Discovery and related events

skies and astronomical sites for the natural environment and humanity heritage	• Lobby the organizations, institutions, as well as local, regional and national governments to approve preservation laws for dark skies and historical astronomical sites. • Bring the issues of natural environment and energy preservation to the agenda of decision makers.	• Number of historical astronomical sites identified and protected under the UNESCO's World Heritage Convention	

7.1 Goals and Objectives

7.1.1 Increase scientific awareness

The primary statistic of IYA2009 in the UK is the number of people reached through events, projects and activities. The following table presents these figures.

Table 26: Primary Statistics

Event name / type	Section	Number
From Earth to the Universe	3.1	437,175
We Are Astronomers	4.6	319,169
Spring and Autumn Moonwatch	4.3 and 4.4	31,500 (best estimate)
Telescopes for Schools	4.1	25,000 (best estimate)
Other registered events*	Chapter 5	130,000 (best estimate)
Total		**942,844**

These figures are taken from:

- Estimated and / or recorded visitor numbers to each venue (in the case of *From Earth to the Universe*)
- Ticket sales (in the case of *We Are Astronomers*)
- Extrapolation of figures obtained through evaluation (in the case of the *Moonwatches* and *Telescopes for Schools*)
- Extrapolation of the average attendance per event (in the case of all other registered events).

* During Spring Moonwatch 9,322 people were recorded in attendance at 92 events (101.3 average attendance). This figure was used to estimate attendance at the 1,600 registered public events (minus Spring and Autumn Moonwatch figures, which are already counted in the table above). This figure is almost certainly a minimum estimate, as many of these 1,600 events were long-term exhibitions that would have attracted thousands.

This figure is supported by the other statistics in Table 25: IYA2009 UK Goals and Objectives. Overall we are satisfied with this outcome and recognise that in the end it was driven by both a specific science drive (in the museums, science centres and the university sector specifically) and a wider unexpected outcome from the exhibitions portraying scientists in an appealing forum.

7.1.2 Promote widespread access to telescopes

Of the 1,600 events registered, approximately 620 of them were observing events. This gives an estimated attendance of 62,000 people, each of whom would have had the opportunity to observe through a telescope. Add to this the 25,000 school pupils using a telescope for the first time as part of *Telescopes for Schools* and we get an figure of around 87,000 people looking through a telescope during IYA2009. While we had hoped that at least 100,000 people would look through a telescope for the first time, we had never set a firm figure as we recognised that the evaluation would be very difficult. Nevertheless, we are very pleased with the final result and the feedback from those that took part, especially the amateur community. The Telescopes for Schools and the formation of new astronomy clubs (an unexpectedly successful outcome) was very rewarding in achieving this aim.

7.1.3 Support and improve formal and informal science education

Formal science education was supported by the following projects:

- Telescopes for Schools (Chapter 4.1)
- Galileo Teacher Training Programme (Chapter 3.8)
- Universe Awareness (Chapter 3.7)
- Dark Sky Discovery (Chapter 3.2.4)

It was always recognised that science education is governed by a very specific curriculum in the various countries of the UK and so this theme was always to support these wherever possible, either directly through curriculum-related activities, or informal, enthusing activities. Overall, the formal aspects have gone as well as could be expected but the informal activities were more numerous and achieved more than anticipated at the outset.

7.1.4 Provide a modern image of science and scientists

Over 300 of the 1600 registered events were public lectures, bringing scientists to the fore. *SHE is an Astronomer* specifically had this as one of its aims (in addition to the female gender key theme) and took care to select ambassadors with this in mind, and was clearly successful in that aim and we now have people like Maggie Adderin, Robert Massey and Chris Lintott frequently appearing on TV channels talking about astronomy – all far removed from the old, bespectacled and lab-coated caricature). It would be good to believe that IYA2009 assisted this but the proof is very hard to find.

In addition there were two large portrait exhibitions, *Portraits of Astronomers* (Lucinda Douglas-Menzies), and *Explorers of the Universe* (Max Alexander) that brought the individual personalities of UK astronomers to the public's attention, again in totally interesting settings that were both modern and interesting.

7.1.5 Facilitate new, and strengthen existing, networks

This was the most difficult goal to measure, and yet from what we have heard from feedback, probably one of the greatest lasting legacies of IYA2009 in the UK. No official evaluation of the networks pre- and post-IYA2009 has been carried out, but it is clear from the events listed in Chapters 2 – 4 that a great many networks have been developed and supported throughout the year. Furthermore, a number of people at the heart of delivering IYA2009 events (such as Dr Marek Kukula of the Royal Observatory Greenwich, who had a spectacularly prominent and successful IYA2009 programme of events) specifically points out that one of the key outcomes of IYA2009 was the co-operative working rather than the competitive working between the science centres and the confidence to undertake challenging themes, more challenging than they would have done without the tag-line of IYA2009 behind them.

It is also clear that at least a subset of the amateur astronomers are now much more comfortable working together and also with 'central' organisations such as the SPA, who are no longer seen as a threat but as an ally. On the other hand, the British Astronomical Association, in spite of being included in all the original

meetings, decided not to play any significant part in IYA2009. Interestingly enough, they now believe this was a mistake and are working positively to redress this in ‘Beyond IYA2009’ .

7.1.6 Improve the gender-balanced representation of scientists

The Global Cornerstone Project *She is an Astronomer* was led by the UK’s Helen Walker as described in Chapter 3.5. It will be some time before we see any direct results from this activity but it is something that we are sure will continue with a set of very dedicated protagonists within the UK. We are confident that we will have done out bit to achieve this aim, which is supported across the scientific community.

7.1.7 Facilitate the preservation and protection of the UK’s dark skies

Dark Skies Awareness was one of the most substantial of the UK’s contributions towards the cornerstone projects and was clearly a tremendous success by any measure. The establishment of the UK’s first International Dark Sky Park in Galloway sees the preservation of 300 square miles of dark skies, and the Dark Sky Partnerships developed during IYA2009 will further strengthen the UK’s commitment. The achievement of this goal and the Dark Sky Discovery both exceeded expectations and furthermore, both will continue beyond IYA2009.

Summary

We can confidently look back with pride on the achievements of the UK in IYA2009. The report of the global project is being written at this time and how well the UK compares with other national activities can be seen from our entry in this document located at (www.astronomy2009.org). Within the UK, we saw a number of real highlights with very positive outcomes and achievements: the Dark Sky Park at Galloway Forest Park; 'We Are Astronomers' planetarium show; 'Telescopes for Schools', the celebration of Thomas Harriot (the man who beat Galileo to it) at 'Telescope400', the excitement of the spectacular FETTU displays in the various locations; the thousands of grassroots individual events. Undisputedly, IYA2009 in the UK was a great success.

In terms of the all-important legacy aspect we can look to the closer collaborations of Planetariums, astronomical societies and science centres in the future rather than competition for resource and attention. The increase in astronomy society membership and the new astronomy clubs in schools bodes well for the engendering the general interest in science and technology amongst the young. The event calendar was a major success and everyone agrees that this is a key ongoing requirement for the future to provide the general public with easy access to astronomy events – and available to all bodies promoting astronomy in the UK. As we will see in the next section (BeyondIYA), this now has a firm foundation. The spectacular success of Twitter to communicate astronomy has already guaranteed a legacy value, and this is also described in BeyondIYA.

What worked and what didn't and what lessons were learned? The up-front organisation worked very well and the funding support for a full-time Coordinator was critical to the success. The support of the three key organisations (RAS, STFC, IoP) was critical and we were very fortunate that they all stepped up to the plate. The amazing achievements of the Society for Popular Astronomy deserve special mention; they really were a huge mainstay of the grass-roots work and special projects. Overall, the UK cornerstones were highly successful and met virtually all their objectives. The delay in obtaining funding for and ordering of the Telescopes for Schools was unfortunate but far, far better than having no funding at all and so we still see this as a tremendous success. While we were delighted with the FETTU project, especially in the city centres, in retrospect we could have tried to coordinate local astronomy activities better with the events. The lessons learned on press releases and attracting media attention deserve further thought for anyone organising such a year of events in the future. Finally, one should never underestimate how much time and effort is needed to ensure adequate evaluation can be undertaken. While volunteers may be extremely positive about the organising and holding of the actual events, meeting the general public and enthusing about astronomy; getting the same people to write reports and provide quantitative information does not generally meet with the same degree of commitment.

Nevertheless, in the grand scheme of things these were all minor details; there were no big problems or big disappointments and looking back we can be immensely proud of what happened and what was achieved, especially give the level of resource (one full-time funded post) and everything else relying on voluntary effort and lots of extra-hours work from the day-job.

Beyond IYA

The International Year of Astronomy (IYA2009) is over, and we are working to build upon its legacy. Many of the projects that ran during IYA2009 have come to an end, but the networks that developed and ran them – networks of amateur and professional astronomers, science communicators, educators – are still here, passionate about continuing to engage the public with astronomy.

One of the key duties of the IYA2009 UK Coordinator was to support and develop these networks, and it is that support that would be most sorely missed had IYA2009 just petered out at the end of last year. Fortunately that hasn't happened, and the three main IYA2009 project partners – the Royal Astronomical Society, the Science and Technology Facilities Council, and the Institute of Physics – have been joined by two others – the Society for Popular Astronomy and the British Astronomical Association (BAA) – in Beyond IYA, a project to ensure a lasting legacy from IYA2009 within the UK.

Beyond IYA aims to consolidate and build upon the networks and projects developed during IYA2009. We will be running more Twitter Meteorwatches, another Moonwatch, and offering continued support to the 1000 schools that were given a free telescope as part of the SPA's Telescopes for Schools project. Crucially, the website of events will be continued.

Interestingly, IYA2009 spurred the BAA into action and within the Beyond IYA project there is a new BAA Outreach Coordinator, running the BAA's new weblog (http://www.britastro.com/blog) and Twitter account (http://twitter.com/britastro). This is a great legacy in itself.

So, like the international community, the UK is determined to build on the success of IYA2009; to use the news networks, ideas, tools and techniques to promote the interest and excitement of astronomy to the UK public, to stimulate young people to study STEM subjects and to be open and receptive to careers in science, as it is through science and technology that the solid base of an expanding UK economy will be founded in the future.

Appendix 1: IYA2009 UK Events Tables

Table 27:100 Hours of Astronomy UK Events

Date	Event name	Venue	Town/City	Theme
30.03.2009 - 05.04.2009 19.00 - 23.00	Talk & Telescope Evenings	Nacton Village Hall	Ipswich	Lecture
02.04.2009 19.30 - 23.00	Sidewalk Astronomy	The Ship Inn	Ipswich	Telescope viewing
02.04.2009 19.30 - 21.00	Spring Moon Watch	Botanic Garden, Durham University	Durham	Telescope viewing
02.04.2009 19.30 - 21.30	Spring Moonwatch Public Observing Session	Cranbrook School Observatory	Cranbrook	Telescope viewing
02.04.2009 20.00 - 22.00	The Moon - Everything you want to know	CELS Building; NTU - Clifton Campus	Nottingham	Lecture , Telescope viewing
03.04.2009 06.00 - 13.30	Around the World	Faulkes Telescope Project	Cardiff	Telescope viewing
03.04.2009 - 04.04.2009 18.00 - 18.00	LDAS 24-Hour AstroMarathon	Letchworth & District Astronomical Society	Letchworth	Telescope viewing
03.04.2009 - 04.04.2009 18.00 - 18.00	LDAS 24-Hour AstroMarathon	Letchworth & District Astronomical Society	Letchworth	Telescope viewing
03.04.2009 - 04.04.2009 18.00 - 09.00	Spring MoonWatch Sleepover	Glasgow Science Centre	Glasgow	Other - Describe Fully
03.04.2009 19.00 - 22.00	MoonWatch at Lickey Hills	Lickey Hills Visitors' Centre	Birmingham	Telescope viewing , Lecture , Other - Describe Fully
03.04.2009 19.00 - 21.00	Wonders of the Night Sky at Muirshiel Country Park	Clyde Muirshiel Regional Park	Paisley	Telescope viewing
03.04.2009 20.00 - 22.00	Astronomy Evening	Coronation Park	-	Telescope viewing , Lecture
03.04.2009 - 04.04.2009 20.00 - 22.00	Moonwatch	Ruislip Lido	Ruislip	Telescope viewing
03.04.2009 20.30 - 22.00	telescope viewing (if clear)	The New Inn (car park field)	Leeds	Telescope viewing
04.04.2009	100 hours of astronomy celebration	Penair School	truro	Telescope viewing , Lecture , Film , Other - Describe Fully
04.04.2009 - 05.04.2009 10.00 - 17.00	Paint the Universe	Glasgow Science Centre	Glasgow	Other - Describe Fully
04.04.2009 - 05.04.2009	Liverpool A.S. Open Day	Liverpool A.S. Leighton Observatory	Liverpool	Telescope viewing , Lecture

04.04.2009 18.30 - 21.30	Moonwatch Party	Jodrell Bank Visitor Centre	Macclesfield	Telescope viewing , Lecture , Other - Describe Fully
04.04.2009 - 05.04.2009 19.00 - 23.00	Observatory Open Days	Orwell Park Observatory	IPSWICH	Telescope viewing
04.04.2009 19.30 - 23.00	Spring Moon Watch	Norman Lockyer Observatory	Sidmouth	Telescope viewing
04.04.2009 19.30 - 23.00	Abingdon Astronomy Society Moon watch	Sunningwell Village Hall	Abingdon	Telescope viewing , Lecture
04.04.2009 20.00 - 21.30	Castle Point Astronomy Club Public Observing Night	Hadleigh Country Park	Benfleet	Telescope viewing
04.04.2009 20.00 - 21.30	Castle Point Astronomy Club Open Night	Hadleigh Country Park	Benfleet	Telescope viewing
04.04.2009 - 05.04.2009 20.30 - 22.00	Spring Moon Watches - IYA 2009 / 100 Hours of Astronomy	Huddersfield Observatory	Huddersfield	Telescope viewing
05.04.2009 10.00 - 17.00	SUNday	Glasgow Science Centre	Glasgow	Other - Describe Fully
05.04.2009 14.00 - 16.00	Sun Day At Coats Observatory	Coats Observatory	Paisley	Telescope viewing , Lecture

Table 28: Galilean Night UK Events

Date	Event name	Venue	City	Theme
24/10/2009	IYA2009 BRLSI Lectures	Bath Royal Literary and Scientific Institution	Bath	Lecture
24/10/2009	IYA2009 Display at Biddulph Library	Biddulph Library	Biddulph	Exhibition
23/10/2009	Stars over the Glen	Kindrogan Field Centre	Blairgowrie	Telescope viewing
22/10/2009	Space Age Party	Bradford One Gallery	Bradford	Telescope viewing
24/10/2009	Stargazing in the Brecon Beacons	Brecon Beacons National Park Vistors Centre	Brecon	Telescope viewing
24/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club	Brough	Telescope viewing
23/10/2009	Cardiff Astronomical Society's Observers' Club	Castle Heights & Mountain Lakes Golf Club	Caerphilly	Telescope viewing
24/10/2009	Chipping Norton Amateur Astronomy Group - Autumn MoonWatch 2009	The Rollright Stones	Chipping Norton	Telescope viewing

27/10/2009	Moon Watch	Court Farm	Cornwall: St Stephen in Brannel	Telescope viewing
24/10/2009	See the Moon from Helen Gardens, Eastbourne	Helen Gardens	Eastbourne	Telescope viewing
24/10/2009	SIGMA Astronomy Fun Day	Gordonstoun School	Elgin	Telescope viewing
24/10/2009	Castle Point Astronomy Club Autumn Open Night	Hadleigh Country Park	Essex: Benfleet	Telescope viewing
24/10/2009	How to Build & Use a Telescope	Bankhall Community Centre	Forth	Lecture
24/10/2009	Autumn Moonwatch Weekend at Glasgow Science Centre	Glasgow Science Centre	Glasgow	Planetarium
23/10/2009	Sci-Fi London Oktoberfest launch	Royal Observatory Greenwich	Greenwich	Planetarium
24/10/2009	Castle Point Astronomy Club Autumn Moonwatch	Hadleigh Country Park	Hadleigh	Telescope viewing
24/10/2009	Observatory Open Evening	Observatory Science Centre Herstmonceux	Hailsham	Telescope viewing
26/10/2009	Observatory Open Week	Huddersfield Observatory	West Yorkshire: Huddersfield	Telescope viewing
24/10/2009	Orwell Park Observatory Open Days	Orwell Park Observatory	Ipswich	Telescope viewing
23/10/2009	Public observing session	New Inn	Yorkshire: Leeds	Telescope viewing
22/10/2009	Yorkshire Skies and Cosmic Diary	Yorkshire Planetarium	Yorkshire: Leeds	
24/10/2009	Autumn Moonwatch	National Space Centre	Leicester	Telescope viewing
24/10/2009	Moonwatch and Lecture	Shetland Museum	Lerwick	Telescope viewing
24/10/2009	Liverpool Astronomical Society Star Party	Croxtheth park	Liverpool	Telescope viewing
24/10/2009	Explorers of the Universe: Open Day	Royal Albert Hall	London	Exhibition
24/10/2009	Moonwatch at Wythenshawe Stargazing Club	Horticultural Centre classrooms	Manchester	Telescope viewing
22/10/2009	Hunting the Planets	Milton Keynes Deaf Astronomical	Milton Keynes	Telescope viewing

		Society		
24/10/2009	One Night Only - Autumn Moonwatch	Pinkery Outdoor Education Centre	Minehead	Telescope viewing
24/10/2009	Moonraker	Taunton Vale Rotary	Minehead	Telescope viewing
20/10/2009	Astronomy for All, Autumn Event	Monmouth School Science Department	Monmouth	Telescope viewing
22/10/2009	Monmouth Autumn Skywatch	Monmouth School Science Department	Monmouth	Telescope viewing
23/10/2009	Lecture: Apollo and the Moon	Norwich Astronomical Society Seething Observatory	Norwich	Lecture
24/10/2009	Lecture: Apollo and the Moon	Norwich Astronomical Society Seething Observatory	Norwich	Lecture
22/10/2009	Lecture: Before the Big Bang: How did it all begin?	University of Nottingham	Nottingham	Lecture
22/10/2009	Open Dome Event	School of Science and Technology	Nottingham	Planetarium
22/10/2009	Open Dome Event - Galileo's Moon Watch	Clifton Campus, CELS Building & Observatory	Nottinghamshire: Nottingham	Planetarium
24/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	Pontefract	Telescope viewing
24/10/2009	Autumn Moon Watch in Redditch	Lower Park Fisheries	Redditch	Telescope viewing
23/10/2009	Moonwatch with Mexborough & Swinton Astronomical Society	J A Jones Observatory	Rotherham	Telescope viewing
24/10/2009	Moonwatch with Mexborough & Swinton Astronomical Society	J A Jones Observatory	Rotherham	Telescope viewing
23/10/2009	Moonwatch at Ruislip Lido	Ruislip Lido	Ruislip	Telescope viewing
24/10/2009	Moonwatch at Ruislip Lido	Ruislip Lido	Ruislip	Telescope viewing
25/10/2009	Dundee Science Festival Family Day	Dundee International Sports Complex, Dundee	Scotland : Dundee	Telescope viewing
24/10/2009	StarNight	Mayfield Environmental Education Centre	Sheffield	Telescope viewing

23/10/2009	Moonwatch with Shropshire Astronomical Society	Attingham Park	Shrewsbury	Telescope viewing
24/10/2009	Moonwatch with Shropshire Astronomical Society	Attingham Park	Shrewsbury	Telescope viewing
24/10/2009	Norman Lockyer Observatory Public Opening - Autumn Moonwatch	Norman Lockyer Observatory	Sidmouth	Telescope viewing
24/10/2009	Galilean Moon Watch	Norman Lockyer Observatory, Sidmouth	Devon: Sidmouth, Devon	Telescope viewing
24/10/2009	Cotswold Astronomical Society - Astronomy Evening at the WWT Slimbridge	Wildfowl and Wetlands Trust	Slimbridge	Telescope viewing
22/10/2009	Loughton Astronomical Society's Sky Camp Reports	Scout Hall	Theydon Bois	Telescope viewing
24/10/2009	Public Star Party	Sutton Bank Visitors Centre	Thirsk	Telescope viewing
24/10/2009	Autumn MoonWatch	WWT Washington Wetland Centre	Tyne & Wear : Washington	Telescope viewing
23/10/2009	Galilean Night in Wilmington	Finches Hollow	East Sussex: Wilmington	Telescope viewing
24/10/2009	Astrobash! 2009	Woodchurch Community Centre	Woodchurch	Telescope viewing
24/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point	Worthing	Telescope viewing
24/10/2009	IYA2009 Display at Biddulph Library	Biddulph Library	Biddulph	
23/10/2009	Stars over the Glen	Kindrogan Field Centre	Blairgowrie	Telescope viewing
22/10/2009	Space Age Party	Bradford One Gallery	Bradford	
24/10/2009	Stargazing in the Brecon Beacons	Brecon Beacons National Park Vistors Centre	Brecon	Telescope viewing
24/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club	Brough	Telescope viewing
23/10/2009	Cardiff Astronomical Society's	Castle Heights & Mountain Lakes Golf Club	Caerphilly	Telescope viewing

	Observers' Club			
24/10/2009	Chipping Norton Amateur Astronomy Group - Autumn MoonWatch 2009	The Rollright Stones	Chipping Norton	Telescope viewing
27/10/2009	Moon Watch	Court Farm	Cornwall: St Stephen in Brannel	Telescope viewing
24/10/2009	See the Moon from Helen Gardens, Eastbourne	Helen Gardens	Eastbourne	Telescope viewing
24/10/2009	SIGMA Astronomy Fun Day	Gordonstoun School	Elgin	Telescope viewing
24/10/2009	Castle Point Astronomy Club Autumn Open Night	Hadleigh Country Park	Essex: Benfleet	Telescope viewing
24/10/2009	How to Build & Use a Telescope	Bankhall Community Centre	Forth	
24/10/2009	Autumn Moonwatch Weekend at Glasgow Science Centre	Glasgow Science Centre	Glasgow	
23/10/2009	Sci-Fi London Oktoberfest launch	Royal Observatory Greenwich	Greenwich	
24/10/2009	Castle Point Astronomy Club Autumn Moonwatch	Hadleigh Country Park	Hadleigh	Telescope viewing
24/10/2009	Observatory Open Evening	Observatory Science Centre Herstmonceux	Hailsham	Telescope viewing
26/10/2009	Observatory Open Week	Huddersfield Observatory	West Yorkshire: Huddersfield	Telescope viewing
24/10/2009	Orwell Park Observatory Open Days	Orwell Park Observatory	Ipswich	Telescope viewing
23/10/2009	Public observing session	New Inn	Yorkshire: Leeds	Telescope viewing
22/10/2009	Yorkshire Skies and Cosmic Diary	Yorkshire Planetarium	Yorkshire: Leeds	Telescope viewing
24/10/2009	Autumn Moonwatch	National Space Centre	Leicester	Telescope viewing

Table 29: Spring Moonwatch Events in the UK

Date	Event Title	Venue	# Participants
28/03/2009	Highlands Astronomical Society - IYA 2009: 4000 years of Astronomy in the Highlands	Highland Astronomical Society's JSL Observatory	485
27/03/2009	Astronomy Weekend	Dinton Pastures Country Park	Data not available

28/03/2009	Astronomy Open Day	Abergele College	28
28/03/2009	Spring Star Watch	Bettridge Centre	109
28/03/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	18
28/03/2009	Stargazing in the Brecon Beacons	Brecon Beacons National Park Vistors Centre	50
28/03/2009	Fairford Leys Spring MoonWatch Event	Fairford Leys Village Centre	Data not available
28/03/2009	Observatory Open Evening	Huddersfield Observatory	20
28/03/2009	Public Observing Night	King Edwards Parade - Western Lawns	Data not available
28/03/2009	SIGMA's Astronomy Day	Lhanbryde Community Centre	116
28/03/2009	Norman Lockyer Observatory Public Opening - Spring Moonwatch	Norman Lockyer Observatory	133
28/03/2009	West of London Astronomical Society Moonwatch evenings	Ruislip Lido	12
28/03/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	11
28/03/2009	A Night Under the Stars (with Mexborough & Swinton Astronomical Society)	Thrybergh Country Park	Data not available
28/03/2009	Moonwatch on Calton Hill	Calton Hill	Data not available
28/03/2009	Spring Moonwatch at Cygnus Observatory	WWT Washington Wetland Centre	130
29/03/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
29/03/2009	Observatory Open Evening	Huddersfield Observatory	20
29/03/2009	West of London Astronomical Society Moonwatch evenings	Ruislip Lido	13
29/03/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	12
30/03/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
30/03/2009	Sidewalk Astronomy	Dockside Outlet Centre	Data not available
30/03/2009	Glasgow University Observatory Open Evening	Glasgow University Observatory	10
30/03/2009	Talk and Telescope Evenings	Nacton Village Hall	68
30/03/2009	Spring Moonwatch at Springfields Outlet Shopping & Festival Gardens	Springfields Outlet Shopping & Festival Gardens	20
30/03/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	11
30/03/2009	Telescope Open Evenings	Cardiff School of Physics and Astronomy	250
30/03/2009	Spring Moonwatch at the Royal Observatory	Royal Observatory Greenwich	1009
31/03/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
31/03/2009	Project Galileo Open Astronomy Evening	Clifton College Physics Department	Data not available
31/03/2009	Sidewalk Astronomy	Dockside Outlet Centre	Data not available
31/03/2009	Lecture: Star Formation	Kent University	60
31/03/2009	Public Stargazing at Monmouth School	Monmouth School Science Department	40
31/03/2009	Talk and Telescope Evening	Nacton Village Hall	20

31/03/2009	Spring Moonwatch	Newton Field Centre	18
31/03/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	12
31/03/2009	Lecture: Observing the Moon - Reading the Lunar Landscape	Witton Middle School	21
01/04/2009	Cleethorpes and District Astronomical Society Meeting	Beacon Hill Observatory	40
01/04/2009	Lecture: Electric Morphologies	Better Bankside Centre	12
01/04/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
01/04/2009	Spring MoonWatch at Braywick	Braywick Nature Centre	9
01/04/2009	Spring Moonwatch at Chineham	Chineham Shopping Centre	60
01/04/2009	Sidewalk Astronomy	Dockside Outlet Centre	Data not available
01/04/2009	Stargazing with Knowle Astronomical Society	Dorridge Park	95
01/04/2009	Glasgow University Observatory Open Evening	Glasgow University Observatory	35
01/04/2009	Public Observing Night	King Edwards Parade - Western Lawns	Data not available
01/04/2009	Papworth Astronomy Club Meeting	Papworth Astronomy Club	25
01/04/2009	Open Evening with the University of Exeter Astrophysics Group	Peter Chalk Centre	250
01/04/2009	Lecture: Observing the Moon - Reading the Lunar Landscape	The Chase	30
01/04/2009	A Night with the Stars	University of Southampton	50
01/04/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	11
01/04/2009	UK Space Conference 2009	Charterhouse School	Data not available
02/04/2009	IYA 100 hours of Astronomy International Webcast	Armagh Planetarium	400
02/04/2009	Spring Moon Watch public observing event	Beacon Hill Observatory	40
02/04/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
02/04/2009	Lecture: Observing the Sun	Cardiff School of Physics and Astronomy	Data not available
02/04/2009	Mini Astronomy: 6-week course	Centre for Life	60
02/04/2009	Spring Moonwatch at Chineham	Chineham Shopping Centre	60
02/04/2009	Sidewalk Astronomy	Dockside Outlet Centre	Data not available
02/04/2009	Spring Moonwatch event	Durnham Botanic Garden	Data not available
02/04/2009	Glasgow University Observatory Open Evening	Glasgow University Observatory	25
02/04/2009	Public Observing Night	King Edwards Parade - Western Lawns	Data not available
02/04/2009	Public Stargazing at Monmouth School	Monmouth School Science Department	40
02/04/2009	Lecture: Observing the Moon - Reading the Lunar Landscape	Pershore College	35
02/04/2009	Spring Moonwatch at Pescod Square Shopping Centre	Pescod Square Shopping Centre	0
02/04/2009	Sidewalk Astronomy	The Ship Inn	15
02/04/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	12
03/04/2009	Eyes on the skies - 400 years of	Augustine Church	110

	telescopic discovery		
03/04/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
03/04/2009	Sidewalk Astronomy	Carnfunnock Country Park	Data not available
03/04/2009	Spring Moonwatch at Chineham	Chineham Shopping Centre	60
03/04/2009	Project Galileo Open Astronomy Evening	Clifton College Physics Department	Data not available
03/04/2009	Muirshiel Moonwatch	Clyde Muirshiel Regional Park	52
03/04/2009	Sidewalk Astronomy	Dockside Outlet Centre	Data not available
03/04/2009	Lecture: The Aurora Borealis	Huddersfield Astronomy Society	25
03/04/2009	MoonWatch observing evenings at IoA	Institute of Astronomy	110
03/04/2009	Public Viewing Evening (Mexborough & Swinton Astronomical Society)	J A Jones Observatory	Data not available
03/04/2009	Public Observing Night	King Edwards Parade - Western Lawns	Data not available
03/04/2009	Milton Keynes Astronomical Society Astro Oscars	Milton Keynes Astronomical Society	Data not available
03/04/2009	Lecture: Mysteries of the Moon	Norwich Astronomical Society Seething Observatory	110
03/04/2009	Observatory Open Evening	Observatory Science Centre Herstmonceux	Data not available
03/04/2009	West of London Astronomical Society Moonwatch evenings	Ruislip Lido	12
03/04/2009	UCL Mill Hiil Observatory Open Evening	UCL Mill Hiil Observatory	150
03/04/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	11
03/04/2009	Lincolnshire Wildlife Trust Starnights: Our neighbour - the Moon	Whisby Education Centre	12
03/04/2009	Spring MoonWatch Sleepover at Glasgow Science Centre	Glasgow Science Centre	163
03/04/2009	Spring MoonWatch in Attingham Park	Attingham Park	300
03/04/2009	BAA Winchester Weekend	Sparsholt College	Data not available
04/04/2009	The Sun, Moon and Saturn	BEECHE Centre	50
04/04/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
04/04/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
04/04/2009	Spring Moonwatch at Chineham	Chineham Shopping Centre	60
04/04/2009	Sidewalk Astronomy	Dockside Outlet Centre	Data not available
04/04/2009	Yuri's Night	Dumfries Museum	40
04/04/2009	Paint the Universe	Glasgow Science Centre	163
04/04/2009	Farham Astronomical Society's Astronomy Day	Gostrey Meadow Park	60
04/04/2009	Castle Point Astronomy Club Open Night	Hadleigh Country Park	400
04/04/2009	Observatory Open Evening	Huddersfield Observatory	20
04/04/2009	MoonWatch observing evenings at IoA	Institute of Astronomy	130
04/04/2009	Public Viewing Evening	J A Jones Observatory	Data not available

	(Mexborough & Swinton Astronomical Society)		
04/04/2009	Observatory Open Day	Leighton Observatory	Data not available
04/04/2009	Starry Messengers	Museum of the History of Science	Data not available
04/04/2009	Spring Moon Watch	National Space Centre	57
04/04/2009	Norman Lockyer Observatory Public Opening - Spring Moonwatch	Norman Lockyer Observatory	100
04/04/2009	Lecture: Mysteries of the Moon	Norwich Astronomical Society Seething Observatory	Data not available
04/04/2009	Observatory Open Evening	Observatory Science Centre Herstmonceux	Data not available
04/04/2009	Orwell Park Observatory Open Days	Orwell Park Observatory	125
04/04/2009	Pendrell Hall Observatory Moonwatch Event	Pendrell Hall Observatory	Data not available
04/04/2009	One Night Only - Spring Moonwatch	Pinkery Outdoor Education Centre	28
04/04/2009	Chipping Norton Amateur Astronomy Group at Rollright Stones	Rollright Stones	Data not available
04/04/2009	West of London Astronomical Society Moonwatch evenings	Ruislip Lido	13
04/04/2009	Solar viewing in Oxford	Sheldonian Theatre	Data not available
04/04/2009	Sherwood Observatory Open Evening	Sherwood Observatory	160
04/04/2009	Sunningwell Spring Moonwatch	Sunningwell Village Hall	30
04/04/2009	Public Star Party	Sutton Bank Visitors Centre	200
04/04/2009	Starlit Days - Public Exhibition	The Guildhall	270
04/04/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	12
04/04/2009	Family Activity Weekend	Observatory Science Centre Herstmonceux	Data not available
04/04/2009	Alien Invasion	Eureka! The National Children's Museum	2000
05/04/2009	Blackburn Leisure AS & HERAS Spring Moonwatch Week	Blackburn Leisure Social Club	9
05/04/2009	Spring Moonwatch at Chineham	Chineham Shopping Centre	60
05/04/2009	Observatory Open Evening	Huddersfield Observatory	20
05/04/2009	Orwell Park Observatory Open Days	Orwell Park Observatory	87
05/04/2009	Roseland Observatory Open Day	Roseland Observatory	30
05/04/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory	11
TOTAL			9322

Table 30: Autumn Moonwatch Events in the UK

Date	Event	Venue
24/10/2009	Moonwatch with Shropshire Astronomical Society	Attingham Park
24/10/2009	How to Build & Use a Telescope	Bankhall Community Centre
24/10/2009	Lecture: IYA2009 BRLSI Lectures	Bath Royal Literary and Scientific Institution
24/10/2009	IYA2009 Display at Biddulph Library	Biddulph Library
24/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
24/10/2009	Stargazing in the Brecon Beacons	Brecon Beacons National Park Vistors Centre
24/10/2009	Liverpool Astronomical Society Star Party	Croxteth Hall & Park
24/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
24/10/2009	Observatory Open Evening at Glasgow University Observatory	Glasgow University Observatory
24/10/2009	Observatory Open Evening at Glenamour Observatory	Glenamour Observatory
24/10/2009	SIGMA Astronomy Fun Day	Gordonstoun School
24/10/2009	Castle Point Astronomy Club Open Night	Hadleigh Country Park
24/10/2009	Castle Point Astronomy Club Autumn Moonwatch	Hadleigh Country Park
24/10/2009	See the Moon from Helen Gardens, Eastbourne	Helen Gardens
24/10/2009	Moonwatch at Wythenshawe Stargazing Club	Horticultural Centre classrooms
24/10/2009	Moonwatch with Mexborough & Swinton Astronomical Society	J A Jones Observatory
24/10/2009	Autumn Moonwatch with Renfrewshire Astronomical Society	Lapwing Lodge
24/10/2009	Autumn Moon Watch in Redditch	Lower Park Fisheries
24/10/2009	StarNight	Mayfield Environmental Education Centre
24/10/2009	Autumn Moonwatch	National Space Centre
24/10/2009	Norman Lockyer Observatory Public Opening - Autumn Moonwatch	Norman Lockyer Observatory
24/10/2009	Lecture: Apollo and the Moon	Norwich Astronomical Society Seething Observatory
24/10/2009	Observatory Open Evening	Observatory Science Centre Herstmonceux
24/10/2009	Moon Day	Open University
24/10/2009	Orwell Park Observatory Open Days	Orwell Park Observatory
24/10/2009	One Night Only - Autumn Moonwatch	Pinkery Outdoor Education Centre
24/10/2009	Explorers of the Universe: Open Day	Royal Albert Hall
24/10/2009	Moonwatch at Ruislip Lido	Ruislip Lido
24/10/2009	Moonwatch and Lecture	Shetland Museum
24/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point
24/10/2009	Autumn Moonwatch with Stirling Astronomical Society	Stirling Highland Hotel
24/10/2009	Public Star Party	Sutton Bank Visitors Centre
24/10/2009	Chipping Norton Amateur Astronomy Group - Autumn MoonWatch 2009	The Rollright Stones
24/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
24/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust

24/10/2009	Cotswold Astronomical Society - Astronomy Evening at the WWT Slimbridge	Wildfowl and Wetlands Trust
24/10/2009	Astrobash! 2009	Woodchurch Community Centre
24/10/2009	Autumn Moonwatch Weekend at Glasgow Science Centre	Glasgow Science Centre
24/10/2009	Moonraker	Taunton Vale Rotary
24/10/2009	Autumn Moonwatch	Astronomy 2009 UK - Events
24/10/2009	Autumn MoonWatch	WWT Washington Wetland Centre
25/10/2009	Moonwatch with Shropshire Astronomical Society	Attingham Park
25/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
25/10/2009	Autumn Skywatch	Bluebell Hill Picnic Area
25/10/2009	Liverpool Astronomical Society Star Party	Croxteth Hall & Park
25/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
25/10/2009	See the Moon from Helen Gardens, Eastbourne	Helen Gardens
25/10/2009	Moonwatch at Wythenshawe Stargazing Club	Horticultural Centre classrooms
25/10/2009	Observatory Open Evening	Observatory Science Centre Herstmonceux
25/10/2009	Orwell Park Observatory Open Days	Orwell Park Observatory
25/10/2009	Moonwatch at Ruislip Lido	Ruislip Lido
25/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point
25/10/2009	Autumn Moonwatch with Stirling Astronomical Society	Stirling Highland Hotel
25/10/2009	Planetarium Show: Dials from the Deep	Techniquest
25/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
25/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust
25/10/2009	Festival of Time and Space	Royal Observatory Greenwich
26/10/2009	Observatory Open Evening at Airdrie Observatory	Airdrie Public Observatory
26/10/2009	Lecture: Astronomical Imaging for the Amateur Astronomer	Ayr Academy
26/10/2009	Autumn Moon Watch public observing event	Beacon Hill Observatory
26/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
26/10/2009	Moonwatch at Flackwell Heath	Carrington Field
26/10/2009	Star Party: Autumn Moonwatch	Cumberwell Park Golf Club
26/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
26/10/2009	Glasgow University Observing Evening	Gilbert Scott Building
26/10/2009	Dark Skies	Hawes National Park Centre
26/10/2009	Observatory Open Night: Galileo Moon Watch	Huddersfield Observatory
26/10/2009	Beginners' Night	Mayfield Environmental Education Centre
26/10/2009	Talk and Telescope Evenings	Nacton Village Hall
26/10/2009	Lecture: Cosmos and Culture	Number 1 Royal Crescent Bath
26/10/2009	Lecture: The Sky at Night in November	Royal Observatory Edinburgh
26/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point

26/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
26/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust
26/10/2009	Huddersfield Autumn Moonwatch	Huddersfield Observatory
27/10/2009	Moonwatch with Eddington Astronomical Society	Abbot Hall Park
27/10/2009	Observatory Open Evening at Airdrie Observatory	Airdrie Public Observatory
27/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
27/10/2009	Moonwatch at Flackwell Heath	Carrington Field
27/10/2009	Coats Observatory - Wonders of the Night Sky	Coats Observatory
27/10/2009	Autumn Moonwatch at Coats Observatory	Coats Observatory
27/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
27/10/2009	Autumn Moonwatch	Durham University Botanic Garden
27/10/2009	Dark Skies	Hawes National Park Centre
27/10/2009	Observatory Open Night: Galileo Moon Watch	Huddersfield Observatory
27/10/2009	Public Viewing Evening with Mexborough & Swinton Astronomical Society	J A Jones Observatory
27/10/2009	Talk and Telescope Evenings	Nacton Village Hall
27/10/2009	Autumn Moonwatch	Newton Field Centre
27/10/2009	Science Experience Day: Eyes on the Universe	Observatory Science Centre Herstmonceux
27/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point
27/10/2009	Dumfries Astronomy Society Beginners Night	St Georges Hall
27/10/2009	Autumn Moonwatch with Stirling Astronomical Society	Stirling Highland Hotel
27/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
27/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust
28/10/2009	Observatory Open Evening at Airdrie Observatory	Airdrie Public Observatory
28/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
28/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
28/10/2009	Astronomy in the Half-Term Holiday	Fairford Library
28/10/2009	Observatory Open Night: Galileo Moon Watch	Huddersfield Observatory
28/10/2009	MoonWatch observing evenings at IoA	Institute of Astronomy
28/10/2009	Public Observing Evenings at IoA	Institute of Astronomy
28/10/2009	Public Viewing Evening with Mexborough & Swinton Astronomical Society	J A Jones Observatory
28/10/2009	Discovery Day: Kepler vs Galileo	Observatory Science Centre Herstmonceux
28/10/2009	Autumn Moonwatch in Edinburgh	Our Dynamic Earth
28/10/2009	Autumn Moonwatch plus Deep Sky Objects	Pakefield Street car park
28/10/2009	BAA Annual General Meeting	Royal Astronomical Society
28/10/2009	Solags Autumn Moonwatch	Sir Halley Stewart Field
28/10/2009	Autumn Moonwatch at Worthing	Splash Point

	Promenade	
28/10/2009	Astronomy in the Half-Term Holiday	Tetbury Library
28/10/2009	Planets, stars & space rocks	The Manchester Museum
28/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
28/10/2009	A Night Under the Stars	Westbury-on-Trym Village Hall
28/10/2009	Autumn MoonWatch Event	Wick Scout Hall
28/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust
29/10/2009	Lecture: Robert Burns and Astronomy	Airdrie Public Library
29/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
29/10/2009	Autumn MoonWatch Event	Borgie Forest NSCFT Log Cabin
29/10/2009	Lecture: Astronomy and the New Media	Cardiff School of Physics and Astronomy
29/10/2009	Astronomy in the Half-Term Holiday	Cirencester Library
29/10/2009	Coats Observatory - Wonders of the Night Sky	Coats Observatory
29/10/2009	Autumn Moonwatch at Coats Observatory	Coats Observatory
29/10/2009	Lecture: Sunspots - Where do they come from and where have they gone?	Coats Observatory
29/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
29/10/2009	Observatory Open Night: Galileo Moon Watch	Huddersfield Observatory
29/10/2009	MoonWatch observing evenings at IoA	Institute of Astronomy
29/10/2009	Astronomy in the Half-Term Holiday	Moreton-in-Marsh Library
29/10/2009	Starwatch Observing Session	Nene Valley Astronomical Society
29/10/2009	Norman Lockyer Observatory Public Opening - Autumn Moonwatch	Norman Lockyer Observatory
29/10/2009	Autumn Moonwatch plus Deep Sky Objects	Pakefield Street car park
29/10/2009	Autumn Moonwatch at Satrosphere	Satrosphere Science Centre
29/10/2009	Lecture: Observing the Sun	Scout Hall
29/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point
29/10/2009	Autumn Moonwatch with Stirling Astronomical Society	Stirling Highland Hotel
29/10/2009	Sidewalk Astronomy	The Ship Inn
29/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
29/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust
29/10/2009	Worcester Autumn Moonwatch	Worcester Countryside Centre
30/10/2009	Lecture: Supermassive Black Holes	Airdrie Public Library
30/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
30/10/2009	Autumn Moonwatch at Muirshiel Country Park	Clyde Muirshiel Regional Park
30/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
30/10/2009	Observatory Open Night: Galileo Moon Watch	Huddersfield Observatory
30/10/2009	A City Dweller's Guide to the Galaxy - Moonwatch	Lickey Hills Visitor Centre
30/10/2009	Autumn Moonwatch	Lincoln Astronomical Society
30/10/2009	Marina Towers Observatory Open Evening	Marina Towers Observatory
30/10/2009	Lecture: The Aurora	Milton Keynes Astronomical Society

30/10/2009	Star Party: Autumn Moonwatch	Number 1 Royal Crescent Bath
30/10/2009	Family Open Evening	Observatory Science Centre Herstmonceux
30/10/2009	Autumn Moonwatch plus Deep Sky Objects	Pakefield Street car park
30/10/2009	Open Evening at Royal Observatory Edinburgh	Royal Observatory Edinburgh
30/10/2009	Autumn Moonwatch in Edinburgh	Royal Observatory Edinburgh
30/10/2009	An evening with the Moon	Royal Observatory Greenwich
30/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point
30/10/2009	Autumn Moonwatch with Stirling Astronomical Society	Stirling Highland Hotel
30/10/2009	Autumn MoonWatch Event	Thurso High School
30/10/2009	Autumn Moonwatch with Caithness Astronomy Group	Thurso High School
30/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
30/10/2009	Liverpool Astronomical Society Astronomy Evening	Wigg Island Community Park
30/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust
30/10/2009	Worcester Autumn Moonwatch	Worcester Countryside Centre
30/10/2009	Moonwatch at Wynyard Planetarium	Wynyard Planetarium & Observatory
31/10/2009	Airdrie Public Library Family Fun Day	Airdrie Public Library
31/10/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
31/10/2009	Autumn Moonwatch at Calton Hill Observatory	Calton Hill
31/10/2009	Astronomy in the Park	Christchurch Mansion
31/10/2009	Sidewalk Astronomy	Dockside Outlet Centre
31/10/2009	Observatory Open Night: Galileo Moon Watch	Huddersfield Observatory
31/10/2009	Autumn Moonwatch	Lincoln Astronomical Society
31/10/2009	Autumn Moonwatch in Edinburgh	National Museum of Scotland
31/10/2009	Space Day and Moon Watch	Nottingham Castle
31/10/2009	Star Party: Halloween Moonwatch	Number 1 Royal Crescent Bath
31/10/2009	Observatory Open Evening	Observatory Science Centre Herstmonceux
31/10/2009	Abernethy Star Party	Powrie Park
31/10/2009	An evening with the Moon	Royal Observatory Greenwich
31/10/2009	Autumn Moonwatch at Worthing Promenade	Splash Point
31/10/2009	Scottish Solar System Exhibition	Victoria Halls
31/10/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory
31/10/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust
31/10/2009	Worcester Autumn Moonwatch	Worcester Countryside Centre
01/11/2009	Blackburn Leisure AS & HERAS Autumn Moonwatch Week	Blackburn Leisure Social Club
01/11/2009	Astronomy in the Park	Christchurch Mansion
01/11/2009	Sidewalk Astronomy	Dockside Outlet Centre
01/11/2009	Autumn Moonwatch at Worthing Promenade	Splash Point
01/11/2009	Observatory Open Evening	West Yorkshire Astronomical Society Observatory

01/11/2009	Autumn Moonwatch with Sunderland AS	Wildfowl and Wetland Trust

Table 31: UK University IYA2009 Events

University Name	# Events	Event Description
University of Birmingham	3	Short lecture series "Pi Day" http://www.sr.bham.ac.uk/outreach/talktelescope/piday/
University of Cambridge	23	21 Public observing nights (4 during Moonwatches) Institute of Astronomy Open Day Dark Matter: The Poetry of Space SunTrek website
University of Derby	5	5-day Public Event Science in the Peak http://www.scienceinthepeak.co.uk
Durham University	19	9 public lectures Spring Moonwatch (5 evenings) in Durham Botanical Gardens Autumn Moonwatch (5 evenings) in Durham Botanical Gardens http://www.dur.ac.uk/physics/events/past/
University of East Anglia	1	Astronomy public Lecture Day
University of Exeter	5	Astronomy Department Open Evening 3 public lectures Spring Moonwatch at Exmoor National Park Perseids at Exmoor National Park
University of Glasgow	10+50	5 Observatory Open Evenings 1 Observing Evening 2 Day Classes 2 Night Classes Project managed Scottish Solar System Project (50 events) http://www.astro.gla.ac.uk/users/martin/sss/
University of Gloucestershire	1	Public lecture
University of Hertfordshire	4	Hosted European Week of Astronomy and Space Science inc. 4 public lectures
University of Leicester	1	UK Undergraduate Student Representative at IYA2009 Opening Ceremony in Paris http://www2.le.ac.uk/ebulletin/news/out-and-about/2000-2009/2009/01/nparticle.2009-01-29.8515192240
Imperial College London	3	The Big Questions Debates http://astro.ic.ac.uk/content/big-questions-public-debates
University of Kent	6	Public lecture series and observing sessions http://www.kent.ac.uk/news/stories/internationalyearofastronomy/2009
University of Manchester Jodrell Bank	4	The Moonbounce http://www.jb.man.ac.uk/news/2009/moonbounce/ Archaeoastronomy conference http://www.jodrellbank.manchester.ac.uk/visitorcentre/events/2009/archaeo-astronomy.html Representing IYA2009 at the Labour Party Conference http://www.jb.man.ac.uk/news/2008/labourparty/ Public Lecture
University of Nottingham	8	Public lecture series
University of Oxford	1	Hosted From Earth to the Universe (see Section 3.1)
University of Southampton	11	7 public lectures Science and Engineering family Fun Day Astronomy Department Open Evening: A Night with the Stars Astrophysics in the Classroom Communicate with Aliens Day (year 8)

		http://www.phys.soton.ac.uk/outreach/iya2009/events.php
University of Surrey	13	UK SEDS Conference Aliens!: Could Darwin work on the distant worlds of Galileo Copernicus and the astronomy of medieval Islam Film screening: In the shadow of the moon Fly Me to the Moon Fusion research - what can we learn from the Sun? Light fantastic - an introduction to the night sky Spaced out The Blue Peter 1 Space Project The great Mars field trip The universe from the bottom up Tour of the Universe Women doing science: She is an astronomer
University College London	9	Your Universe: 9 days of astronomy activities http://www.ucl.ac.uk/youruniverse/
University of Central Lancashire	20	10 Measuring the Cosmos: Telescopes as Time Machines 2 Teacher CPD 8 Observatory Open Nights
University of Wales Swansea	1	Lecture
University of Worcester	1	Lecture
TOTAL	158+50	

Table 32: UK Museums and Galleries during IYA2009

Museum / Gallery Name	Event Description
Avoncroft Museum of Historic Buildings	Avoncroft's Blast Off!
Beckford's Tower and Museum	Building Towers to the Heavens
Black Country Living Museum Observatory	Victorian Astronomy and Technology http://www.bclm.co.uk/newdev.htm
City Arts Centre, Edinburgh	Lucinda Douglas-Menzies' "Portraits of Astronomers" http://douglas-menzies.com
Corinium Museum	Astronomy Exhibition, lecture series, portable planetarium
County Museum, Armagh	Lucinda Douglas-Menzies' "Portraits of Astronomers" http://douglas-menzies.com
Eureka! The National Children's Museum	Alien Invasion Blast Off! Eureka! Space Academy Eureka! Space Festival From Earth to the Universe exhibition
The Guildhall Art Gallery	Starlit Days - Public Exhibition
Harrow Museum and Heritage Centre	Harriot to Hubble: 400 Years of Astronomy in West London
Herschel Museum of Astronomy	Exhibition: Bright Stars - Daughters of Urania Inspirations Around the Sun Reach for the Stars Summer Workshop
Kendal Museum	Our Amazing Universe Exhibition http://www.kendalblog.co.uk/our-amazing-universe-kendal-museum-exhibition/
Lancaster Maritime Museum	International Year of Astronomy at Lancaster Maritime Museum Lecture: Art and Astronomy Sailors and the Stars The Moon and the Lune Totally Terrific Telescopes
The Michaelhouse Centre, Cambridge	Lucinda Douglas-Menzies' "Portraits of Astronomers" http://douglas-menzies.com
Museum of the History of Science	Lecture series Mirror Making Stargazing Starry Messengers
National Maritime Museum	400 Years of the Telescope http://www.nmm.ac.uk/blogs/collections/objects/telescopes/
National Museum of Wales	Cardiff Astronomy Festival http://www.cardiff-astronomical-society.co.uk/IYA2009festival.asp
National Museum of Rural Life	Autumn Stargazing Spring Stargazing
National Museum of Scotland	Autumn Moonwatch in Edinburgh Witnessing the Telescope: Kepler, Galileo and the Uses of Testimony
National Portrait Gallery	Lucinda Douglas-Menzies' "Portraits of Astronomers"

	http://douglas-menzies.com
National Waterfront Museum	A Night at the Museum Astronomy Week at the National Waterfront Museum SeaSwansea Stardome at National Waterfront Museum Public lecture series
The Natural History Museum	Nature Live - Hunting for Meteorites on Ice Nature Live - Looking for our Cosmic Origins Nature Live - Travelling to The Moon
Opus Mosaic Gallery	Heaven's Above: Mosaic Gallery http://www.opusmosaic.co.uk/heavensabovepage1.html
Oriental Museum	Public lecture series
Paisley Museum	From Paisley To The Universe: Astrophotography from Renfrewshire Astronomical Society Public lecture series
Plymouth City Museum and Art Gallery	Space Age: Exploration, Design and Popular Culture Lecture series
Portico Library & Gallery	Manchester Astronomical Society Exhibition Public lecture
Royal Albert Hall	Max Alexander’s “Explorers of the Universe” exhibition http://maxalexander.com/astronomy/
Royal Cornwall Museum	Space Age: Exploration, Design and Popular Science
Science Museum	Cosmos and Culture http://www.sciencemuseum.org.uk/visitmuseum/galleries/cosmos_and_culture.aspx
Shetland Museum	Moonwatches Public lecture series
Tate Britain	All the Dead Stars http://channel.tate.org.uk/media/24368154001

Table 33: Other UK Venues for IYA2009 Events

Organisation / Venue	Event Description
All Saints Church	A Cosmic Concert
Archaeolink Prehistory Park	Moonwatch 2009 at Archaeolink
Bath Royal Literary and Scientific Institution	Lecture: IYA2009 BRLSI Lectures
British Film Institute Southbank	One Giant Leap
Bridgemary Community Sports College	Bridgemary Carnival Celebrates SPACE!
Bristol Grammar School	Lecture: Calling the Cosmos
Charterhouse School	UK Space Conference 2009
The Chase	Lecture: Observing the Moon - Reading the Lunar Landscape
Colchester Royal Grammar School	CRGS/NEAS Astronomy Night
Cosey Club	Lecture: The Size of Space
Crowne Plaza Hotel	Satellite 2... One small step
Eccleshill Library	Lecture: Lunatick Astronomy
Fairford Library	Astronomy in the Half-Term Holiday
Falkirk Wheel	Dark Skies Canal Corridors: An Audience with the Astronomer Royal for Scotland
Far Ings National Nature Reserve	Lincolnshire Wildlife Trust Starnights: Of Jupiter, Neptune and Uranus too Lincolnshire Wildlife Trust Starnights: Saturday Sun Day at Far Ings Lincolnshire Wildlife Trust Starnights: The Ever-changing Aspect of the Night Sky
Friends House	Lecture: Apollo - A Moon Odyssey
Geddington Village Hall	Stars'n'Stripes: A Celebration of the Apollo Years
Geological Society	Lecture: The Dunhuang Star Chart - An Early View of the Chinese Sky
Gibraltar Point National Nature Reserve	Lincolnshire Wildlife Trust Starnights: The Moon Lincolnshire Wildlife Trust Starnights: The Winter Stars and Planets Lincolnshire Wildlife Trust Starnights: What Happened to Saturn's Rings?
Halse Farm	Astro Camp Out at Exmoor National Park
Hauxley Nature Reserve	NASTRO Skywatch
Hawes National Park Centre	Dark Skies
Holy Trinity Church Hall	Lecture: To See the Beginning of Time
Hotel Andaz	Tomorrow's Women, Tomorrow's World
Kensington Conference and Events Centre	Astrofest
King Charles 1st High School	Year of Astronomy Open Day
Kirkley High School	Lecture: Infinity and Beyond - the Journey of an Astronomer

	Lecture: Revisiting the Apollo Missions
Lakeside Arts Centre	Space Week
Lincolnshire Wildlife Trust Headquarters	Lincolnshire Wildlife Trust Starnights: Of Autumn Stars and Planets
Lower Park Fisheries	Autumn Moon Watch in Redditch
Marston Green Parish Hall	Lecture: Lunatick Astronomy
Monmouth School Science Department	Astronomy for All, Autumn Event Astronomy for All, Autumn Event Lecture: Life Beyond the Solar System Monmouth Autumn Skywatch Monmouth Autumn Skywatch Public Stargazing at Monmouth School Public Stargazing at Monmouth School
Moreton Area Centre	Lecture: Van Gogh's Night Skies
Moreton-in-Marsh Library	Astronomy in the Half-Term Holiday
The Mozart Drive Community Centre	Lecture: Exploring the Moon Lecture: The Search for Life in the Solar System Lecture: The Thin Red Line
National Trust for Scotland - House of the Binns	Twinkle Twinkle Little Bat
Newquay Zoo	Zodiac Starlight Trail at Newquay Zoo
Nottingham Castle	Space Day and Moon Watch
Nottingham Royal Centre	Planetary Exploration - Why bother going to the planets, comets and asteroids?
Number 1 Royal Crescent Bath	Lecture: Cosmos and Culture
Old Royal Naval College	BAA Exhibition Meeting
Quay Arts Centre	Storrytellers Starry Telling
Redlake Hall	Lecture:
Reepham High School and College	Astronomy and Space Event at Reepham High School and College
The Royal Society	Astronomy: capturing light and dark Lecture: Seeing the invisible: observing the dark side of the universe Lecture: The Leviathan of Parsonstown Portraits of Astronomers Exhibition - Lucinda Douglas-Menzies
Rutherford Appleton Laboratory	Lecture: Creation by Evolution
Science Learning Centre London	Celebrating IYA2009 - Science Learning Centre London 5th Anniversary
Science Oxford Live	Lecture: Exploring Mars
Scottish Seabird Centre	Sun watch in North Berwick
The Senedd	Solar viewing in Oxford
Sheldonian Theatre	BAA Winchester Weekend
Sparsholt College	50th Anniversary Convention
St Georges Church	Orkney International Science Festival
St Magnus Cathedral	Theydon Bois AstroKyds
St Mary's Church Hall	Lecture: Creation by Evolution
Staffordshire and Worcester Canal Society	Lecture: Lunatick Astronomy
Stonehenge	Winter Solstice Event at Stonehenge
Streetly Methodist Church	Lecture: To See the Beginning of Time
Sutton Coldfield UTD Reform Church	Lecture: Sputnik Around the World in 90 Minutes
Syon Park	Telescope 400 - A Celebration of Thomas Harriot

Taunton Vale Rotary	Moonraker
Theydon Bois Primary School	Lecture: Water On Mars - Where Should We Be Looking?
Thornton Grammar School	Lecture: Geology of the Moon Lecture: My Life in Astronomy Lecture: Observing the Moon
Tower House	Earl's Court Festival: Look up! Touch the stars
Vale and Downland Museum	Mission to the Moon with Captain Cosmos
Weald Country Park	A Night With The Stars
Webbers Post	Dunkery Beacon Moonlit Hike Exmoor National Park
Westbury-on-Trym Village Hall	A Night Under the Stars
Whisby Education Centre	Lincolnshire Wildlife Trust Starnights: Of Jupiter, Neptune and Uranus too
Whitecross School	Guided viewing of the Moon
William Hulme's Grammar School	History or Hoax? A talk by Paul Fitzgerald The Aurora Borealis: Nature's Light Show
Wirral Country Park	Public Star Party
Witton Middle School	Lecture: Observing the Moon - Reading the Lunar Landscape
Wolverhampton Ladies Luncheon Group	Lecture: Lunatick Astronomy
Woodchurch Community Centre	Astrobash! 2009
Woodrow High House	Lecture: To See the Beginning of Time Wycombe Astronomical Society - A Day out with the Stars Wycombe Astronomical Society Open Day Lecture: To See the Beginning of Time
WWT Washington Wetland Centre	Autumn MoonWatch Spring Moonwatch at Cygnus Observatory
Wythall Library	Lecture: Chariots of Fire

Appendix 2: List of Press Releases

Table 34: List of IYA2009 Media Coverage

Media Outlet	Title	Date
Sky News	Shooting Stars Set To Light Up UK Night Sky	13/12/2009
BBC Online	Annual Geminids meteor shower lights up night sky	13/12/2009
Scottish Television Online	Patrick Moore takes me to the stars	17/11/2009
ITN News	Forestry bosses reward for keeping public in dark	16/11/2009
Scottish Television	Astronomy honour for Scottish park	16/11/2009
The Daily Express	BRITAIN'S STARGAZING HOTSPOT	16/11/2009
The Scotsman	It's the latest nightspot where all the stars go – the darkest place in UK	16/11/2009
BBC Online Magazine	In praise of real darkness	16/11/2009
The Daily Mail	It's all in the stars! Forest park in Scotland named one of the world's best for stargazing	16/11/2009
The Telegraph	Best places to see the night sky	16/11/2009
The Guardian	Astronomers name Scottish park one of world's best stargazing sites	16/11/2009
BBC Online	Forest park given Dark Sky honour (video)	16/11/2009
BBC Online	Forest park given Dark Sky honour (video and text)	16/11/2009
The Times	Galloway Forest Park: one of the darkest places on the planet	24/10/2009
The Independent	Black sky at night, stargazers' delight	21/10/2009
The Herald	Scots forest bids for first dark sky park outside USA	17/10/2009
BBC Online	Forest pursues 'dark sky' status	16/10/2009
The Scotsman	Tourist park hopes to be named one of planet's true black spots	15/10/2009
BBC Online	Mars is just around the corner	12/10/2009
BBC Online	Cities in big Solar System model	09/10/2009
The Times	The Astronomy Photographer of the Year	29/08/2009
BBC Online	Staring at the night sky	28/08/2009
BBC Online	Naked eye astronomy	28/08/2009
Times Online	Science: Meteors	15/08/2009
The Telegraph	Night forays into the countryside	13/08/2009
BBC Online	Perseid meteor show reaches peak	13/08/2009
The Sun	Meteors Dazzle Stargazers	13/08/2009
The Scotsman	Meteors to put on spectacular show as Earth passes comet’s path	12/08/2009
The Scotsman	Telescopes at the ready for year's greatest meteor show	12/08/2009
Sky News	Magical Meteor Shower Lights Up The Sky	12/08/2009
The Herald	Scientists all a-twitter over meteor shower	12/08/2009
Channel 4 News	Shooting the stars on Twitter	12/08/2009
The Times	The Perseid meteor shower:	12/08/2009
The Times	Perseid 'tweeteors' knock Disney star Miley Cyrus off top slot	12/08/2009
The Telegraph	Perseids 'meteor watch' knocks Disney star Miley Cyrus off Twitter top spot	12/08/2009
The Guardian Science Blog	Perseids meteor shower: stargazers told to head	12/08/2009

	north	
National Geographic	Perseids: Meteor Shower to Yield 80 Meteors an Hour?	11/08/2009
The LA Times	Perseid meteor shower 2009: Times to watch, places to go and a Twitter party	11/08/2009
The Belfast Telegraph	Catch up on meteors with Twitter	11/08/2009
The Metro	Shooting stars to lighten up Twitter	11/08/2009
The Daily Mirror	Meteor shower set to light up night sky	11/08/2009
ITN	Twitter's meteor shower party	11/08/2009
Daily Express,	Heavens Light Up for Shooting-Star Spectacular	11/08/2009
Channel 4 News	Shooting the stars on Twitter	11/08/2009
The Independent	What a shower! Catch up on meteors with Twitter	11/08/2009
Scientific American	Twitter fans set for Perseid party	10/08/2009
New Scientist	Perseid shower to produce 'shooting stars'	10/08/2009
BBC Online	Stargazers in 'Twitter marathon'	10/08/2009
Guardian Science Blog	Tweet a falling star	10/08/2009
BBC Radio 4's Today programme	The birth of astronomy as a modern science	25/07/2009
The Guardian Editorial	In praise of... astronomers	25/07/2009
The Telegraph	Exhibition of 400 year-old moon drawings	23/07/2009
BBC Radio 4	Material World: Thomas Harriot	23/07/2009
The Economist	The solar eclipse in China	23/07/2009
The Guardian	Shakespeare to stargazing	19/07/2009
The Guardian	Copernicus nominated for the select club of elemental scientists	17/07/2009
The Independent	Telescopes: From seas to space	15/07/2009
The List	We Are Astronomers	09/07/2009
The Belfast Telegraph	Carnival of colour parades through Belfast	29/06/2009
The Telegraph	Summer in the city: Belfast's best events	18/06/2009
The Scotsman	Dynamic Earth enters space race with new video dome	11/06/2009
Times Online	Further reading: the story of the telescope	13/05/2009
BBC Online	Telescopes given 'go' for launch	28/04/2009
CBBC Newsround	We met the world's top astronomers!	23/04/2009
Times Online	Pick of the Week: Edinburgh International Science Festival	15/04/2009
The Daily Mail	Telescopes set up across Britain as Moonwatch event aims to inspire a new generation of astronomers	27/03/2009
The Telegraph	Spring Moonwatch: I've promised my son the Moon	27/03/2009
The Telegraph	Thousands to see Moon up close for first time	26/03/2009
The Herald	Two Scots landmarks named as world's first Dark Sky sites	25/03/2009
BBC News Online	Northern groups look to the stars	21/02/2009
The Guardian	Scientists to test DNA to find out if Galileo could really see stars	23/01/2009
The Telegraph	Galileo's observations 'affected by' degenerative eyes	22/01/2009
The Telegraph	Briton drew pictures of the moon before Galileo	14/01/2009
Times Online	Digital Choice: Telescope Night	07/01/2009
Channel 4 News	Englishman's 'moon maps' displayed	14/01/2009
BBC News Online	'English Galileo' maps on display	14/01/2009

The Scotsman	2009 - the year of the big switch-off has arrived	03/01/2009
BBC Radio 4, Today	Interview with Astronomer Royal Professor Lord Rees	03/01/2009
The Guardian	Scotland prepares to host Europe's first 'dark sky park'	24/12/2009
The Guardian	Where to see the stars in the UK	16/12/2008
The Scotsman	Stars in their eyes	13/12/2008
The Scotsman	Scots urged to see the light in campaign for 'dark sky parks'	17/11/2008
The Observer	Scotland sells star therapy to stressed out city dwellers	16/11/2008
The Sunday Herald	Searching for stars? It's a stroll in the park	12/10/2008

Appendix 3: Flyers and Posters

Figure 32: Main IYA2009 Flyer (Feb 2009) Front and Rear

Figure 33: Small IYA2009 Flyer (Feb 2009) Front and Rear

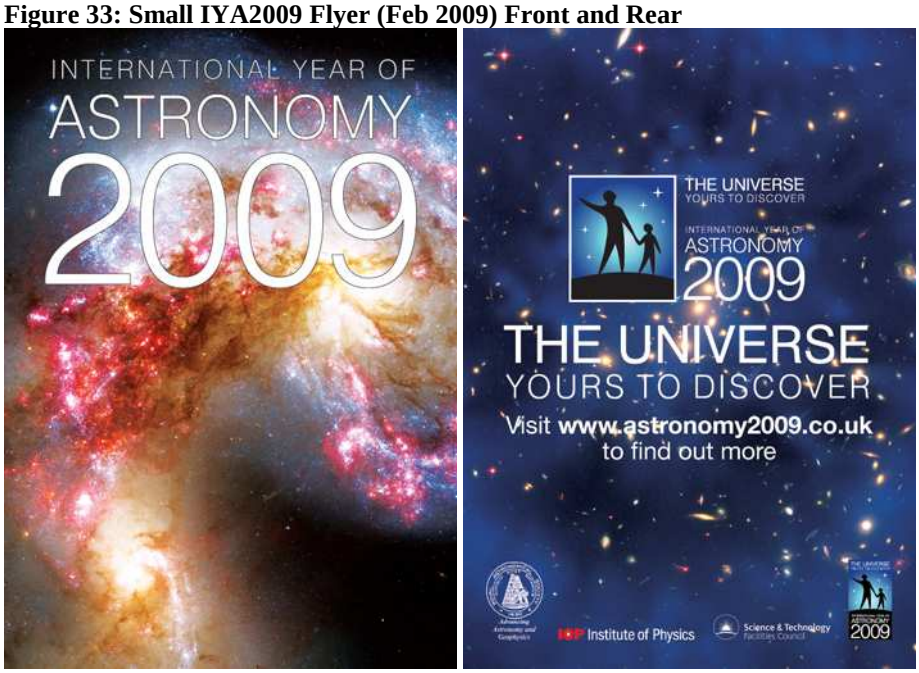


Figure 34: FETTU Flyer (Feb 2009)

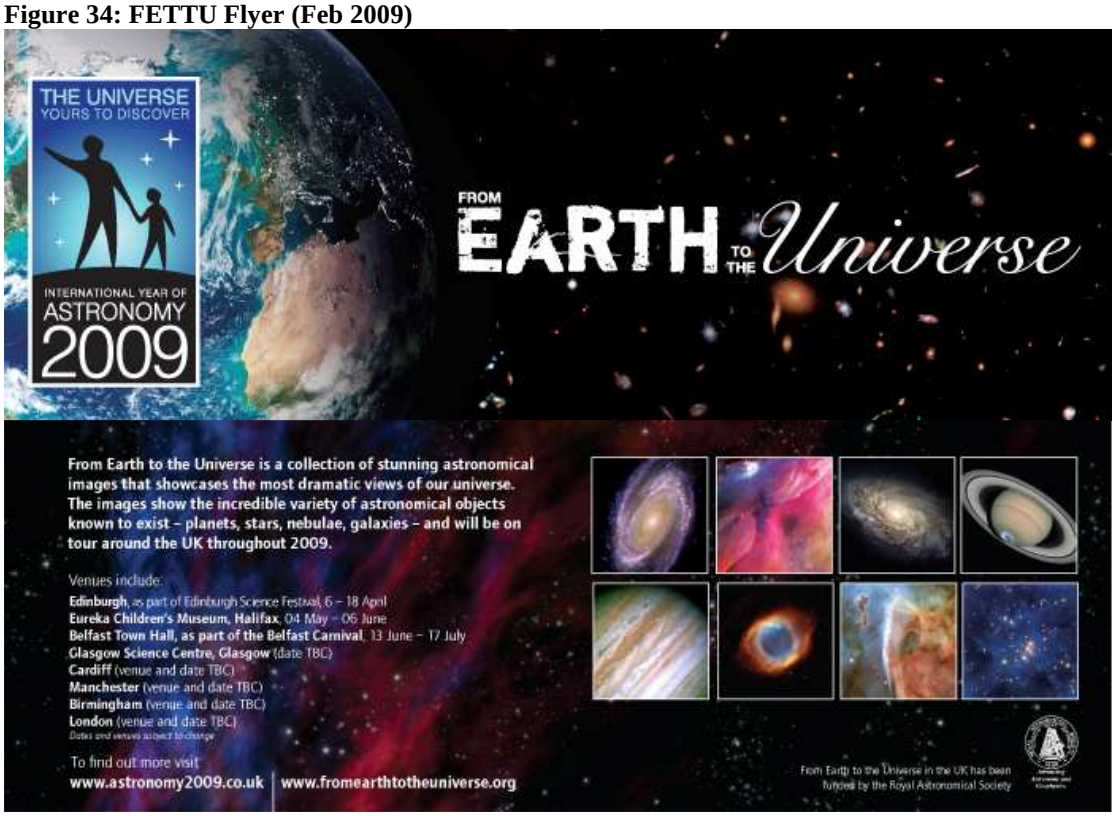


Figure 35: Dark Skies Flyer (Feb 2009)

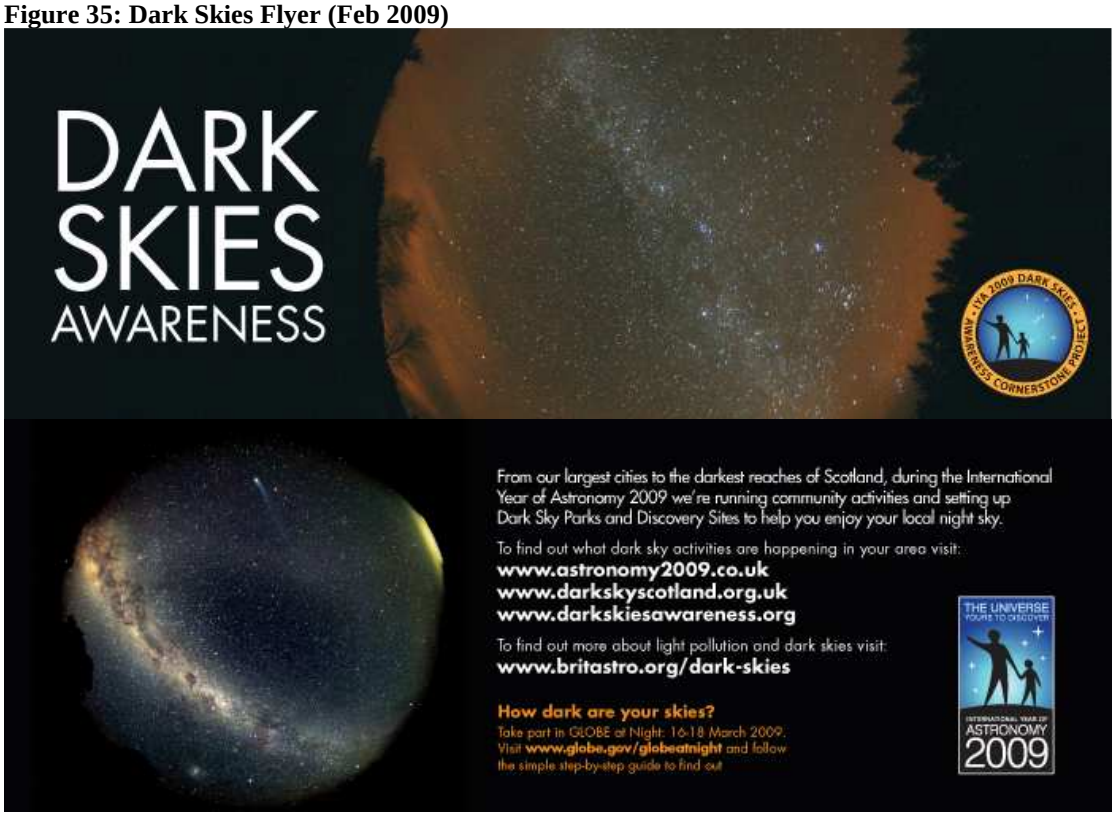


Figure 36: Moonwatch Flyer (Feb 2009)

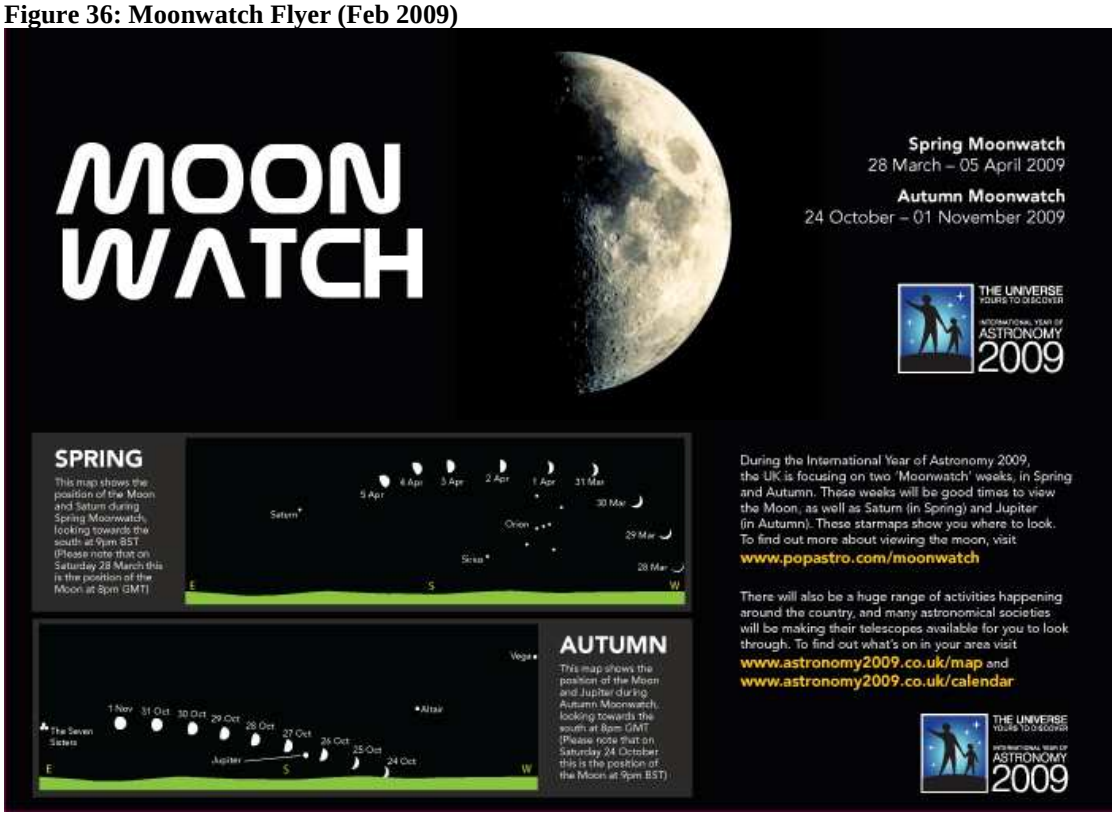


Figure 37: Large Pop-up Banner Graphic (Feb 2009)

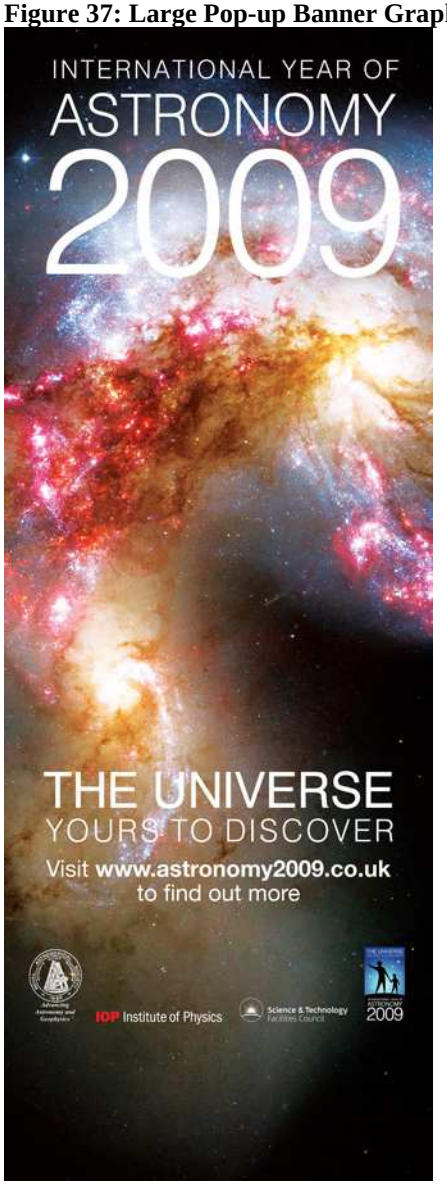


Figure 38: Autumn Moonwatch Poster (Sep 2009)

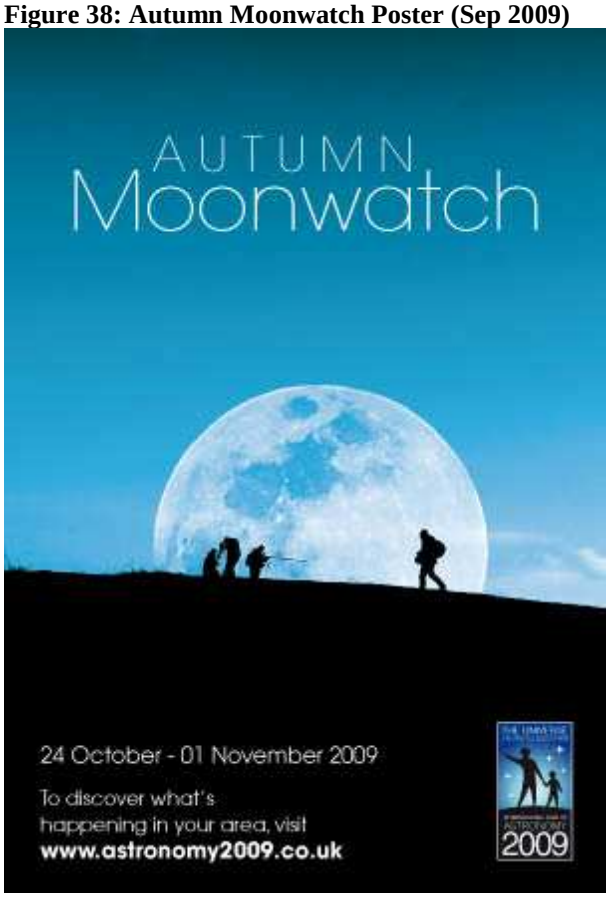
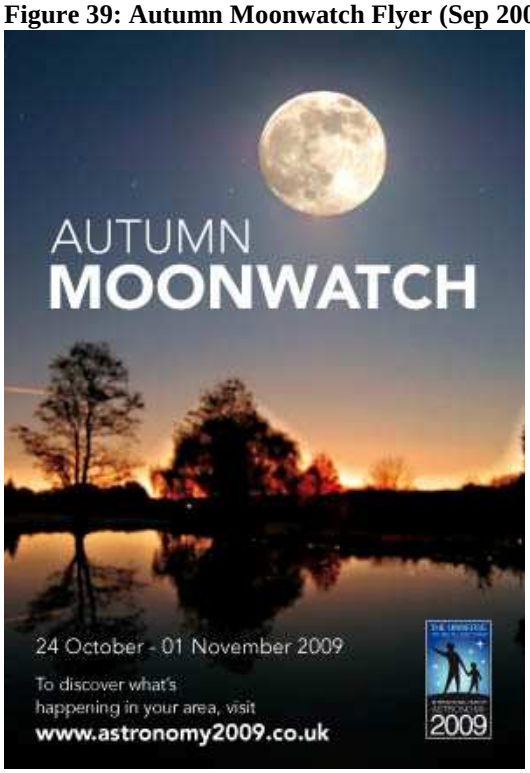


Figure 39: Autumn Moonwatch Flyer (Sep 2009) Front and Rear



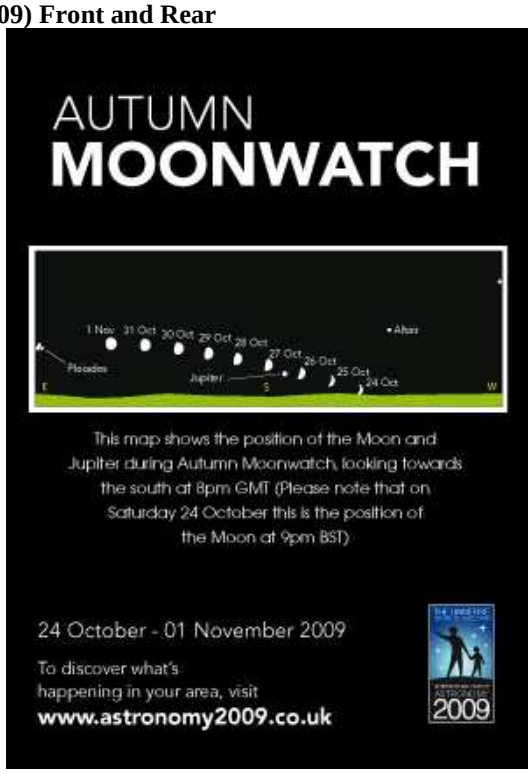


Figure 40: The UK contribution to IYA2009 at the International Astronomy Union General Assembly in Rio de Janeiro August 2009

Appendix 4: List of Tables and Figures

LIST OF TABLES

LIST OF FIGURES