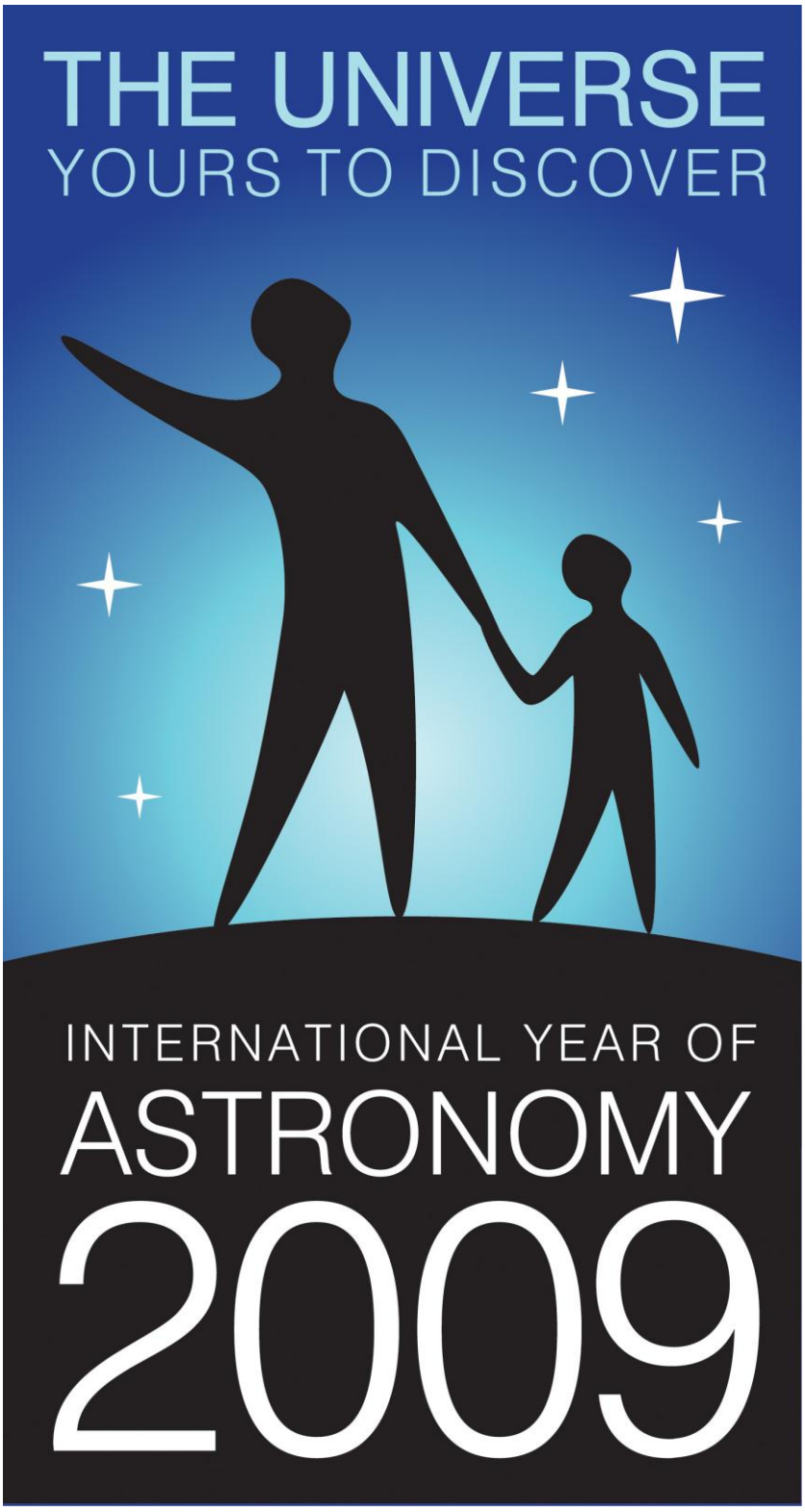

IYA2009 in newspapers: Evaluation Hands-on Guide

IYA2009 Evaluation Special Task Group, March 2009

IYA2009 in newspapers: Evaluation Hands-on Guide

1. Introduction

This Evaluation Hands-on Guide aims to provide basic information to the IYA2009 network on how to evaluate, understand and contextualise IYA2009, astronomy and space science in the media during 2009.

To do so we will use newspapers as a source of information. According to the academic literature about science and technology in the media, newspapers are an interesting research field, considering that they are representative of the whole media in science and technology topics (Hansen and Dickinson, 1992).

This basic evaluation methodology will allow a standard analysis of newspaper articles concerning IYA2009, astronomy and space science topics, between 1st December 2008 and 31st January 2010.

2. Objectives: Why evaluate?

Many organisations, particularly in the public and voluntary sectors, are turning to evaluation as a source of learning, as well as to justify their use of funds. Through evaluation, you can:

- Determine if the objectives of your project were reached;
- Obtain information on the outcomes of an event, along with suggestions for improvements;
- Identify changes resulting from the implementation of your project;
- Identify ways in which the project could have been more effective and efficient;
- Identify unexpected results;
- Crystallise ideas about the event and what it is intending to achieve;
- Find out who has attended your event, along with suggestions for improvement;
- Provide encouragement by demonstrating that your efforts have been worthwhile.

3. Methodology: How to evaluate?

The collection of an exhaustive number of global newspaper articles concerning IYA2009, astronomy and space science would allow a powerful analysis of the global IYA2009 impact in the media. However, this task is too big to be carried out by the IYA2009 Secretariat and stakeholders. As such, we describe here a more basic, standardised and simple methodology to be used in the different countries.

This gathering of newspaper articles should be done at least in the most important, daily newspapers sold nationally[i]. In order to obtain a good sample it is important to have one "quality" and one "popular" newspaper[ii], which form the accepted definition of "*dominant media*". These newspapers will be the ones that set the social and political agenda and whose news selection criteria and style are followed by the other media, who reproduce their opinions, style and contents, in the search for larger audiences.

With the help of standard software (Excel, SPSS, etc.) samples should be selected during all week-days, between 1.12.2008 and 31.01.2010. You can also ask the newspaper companies to provide you with back issues. But where this is not possible, please note down your starting date. Using the same software, five publishing days per week should be randomly selected to be used for this analysis.

The entire publication must be checked, since IYA2009, astronomy and space science articles do not always appear in a specific newspaper section.

4. What kind of information is important for us?

The analysis of a newspaper article can provide us with a very rich and complex data set. Nevertheless, for this task we just need to analyse a few features.

It is very important that the coder, the person that will update the database, only considers the content of the analysis unit. By **analysis unit** we understand the texts, illustrations or texts and illustrations, that by themselves form a unit feasible to be clearly limited and that constitute an object of study itself.

The coder should not use his/her general knowledge about the subject to presuppose informative elements not explicitly stated in the article.

For the analysis, the coder should select all newspaper articles concerning IYA2009, astronomy and space science topics in the publication.

The coding frame is divided in seven different features:

- **characterisation**
- **scientific content**
- **actors**
- **scientific/IYA2009 events**
- **location**
- **source**
- ***news play*.**

The goal of the **characterisation** feature is to formally characterise the newspaper and the article at stake. It includes the following items:

- **Type**: the newspapers should be classified as “Popular” or “Quality”;
- **Day**: the day when the newspaper was published (e.g. 27);
- **Month**: the month when the newspaper was published (e.g. February);
- **Year**: the year when the newspaper was published (e.g. 2009);
- **Newspaper title**: the name of the newspaper (e.g. Deutsche Zeitungen);
- **Article title**: the title of the article. This is almost always at the beginning of the text, and uses larger letters;
- **Location**: If the article is on the upper half or in the lower half of the page. If the article is mainly in the lower half of the page but the top of the article is in the upper half, we should consider it as an article in the upper half of the page;
- **Main illustration content**: Illustration content can be classified as: people, planets, stars, galaxies, nebulas, spaceships, satellites, telescopes, landscapes, buildings, symbols or other illustration contents. If there are several different contents in the illustration, only the bigger one should be considered;
- **First page highlight**: if the article has a highlight on the newspaper first page (yes/no);
- **Prominent page**: if the article is on a prominent page: first, second, third or last page. The page should be identified (first, second, third or last page);

Given that IYA2009, astronomy and space science are science and technology topics, the **scientific content** feature, is very important in this analysis. The coder should be able to identify the following list of expected scientific writing features:

- **Scientist(s)/ expert(s) quotations**: if there is any scientist/expert quotation (yes/no);
- **Theory mention**: if the article makes any mention of the theory (yes/no);
- **Methodology mention**: if the article makes any mention of the scientific methodology (yes/no);
- **Technical language/ jargon**: if the article uses any technical language/ jargon (yes/no);
- **Bibliography**: if the article makes any reference to bibliography (yes/no);
- **Data/results presentation**: if the article shows any research data or results (yes/no);
- **Scientist(s)/ expert(s) name(s)**: if the article expresses the name of any scientist/expert (yes/no);
- **Scientific Index**: Index built to evaluate “how scientific” an article is. This Index is determined by the expected features in a scientific article (scientist quotations, theory, method, technical language/ jargon, bibliographic references, data and results, names of scientists).

  The coder should give one point to each of the features that appear in the article. The total score will determine the value of the article’s Scientific Index, the overall level of scientific content:

  - From 0 to 2 points, the coder should consider the article as an article with a low scientific content;
  - From 3 to 4 points, the coder should consider the article as an article with a medium scientific content;
  - From 5 to 7 points, the coder should consider the article as an article with a high scientific content.

Actors is a rather important feature in newspaper articles. The coder should code the *main actor type*. If the article has more than one actor, only the most important should be considered. Actors can be classified as: man on the street, scientist/ expert, authority, worker, celebrity, consumer, national (military), European Union, IYA2009 National Coordination, IAU, other astronomy societies, other scientific institutions, government or other actors.

Scientific/IYA2009 Event feature provides us with the information about what kind of event the article is about. It has two variables: main scientific event and scientific area.
To code the main scientific event, the predominant scientific event mentioned in the article should be chosen. Events can be classified as: astronomy in general, IYA2009 Local or National project, IYA2009 International project or others. To code the scientific areas, the predominant scientific area of the scientific event should be chosen. Areas can be classified like: astronomy in general, astronomy communication, astronomy education, solar system exploration, stellar astrophysics, galactic anthroponomy, extragalactic astronomy, X-ray astronomy, infrared astronomy, radio astronomy, instrumentation.

The **location** feature allows us to place the event geographically. It has two variables: Region and country. In the *location (Region),* the coder must choose one of the locations where the scientific event happened or the location of the institution involved in the event. The Regions are: European Union, other European countries, North America, Central and South America, Asia, Africa, Australia, Antarctic, Arctic. In the *location (country)* the coder should write the name of the country where the scientific event happened or the country of the institution involved in the event.

Source of the information is another analysis feature. This will allow us to know where the information came from. Different information sources can be chosen. They can be: national news wire service, foreign news wire service, other national newspapers, foreign newspapers, national scientific magazines, foreign scientific magazines, NGO, scientific institutions, scientists, public enterprises, private enterprises, scientific/technical reports, books, national IYA2009 coordination, global IYA2009 coordination, IAU, the publication itself, without information or others.

The ***news play*** feature, is based on the Budd score (Budd, 1964). This is a score that gives a *news play* measure, allowing the understanding of the highlight of the article within the newspaper context. The higher the Budd score, the higher the *news play*. The Budd score is composed by the combination of a few features: highlight on first page, location on prominent page, location on page upper half, illustrations, title size above average (each one of these features counts one point). The *news play* can be classified as: very low *news play* (1 point), low *news play* (2 points), average *news play* (3 points), high *news play* (4 points) and very high *news play* (5 points).

5. Potential results
Once this data is collected there are a few results that we can extract, namely: number of news stories related with IYA2009 vs number of astronomical news stories; correlation between some global/national events, press releases and the number of IYA2009 news pieces; trend of the number of news articles related with astronomy throughout the year. If you have access to previous data you can also compare the 2009 results with previous years or other sciences. Once again, these studies will provide important information about the real impact of our communication strategy during IYA2009.

6. Conclusion
We understand that this is a big task, but it can give us very interesting results and useful data for a proper evaluation of IYA2009. A piece of advice: establish a partnership(s) with one or more universities in order to set up a centralised data coordination and analysis centre[iii]. To ease your task we have prepared an EXCEL file to gather all this information. We hope these guidelines help you tackle the evaluation of IYA2009 in the media. Here at the IYA2009 Secretariat, we will continue to work on ways to assist you in your difficult, but rewarding, task of making the International Year of Astronomy 2009 a huge success in your country.

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[i] This option is connected with the need to have a good sample of the most influent newspapers. The importance of selecting the newspapers sold in the country is connected with the public's will to acquire a newspaper, an active relationship with the newspaper.

[ii] According to the literature, "popular" newspapers are those whose contents are soft, less profound and mainly sensationalist, targeting less educated and less demanding publics". The "quality" newspapers are those whose contents are more profound and sober, mainly about politics and economics, targeting higher educated publics and cultural and power elites.

[iii] List of Science Communication Research Groups/Departments:
http://www.communicatingastronomy.org/training/index.html