

Review

The National Astronomical Observatory of Japan
Public Relations Center

2008



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This is the first real review of the National Astronomical Observatory of Japan (NAOJ) Public Relations Center (PRC). The review was initiated by the NAOJ Evaluation Working Group on request from its funding partners. It covers the period 2004-2007.

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1 Introduction

1.1 Setting the scene

This is the first real review of the National Astronomical Observatory of Japan (NAOJ) Public Relations Center (PRC). The review was initiated by the NAOJ Evaluation Working Group on request from its funding partners. It covers the period 2004-2007.

The review took place 24 and 25 January 2008 and the reviewers were:

- Wing-Huen Ip (National Central University, Taiwan)
- Yasunori Matogawa (ISAS/JAXA)
- Lars Lindberg Christensen (European Space Agency/Hubble & IAU, Chair)

It is the hope of the reviewers that the investment of time spent by the NAOJ PRC will come back in the form of inspiration for new ways of doing science communication.

1.2 A word about contemporary science communication

Science communication is not an expense, but an investment in the future! We live in a rapidly changing world. Also the media industry today is vastly different from that of even five years ago and this has a profound impact on the way science communication should be done. Science communicators are in fierce competition with the gaming industry and other high tech ‘distractions’ for the attention of the young public. We cannot afford to miss any opportunity to promote science and our scientific organisations.

1.3 Brief overview of the PRC

The PRC is more than just a public relations centre for the NAOJ. It is a full-blown newsroom for press information, a 3D experimental immersive theatre, a historical museum for old astronomical instruments and books, a library for scientists and public alike, a star party/events organiser, an IT maintenance group, an efficient call centre for astronomical questions and it also makes a significant contribution to science communication research, education research and astronomy research.

The review panel understands the PRC’s mission to be:

To share the latest research results of the NAOJ’s activities – and astronomy in general – with the greatest number of people in all target groups nationally and internationally.

Of the core activities we have been asked to review here, the PRC can be decomposed into the following offices/sections and full time equivalents (FTE) staff members¹:

1. Public Relations Office: 2 FTE experts + 4-5 FTE additional staff
2. Outreach & Education Office: 2 FTE experts + ~2 FTE additional staff
3. Ephemeris Office: 2 FTE experts

¹The staffing figures are estimates.

4. Library Section: 1 FTE expert + ~1-2 FTE additional staff (not reviewed here)
5. Publications Section: 1 FTE expert + ~1 FTE additional staff

This amounts to 8 FTE experts + ~9 FTE additional staff in total.

In addition to the PRC activities themselves there are additional people working in collaboration with the PRC on public communication (not reviewed here):

- ~5 FTE working on Subaru public communication (4 in Hawaii, 1 in Mitaka)
- ~1 FTE on the 4D2U experimental theatre (partly a computational research project)
- ~1 FTE on ALMA
- ~2 FTE on Hinode

In addition, some of NAOJ's observatories/projects have a fraction of a scientist's time allocated to public communication (typically at the 10-20% level):

- Nobeyama Solar Radio Observatory;
- Nobeyama Radio Observatory;
- Mizusawa VERA Observatory;
- Okayama Astrophysical Observatory;
- Space VLBI;
- ELT;
- The Astronomy Data Center.

The annual PRC budget is about 200-160 MYen/year.

2 Evaluation of the status of the PRC activities

2.1 “Outstanding results”

2.1.1 1. PR activities

Each year 18-22 press releases are distributed and six to ten press conferences are held. On average about 100 short bulletins, known as Astro Topics, are issued by e-mail each year. The number of press releases and press conferences is steadily increasing with time. An increase in the number of press conferences is particularly impressive at a time when fewer and fewer journalists are specialist science journalists and more journalists are relying on electronic distribution rather than personal contact.

The large number of NAOJ press interviews is impressive (from 70-500 per year over the past years, with an average of ~200 per year) and so is the press coverage: two to three hundred articles mentioning the NAOJ. These numbers are lower limits as there may be significant more interviews and press coverage not reported to PRC.

The PRC applies good practice by giving the media access to material ahead of time under embargo.

Further activities on campus such as star parties (see below) add to the public's awareness of the NAOJ and astronomy in general.

It seems that the NAOJ's rich portfolio of activities include some "unpolished diamonds" that could be exploited by the PRC if the necessary expert staff were available in the Public Relations Office.

The self-evaluation of this Output is "S".

The reviewers evaluate the results of this activity to be "SS".

2.1.2 2. IAU cooperation

The PRC exploits general events in astronomy well, such as its involvement in the "Definition of a Planet" issue. Although this was a one-off event, the NAOJ managed to use public interest in the topic to engage with the public, especially the younger generation, in exciting discussions about the Solar System. The "Pluto" efforts were (cleverly) driven in part by the research interests of PRC staff, but were turned into a very important asset for the NAOJ and astronomy in Japan. This event was part of the reason for the major improvement in the public image of the NAOJ and astronomy in Japan over the past two years.

The large number of articles (16) and lectures (52) given by the PRC, and also its efforts to incorporate the Solar System changes into the school curriculum were especially commendable.

The self-evaluation of this Output is "SS".

The reviewers evaluate the results of this activity to be "SS".

2.1.3 3. Observing campaigns

The PRC has initiated 14 campaigns in the period with the outcome that 26,000 reports came back from the public. Examples were observations of Mars at opposition, of bright comets and eclipses.

These observing campaigns are – to the reviewers' knowledge – unmatched by any other similar national or international efforts. As a comparison, the international Globe at Night project (60 countries) had 8491 observing reports returned in 2007 and ~5000 in 2006. ESO's Venus Transit resulted in 4550 returned observing reports. The NAOJ Perseids 2007 campaign alone (one of six in 2007) resulted in more than 11,000 reports returned.

The self-evaluation of this Output is "SS".

The reviewers evaluate the results of this activity to be "SS".

2.1.4 4. PAONet and Star Week

Japan has a very high density of public observatories and planetariums: 300 public observatories – and six million Japanese visit public observatories and planetariums every year! Whereas the public observatories and planetariums are a very important target group for NAOJ public communication, Public Astronomical Observatory NETwork (PAONet) could benefit from a new technical framework to reach these centres more efficiently. This work could, for instance, be done using a web-based system that would also benefit other target groups.

The self-evaluation of this Output is “SS”.

The reviewers evaluate the results of this activity to be “S”.

2.1.5 5. Star parties and Open Campus events

The PRC works actively to make the NAOJ an “open research centre” by opening the campus on a daily basis, and by organising star parties and Open Campus events. Roughly 20,000 visitors come to Mitaka each year. This is an impressive number for an active observatory and shows the dedication of the NAOJ to connect closely with the public. This is a solid achievement that should be continued. It is remarkable that some of the students participating in the “4 day Experience Program as an Astronomer” (Kimiten) have been known to become scientists later (although systematic studies have not been carried out due to practical difficulties).

The self-evaluation of this Output is “SS”.

The reviewers evaluate the results of this activity to be “S”.

2.1.6 6. Space image utilisation

This is a very new project, still in the definition phase, that aims to connect science in the form of science data (images, simulations) with commercial (entertainment, hard- and software) industry.

The self-evaluation of this Output is “S”.

The reviewers would like to defer from evaluating this project as there are no results from the project yet, and the project definition is still in progress.

2.1.7 7. *Diagram of the Universe* poster

120,000 copies of the *Diagram of the Universe* poster showing a full “Astronomy 101” overview were distributed to schools (40,000), public observatories, museums and planetariums (80,000). The poster is well done and represents a considerable amount of work. The large-scale distribution is to be commended and also the English translation. The information density seems a bit too high, and perhaps the attention span and the level of knowledge of the target group is somewhat overestimated. The absence of the NAOJ logo is noted, and also the presence of the Japanese title on the English version.

The self-evaluation of this Output is “SS”.

The reviewers evaluate the results of this activity to be “S”.

2.1.8 8. Makali'i promotion and FITS educational activities

Makali'i is a freeware Windows programme that lets the user work on FITS files and perform simple photometry, astrometry, spectroscopy, blinking and mathematical operations on images. The programme is distributed on the web in Japanese and English, and also used for the Kimiten programme. 3700 copies have been distributed so far. This is a solid effort and, since the software exists, should be continued. It is not clear how Makali'i compares with other similar efforts such as SalsaJ from the Global Hands-On Universe.

The self-evaluation of this Output is "S".

The reviewers evaluate the results of this activity to be "--".

2.1.9 9. Ephemeris Computation Office (ECO)

The Ephemeris Computation Office (ECO) is integrated in the PRC, which is a logical arrangement as the output of ECO – calendars, sunset/rise schedules, information about eclipses, comets and other sky events etc. – is something of direct use to the public. ECO products are distributed via the web, mobile phones, e-mail, phone conversations etc. The ECO office experienced a surge of interest after the website was redesigned in 2005 and the ECO website drives a lot of traffic to the NAOJ. The production is very solid and the means of distribution follow the recent technological trends.

The self-evaluation of this Output is "S".

The reviewers evaluate the results of this activity to be "S".

2.1.10 10. Publications

The recent renewal of the NAOJ publication has given the print products a deserved facelift. The group has a large and diverse production range both in Japanese and English. The output seems solid and has reduced publication costs for NAOJ. It is noted that the Braille output seems a large effort with a relatively limited audience (365 books), but is naturally a very special product with a special aim. The comic character developed for the International Year of Astronomy 2009 is very well done, and will be highly visible nationally and internationally during 2009.

The self-evaluation of this Output is "SS".

The reviewers evaluate the results of this activity to be "S".

2.1.11 11. Research on comets and meteor showers

Dr. Watanabe is working actively on the scientific connection between comets and meteor showers. The PRC is presenting this research to the public, since meteor showers, through their visibility, are naturally a topic of interest to the public (addressed through talks and other activities). It is very impressive that Dr Watanabe has the energy and dedication to do the scientific research.

The self-evaluation of this Output is "S".

The reviewers evaluate the results of this activity to be "S".

2.1.12 12. Educational research on elementary student's understanding of science

The research that Dr Agata has carried out on the level of science literacy among Japanese children is world-class, and the PRC's subsequent exploitation of the results to bring the NAOJ into the media (again) was truly impressive. It is strongly recommended that Dr Agata makes the extra effort to get this work published in an English-speaking peer-reviewed journal (such as *Astronomy Education Review*).

The self-evaluation of this Output is "SS".

The reviewers evaluate the results of this activity to be "SS".

2.1.13 Additional achievements

The following activities and results should also be mentioned and commended:

Astronomy hotline:

- Call centre activities: 7- 10,000 questions answered per phone and e-mail per year.
- 500-600 Frequently Asked Questions (FAQs) received via the Internet answered yearly.
- 150-250 letters and official documents written.

The PRC seems to be the place in Japan where the public turns whenever they have questions or see something in the sky they don't understand. This is the result of many years of hard work of stamping the NAOJ brand on astronomy and is a most remarkable achievement.

The NAOJ website receives more than 40 million hits annually. This is very impressive.

2.2 Evaluation of quality improvement

It is the reviewers' clear impression that the quantity and quality of the PRC output has improved significantly over the period. Most notably:

- Webstats (doubled);
- Mentioning of the NAOJ in the newspapers (~50% increase);
- Press interviews (2-4 times more).

3 Evaluation of the achievement of the mid-term objectives

The PRC has, in general, fully met their mid-term objectives (and in some cases clearly surpassed them) by:

- disseminating the results of the astronomical research and events to the wide public;
- responding proactively to the demands for lifelong study and education;
- publishing research results proactively;
- by using effective press communication;
- by allowing open access to NAOJ facilities.

4 Evaluation of the future plans

Apart from continuing the excellent work described above, the panel applauds the PRC's plan to improve media access to astronomy results through:

- the Press Member's Lounge;
- NAOJ plans for participating in the International Year of Astronomy 2009 (IYA2009);
- the plan to review the PAOnet business;
- the plan to expand the English information on the web.

Possible plans to expand the Publications Section into a commercially viable business are interesting, although the feasibility of this should be analysed carefully.

5 Conclusions

The panel is very impressed with the scale of operations and output of the PRC. The PRC is a leader in Japan and also has several activities that are world-class. The operations are effectively set up, and the return on investment very high.

Of the many outstanding results reported above it is especially commendable how closely connected the PRC is with the Japanese public through their Open Campus, observing campaigns, astronomy pub, astronomy call centre and other activities. This is probably unique.

It is also remarkable how the PRC focuses on a research-oriented approach to science communication and education – i.e. focusing on measurable outcomes, continuously improving the flow of public communication according to the outcome and finally publishing its experiences.

The group is under constant pressure from inside and outside (as are other similar groups around the world). This has the effect that it can, at times, be difficult to be creative and innovative, for instance in devising solutions to the problem of how to reach the notoriously difficult demographic of 15-30 year olds. As an example, the Director of the PRC is also head of its PR activities, which in itself easily could be a full-time job. A higher level of staffing, especially with dedicated “expert” science communication staff, would enable the PRC and the NAOJ to pursue several – of what the panel regards as – “unpolished diamonds” in other projects: Hinode, ASTRO-G, ALMA, Nobeyama Solar Radio Observatory, Nobeyama Radio Observatory, Mizusawa VERA Observatory, Okayama Astrophysical Observatory, Space VLBI, ELT and the Astronomy Data Center. The results from these exciting projects need to be pursued *proactively* in order to ensure that they will be imprinted in the minds of the public, educators, and decision-makers.

It is perhaps clear that since the results from Subaru are readily available (as there is a separate group to help on this) they appear in press releases and press conferences disproportionately often, but “public communication gems” such as these can be found in any of the projects above if the necessary manpower is available.

Although Subaru public communication is somewhat detached from the PRC for historical, geographic and practical reasons it is recommended that possible ways to enhance the synergy between Subaru public communication and the PRC are investigated, with the aim of *sharing the result with the greatest number of people in all target groups*. Offering practical suggestions for how to do this goes beyond the scope of this review, but some examples could be an improved communication, removal of artificial barriers to the usage of material (see below) etc.

It is a known problem that it is difficult to get scientists to allocate time to participate actively in science communication. The panel received the impression that it could be useful to have more of a mandate/backing/support from high-level management to carry out this part of the work.

5.1 Specific recommendations

- Tap into the many International Year of Astronomy 2009 activities, and use this opportunity to promote Japan, Japanese science and Japanese culture.
- Investigate if podcasting, vodcasting and blogging could be interesting activities to reach the demographic of 15-30 year olds.
- Increase the English translation of press releases and other products. Many of the products could have a much wider usage in an international context for instance via the American Astronomical Society worldwide press mailing list (Steve Maran).
- Team up with a good Japanese-English translator who can deliver translations overnight (possibly in the UK). Press releases in English must be published at the same time as the Japanese version, as otherwise their value to the media decreases significantly.
- Enhance the public dissemination of the 4D2U activities.
- Use Google News Japan, and elsewhere to gauge the national and international (online) press coverage.
- Continue to attend international conferences on science communication and education.
- Reinforce the production of PR images from raw data (going back to the astronomically reduced FITS files and working with specialised tools such as the FITS Liberator). It could be interesting if the production of PR quality images were connected with the new “Mitaka - space images” project.
- Work more closely with ISAS’s Office of External Relations and the JAXA Space Education Center.
- Publish Dr. Agata’s educational survey in a peer-reviewed journal such as the Astronomy Education Review. Possibly standardise the questionnaire and procedure to gain information about the situation in other countries.
- Enable better access to the NAOJ archive of images, videos, brochures etc. partly by systematising their Internet presence and partly by removing any copyright restrictions from using the material and ensuring availability 24 hours a day, 7 days a week. It is clear that the result of any compromise would be that it is more

- difficult to track individual usage, but the reward in the form of more press clippings, better web stats etc. would make it more than worthwhile.
- Investigate if a more centralised maintenance of the PRC web servers and IT infrastructure would be more efficient.
 - Further investigate collaborations with commercial entities to increase distribution numbers. Example: Could the *Diagram of the Universe* poster get the Newton logo and be offered free to Newton to distribute with a future issue? (Note: after the review the reviewers were informed that the Diagram had in fact been entrusted to Newton to be sold to the public in September 2007, see: http://www.newtonsanseido.com/cart/book_view.php?book_code=0000000000063197)
 - Emphasise the area of video production to use the classic channels of TV distribution as well as exploit new media (video podcasting etc.) to widen the distribution of NAOJ results even more.

5.2 Acknowledgements

The reviewers wish to extend their gratitude for the very hard work of the PRC employees, especially Dr. Watanabe, in preparing excellent material for this review. We also wish to thank the NAOJ Evaluation Working Group for the excellent opportunity to get to know more of the great work done at NAOJ, and for the hospitality during our stay.