

PASA - an Electronic-only Model for a Professional Society-owned Astronomy Journal

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Abstract. The Internet could facilitate a more distributed network of research publications, but the expense involved in producing both electronic and paper copy of journals has led some small journals to close. *PASA (Publications of the Astronomical Society of Australia)* is a fully refereed, ISI-listed journal for original research in astronomy, focusing on areas relevant to current research in Australia. The journal is owned by the *Astronomical Society of Australia* and published by a not-for-profit publisher, CSIRO PUBLISHING. In 2002 *PASA* moved to principally electronic publication. All the steps involved in producing a quality journal have been preserved. *PASA* is also producing a quarterly broadsheet, the *PASA Update Bulletin*, to promote the contents of *PASA*. Using the *PASA Update Bulletins*, a large number of readers can be reached and made aware of the content that *PASA* is publishing, and they can access the papers either directly or via the electronic bibliographic services such as the *NASA Astrophysics Data System*. Best-practice is being followed regarding access to and archiving of the electronic material.

1. Introduction

PASA, the *Publications of the Astronomical Society of Australia*, is an international, ISI-listed, fully refereed journal for original research in astrophysics. The journal is owned by the *Astronomical Society of Australia (ASA)*, the organisation for professional astronomers in Australia. Until recently, *PASA* only produced between 200 and 300 pages per year, but recent strong author support for the journal has led to an expansion of the journal to around 450 pages per year.

The wish to expand the content of *PASA* to satisfy author demand, while keeping subscription price increases to a minimum so that the journal would still be affordable for libraries, led the *ASA* to decide to convert the journal to an electronic-only format beginning in 2002. *PASA* can be accessed via the Internet at <http://www.publish.csiro.au/journals/pasa>. In this paper, the background to the move to electronic-only production is discussed and the new model for *PASA* is described.

2. Background

Astronomy is relatively successful in Australia, being recognised as Australia's highest impact science. There is a history of innovation in astronomy in Australia, and Australia's location south of the equator, which gives Australian astronomical observatories a good view of the center of the Milky Way and of the Magellanic Clouds, means that Australian astronomy has a natural advantage. The *ASA* currently has roughly 360 members (out of a total Australian population of 18 million). The vast majority of professional astronomers in Australia are members of the *ASA*.

Australia has produced its own astronomy journal since 1967 when the *ASA* was formed. *PASA* is owned by the *ASA* and since 1994 has been published by CSIRO PUBLISHING, an arm of the Australian Government's research organisation, the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

PASA's features include:

- full refereeing using two referees per paper
- an international distribution
- an international author base, with over half of *PASA*'s authors from countries other than Australia
- an international referee base, with roughly half of *PASA*'s referees from countries other than Australia
- an ISI Impact Factor that has increased dramatically over the last four years
- having direct links for subscribers from the *NASA Astrophysics Data System* and free access from the *NASA ADS* one year after publication
- refereed workshop publications and reviews, presenting authoritative summaries of key topics
- being a natural place to publish papers presenting data from Australian facilities
- publishing astronomy education papers, making the journal important reading for educators
- being open to short but significant contributions (e.g. from students)
- expanding its content by 50 percent over the last two years due to strong support.

PASA is one of the few journals that publishes education, astronomical history and astronomical instrumentation papers. These papers are not highly cited, but they are very widely read by members of the astronomical community. Although most authors are not Australian, the journal maintains an emphasis on areas of research relevant to Australian astronomy.

2.1. Need For Change

In a time of shrinking research budgets in Australian universities, *PASA* has become increasingly important to Australian astronomers. As a fully-refereed, ISI-listed journal, *PASA* provides an efficient and inexpensive alternative to the large journals, especially in a country like Australia whose scientists often do not get page charges covered by the Government funding agencies. As a result *PASA*'s submissions have been expanding and improving, its ISI Impact Factor has been rising, and there is good author support for the journal. However, shrinking research budgets have also made it more difficult for the *ASA* to continue to financially support *PASA*.

In 2000, a survey was conducted of the *ASA* membership asking the community for their views on *PASA* and whether they wanted to see the journal continued. The *ASA* community strongly supported the continuation of *PASA*.

It was felt that scientists still primarily communicate the results of their research to each other through the medium of refereed journal articles and that it was, therefore, important for the *ASA* to continue to support a refereed journal that was cost-effective for authors. Putting papers on astro-ph was not considered to be an adequate substitute for a refereed journal.

It was also thought to be important to maintain diversity in astronomical publishing. Competitiveness amongst astronomical journals has not been helped by the dominance of a few "core journals".

In addition, the *ASA* community stressed that, for a small journal, electronic access to the papers was absolutely essential. *PASA* does not have the profile and recognition of a large journal. The journal needed an electronic version and links through the electronic bibliographic services to raise awareness of the content of *PASA* papers.

Most readers access *PASA* papers through the *NASA ADS* electronically. In fact, most astronomers world wide access astronomy papers electronically these days. Our librarians are very effective at organising and maintaining electronic access for us and often for maintaining electronic archives. But the paper journals in the libraries are being used less and less.

It is even more important to have electronic access available to a small journal as it is less likely that a library will have a subscription to a small journal. With electronic access one can see what is available. For a changing journal like *PASA* it is essential that, as the journal expands and improves, readers have the opportunity to see the content and decide to subscribe.

However, the *ASA* needed an inexpensive publishing option that still supported peer-review and the highest quality editing and production. It was decided to produce *PASA* in electronic-only format, preserving all the steps involved in producing a quality journal. Funds saved by cutting the printing were redirected to supporting the quality of production and expansion of the journal. Without this move to electronic-only publishing, *PASA* would have had to cease production.

3. The New Model for *PASA*

In response to the survey of *ASA* members, the *ASA* decided to produce *PASA* in electronic-only format, preserving all the steps in producing a quality journal. In addition, to help to promote the contents of the journal, *PASA* is producing a *PASA Update Bulletin (PUB)* four times per year. The *PUBs* list the papers that are being published electronically in *PASA*.

The new electronic model incorporates the following features:

- Publication occurs paper-by-paper, giving readers the fastest access to important new results and authors the opportunity of rapid publication
- Construction of the Australian Astronomy World Wide Web site, (a site whose content is controlled by the *ASA* and which provides links to information on Australian astronomy) with links from the Australian Astronomy WWW site to key papers in *PASA*
- Four times per year a *PASA Update Bulletin (PUB)* will be widely distributed, listing papers recently published, upcoming *PASA* highlights, and updates from the Australian Astronomy web site. The *PUB* will be an important news resource on astronomy for astronomers worldwide and will provide information on the content of the journal in an innovative, shelf-space-efficient format
- The move to electronic publication is enabling a 50 percent expansion in the journal, with little rise in the subscription price.

The *PUBs* are designed to be easily readable and the *ASA* will use them to achieve wide international exposure for the material published in *PASA*. The new *PASA*'s speed of publication and wide and cost-effective distribution will offer significant advantages for authors as well as for readers.

3.1. Archiving

As the world's literature and associated bodies of data grow, we cannot afford to produce everything on paper. Information providers need to tackle adequate provision and archiving of electronic material. Libraries cannot afford to buy or store all the paper material that would be required, and journals cannot afford to produce everything on paper. Several astronomy journals have been only publishing partial paper copies for a number of years now, and recent pricing policies from journals strongly encourage libraries to take up electronic-only subscriptions.

Even if the funds were available to produce a large paper archive of the world's astronomical literature, the archive would be of very limited use without an electronic means of indexing, searching, and locating articles. Reliable and evolving electronic formats would still be required for the indexing and searching system, and so even maintaining a paper archive in the future doesn't avoid the challenge of maintaining an accessible and evolving electronic archive. Static, stored "electronic" archives are very vulnerable to becoming out-of-date and unreadable. It appears that "online" archives accessible via the Internet are a more reliable form of electronic archive. Their continued use and accessibility

help to ensure their longevity as formats can be updated as required. PASA is adopting the best archive policies possible.

CSIRO PUBLISHING will maintain an electronic archive of *PASA* on the CSIRO PUBLISHING journal web site for as long as CSIRO PUBLISHING exists. Institutional subscribers will have access to the full electronic archive of *PASA* papers on the CSIRO PUBLISHING site. Access to the papers in volumes for which subscribers have subscribed will continue to be provided, even if the subscription is cancelled.

As an independent business unit operating within CSIRO, CSIRO PUBLISHING uploads all of its journals, including *PASA*, to the CSIRO library service where the material is stored in perpetuity on their ScienceServer system. This creates an independent, library-based archive.

Additionally, when a paper is published, the abstract details are sent to the *NASA ADS*, and they establish links to the *PASA* papers. Readers from subscribing institutions will be able to access the full text of the papers. Full-text files of papers will be made available to the *NASA ADS* one year after publication and thus will be made freely available via the *NASA ADS* web site and mirror sites. The international distribution of the *ADS* mirror sites enhances its value as an electronic archive of material.

CD archive copies will be produced in pdf format for each volume and can be made available to subscribers at cost upon request. Institutions wishing to discontinue subscriptions to *PASA* will be given the option of receiving the archive on CD or uploaded to their system.

The idea of Australian legislation has been discussed regarding statutory deposit of electronic publications with the Australian National Library. Naturally, CSIRO PUBLISHING will comply with the legislation when it is passed into law. This will ensure yet another archive of *PASA*.

Archiving is a source of continuing concern for most astronomical journals now as there is content in the electronic editions of several journals that is no longer available in the paper version. It is important to emphasise that *PASA* is not qualitatively different from several other astronomy journals regarding archiving, as for several journals the electronic edition is the official archive.

The *ASA* decided to produce the *PASA Update Bulletins* so that they could effectively promote the contents of *PASA* to subscribers and to others. Using the *PASA Update Bulletins*, readers can be made aware of the content that *PASA* is publishing, and they can access the papers either directly or, as they more usually would, by using the *NASA Astrophysics Data System*. They are primarily an information-provision tool and certainly not a substitute for the Journal, or an archive of journal material.

4. Conclusion

PASA is changing rapidly. The ISI Impact Factor has risen significantly over the last three years, the standard of refereeing is excellent (partly caused by the policy of using 2 referees per paper), and the number of submissions is rising. By moving to electronic-only production we have been able to continue to publish the journal and satisfy author demand by expanding content. The hope is to expand the journal to six editions per year over the

next five years. The aim of the *ASA* in producing *PASA* is to provide an affordable (for both authors and libraries) way for astronomers to publish the refereed results of their research. *PASA* can be accessed via the Internet at <http://www.publish.csiro.au/journals/pasa>.

It is not yet clear what the conclusions are for the new model for *PASA* as the journal is still in a state of transition. The Internet and facilities such as the electronic bibliographic services, which can act as central search engines for literature, should allow small journals like *PASA* to survive and thrive. But *PASA* will only survive if it is supported by libraries. The support from institutional subscribers will ensure the continuation of a Society journal produced by a not-for-profit publisher and will assist in maintaining diversity and healthy competition amongst astronomical journals.