



*Advancing  
Astronomy and  
Geophysics*

## ROYAL ASTRONOMICAL SOCIETY

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From the Executive Secretary

### **Royal Astronomical Society response to the “Study on the economic and technical evolution of the scientific publication markets in Europe”**

#### *Society background*

The Royal Astronomical Society (RAS) is the UK's leading professional body for astronomy & astrophysics, geophysics, solar and solar-terrestrial physics, and planetary sciences. One of its key activities is the publication of two world-class research journals:

- *Monthly Notices of the Royal Astronomical Society (MN)*, one of the world's leading primary research journals in astronomy and astrophysics. It publishes the results of original research in positional and dynamical astronomy, astrophysics, radio astronomy, cosmology, space research and the design of astronomical instruments. Although based in the UK, it derives two thirds of its content from outside the UK.
- *Geophysical Journal International (GJI)*, one of the world's leading primary research journals in geophysics and the leading solid-earth geophysics journal based in Europe. The Journal aims to promote the understanding of the earth's internal structure, physical properties, evolution and processes. Editorial management of GJI is shared with the Deutsche Geophysikalische Gesellschaft.

The Society also publishes a news and reviews journal, *Astronomy and Geophysics*. This is a topical, full-colour magazine, carrying news & reviews on major developing themes in astronomy and geophysics in succinct, readable and accessible form.

The Society operates as a not-for-profit body (a “charity” in UK law) with the objective of the encouragement and promotion of astronomy and geophysics. Its financial operations are subject to rigorous internal and external review as required by UK law and follow additional guidance provided by the Charity Commission (the regulating authority). The members of the Society’s Council are the trustees of the charity.

The Society’s publishing policy has been to focus on high quality papers through rigorous peer review and, as far as practicable, to provide free publication. The latter is important principle for many in the community that RAS serves – there is very strong support for the principle that good scientists should be able to submit papers to the Society’s journals irrespective of financial ability. This clearly differentiates the Society journals from their US competitors, e.g. *Astrophysical Journal* and *Journal of Geophysical Research*, where pages charges are the norm. However we are testing the continuing support for that principle through an experiment with open access publishing of selected articles from GJI on an author-pays basis using Blackwell’s Online Open service. This will allow us to assess the level of interest in the author-pays approach. This is an important step and if, and only if, results warrant it, the Society will proceed to develop policies to address the demand for open access from the community that RAS serves. The initial take-up has been poor with just one open-online paper published in January 2006 (compared to over 100 normal papers published since the start of the year).

The Society recognises that its present policy places the full costs of publications on subscription charges and thus these charges appear high compared with competing journals. However, the market reality is that this strategy has worked. The demand for RAS journals has held up because of the high quality of these journals. This is in line with independent studies [1] which show that quality not cost is the key driver of the market in scientific journals. We will, of course, keep this situation under frequent review so that we can respond in a timely way to market changes.

The Society produces its journals in a partnership with Blackwell Scientific Publications. The Society owns the journals and the scientific review process, but it contracts out the processes for production, sale and distribution. This delegates the non-scientific aspects of publication to a world-class commercial organisation with appropriate expertise and access to the necessary capital resources. This allows the Society to focus its resources on delivering high scientific value in its publications.

The Society recognises the importance of innovation as new publishing techniques emerge – and, in particular, of responding in a timely manner to market demand for use of those techniques. In recent years this has led to many innovations in operation the RAS journals. These include:

- electronic submission of papers and now electronic execution of the scientific review process
- changes to copyright licensing agreements so that pre-prints and post-prints can be stored in thematic and institutional repositories
- electronic publication with cross-links to specialist search engines such as NASA’s Astrophysical Data System [5].
- free on-line publication of colour figures and modest charges for colour in the paper version. Colour has become an important tool in the visualisation of data in all areas of RAS science and there is strong demand to publish colour figures.

- archiving of data tables from *Monthly Notices* in the VizieR Catalogue Service operated by the Centre de Données astronomiques de Strasbourg (CDS). This service has a UK mirror at Cambridge [7].
- Free personal access for members to on-line versions of the Society's journals.

### *Comments on the report*

The Society's response to the report is guided by its non-for-profit objective, namely the encouragement and promotion of astronomy and geophysics. In the present context this objective is achieved by promoting the publication and dissemination of high quality scientific papers. To do this the Society welcomes submissions to its journals from around the world and applies a rigorous peer review process to select the best. This peer review process is a core business of the Society and its sustainability is a critical issue for the management of the Society.

We are therefore extremely concerned that the peer review process is poorly considered in the report. This process lies at the heart of scientific publishing; it ensures the quality that is widely recognised as the key driver of the market in scientific journals [1]. But the report has largely missed this critical issue and instead focuses on economic and technical factors in this market (as implied by its title). It presents an interesting analysis of these factors that will doubtless stimulate the debate amongst the proponents and opponents of open access. However, it says little of value to the working scientist, who wants to publish in, and read papers from, high quality journals. The report's recommendations are largely a consolidation of evolving practice for high quality journals. Thus we largely support the report's recommendations – but this is subject to one major caveat. These recommendations must be implemented in a way that supports and enhances peer review and must avoid ways that weaken peer review.

A key issue is the sustainability of peer review. This is already under pressure through the increasing difficulty that many good scientists face in acting as editors and referees – and, in particular in carrying out these tasks in a timely manner. The key point is that these tasks have long been undertaken as voluntary activities that are recognised as a natural part of scientific work. But they are being marginalised as a side effect of increased accountability on the working time of scientists. The peer review process today is sustained by the enthusiasm and willingness of scientists to do this work in the margins of their time. We consider that there is a growing need for more explicit recognition, and perhaps funding, of the peer review work undertaken by many scientists.

The recommendations made in the report have the potential to put new pressure on sustainability. They create a risk that subscription income will fall (as readers use free

repository copies) and thus reduce the resources that the Society can put into the peer review process. Subscription income is central to the financial model that underpins peer review performed by the Society. The proposed position creates a risk that must be managed by the Society in order to sustain its peer review activities. There is much national and international debate as to the scope of this risk, i.e. the impact of repositories on the subscription model for funding scientific journals. We do not repeat that debate here except to note that the jury is still out. There is a clear need for further debate and for that debate to be guided by much more quantitative evidence. Until that debate reaches a broader level of agreement, the Society must treat this as a major risk.

The Society is required by UK law to take a prudent approach to management of financial risk. Thus we must be cautious in our approach to change. The Society has taken a gradual approach, e.g. by support for pre-prints in thematic and institutional repositories (e.g. the astro-ph thematic repository) and now moving to similar support for post-prints. So far this has had no clear impact on subscriptions but we are monitoring developments carefully. We will continue the gradual approach as we consider it is critical to the proper management of risk. The Society opposes dramatic change as this reduces our ability to manage risk. We understand the motivation of those who seek to bring about a cultural change in which scientists take greater responsibility for dissemination of their research results. However, we consider that overly rapid change brings risks that are inconsistent with the Society's legal responsibilities. The Society recommends a phased approach in which changes are encouraged but the impact on the existing peer-reviewed literature is carefully monitored – and that the whole process is subject to regular review.

### *International issues*

We note that the members of the Society (which includes many based outside the UK) does not publish solely in the Society's journals. RAS members publish many papers in journals operated by our sister societies in other countries notably the American Astronomical Society (AAS), American Geophysical Union (AGU) and the European Geosciences Union (EGU). There is also some publication in commercially-owned journals – most notably Springer's Solar Physics, which is effectively the house journal of the international solar physics community. The interest in these journals is driven by two factors: (a) papers on topics (solar-terrestrial physics and planetary science) that are outside the remit of the present RAS journals, and (b) the need, in several areas of RAS science, to publish a proportion of papers in prestigious US journals in order to improve international visibility.

We recommend that any EU policy includes an explicit recognition of the need for authors to publish some papers in non-European journals and thus to respect the publishing policy of those journals. The policy should make it clear that authors are encouraged to publish in high-quality journals with world-wide reputations.

### *Summary*

The Society wishes to re-assert the long-established principle that scientists should be able to submit and publish papers for peer review irrespective of financial ability. We applaud efforts to improve the openness with which research outputs are disseminated but this must not be done by raising financial barriers at the other end of the publication process.

The Society is strongly committed to peer review of research outputs, which is the key driver of the market in scientific journals. We consider that the present report is flawed by its weak consideration of peer review – though it does provide helpful insights into economic and technical evolution of the journals market. It is vital that the report is complemented by an analysis to determine how its recommendations can be implemented in a way that sustains and enhances peer review.



**David Elliott**

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