

OPEN ACCESS PUBLISHING AND PEER REVIEWS: NEW MODELS

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Abstract

In the traditional scientific publishing business, journals limit access to subscribers or sell articles on a pay per view basis, but they also request additional publication charges from authors. The total public cost amounts to several thousand US dollars per paper. In this paper we studied innovative approaches offering to publish papers rapidly while accessing peer review and publishing discussion papers enabling interactive public discussion. In order to discuss those new possibilities, we took the example of the European Union of Geosciences journals. One of the benefits of the interactive open access publishing model used by those journals was a positive evolution of their Impact Factor. We then review the automated coverage of service charges as proposed by Copernicus and describe its advantages for institutions.

Keywords: open peer review, collaborative peer review, scientific quality assurance, scientific publishing.

Introduction

In the traditional scientific publishing business, where some journals do not only limit access to subscribers or sell articles on a pay per view basis but also request additional publication charges from authors (up to several hundred US dollars per page or colour figure), the total turnover and public costs amount to several thousand US dollars per paper. The annual turnover of journal publishing in the sector of science, technology and medicine (STM) amounts to around 7 billion USD per year, and some of the traditional publishers, led by Elsevier with a market share of about 30% - make operating profits of up to 30% and more. Note that a large proportion of the turnover and profit in STM publishing comes from packaging and selling publicly funded research results that are peer reviewed by publicly funded institutions of education and research (Pöschl, 2010).

So far, arguably the most successful alternative to the closed peer review of traditional scientific journals is the "interactive open access peer review."

Interactive open access publishing

This proceeds in two stages. In the first, manuscripts that pass a rapid pre screening (access review) are immediately published as discussion papers in the journal's discussion

forum. They are then subjected to interactive public discussion for a period of several weeks, during which the comments of designated referees, additional comments by other interested members of the scientific community, and the authors' replies are also published alongside the discussion paper. While referees can choose to sign their comments or remain anonymous, comments by other scientists are automatically signed.

In the second stage, manuscript revision and peer review are completed in the same way as in traditional journals and, if accepted, final papers are published in the main journal.

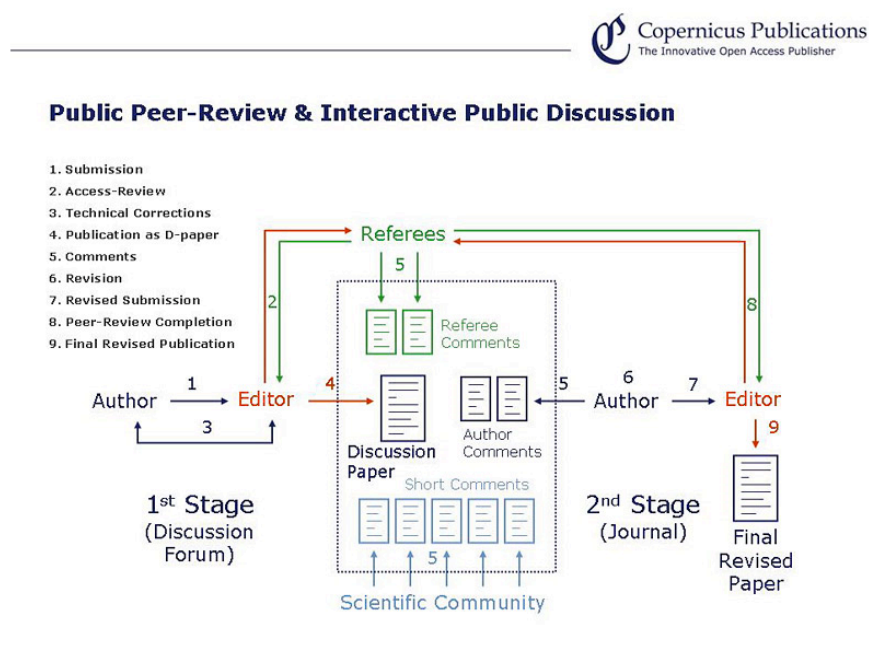


Figure a. The public peer review and interactive public discussion model.

The European Geosciences Union (EGU) and Copernicus

The European Geosciences Union (EGU) uses this interactive open access publishing process for their journals. EGU is the merger of the European Geophysical Society (EGS) and the European Union of Geosciences (EUG); it was founded in 2002. It's a dynamic, innovative and interdisciplinary learned association devoted to the promotion of Earth sciences and its environment and of planetary and space sciences.

EGU facts: it has more than 9000 participants from 86 countries in its general assembly, and more than 9000 members including free memberships. EGU produces 15 open access journals.

EGU publications strategy:

- Rigorous peer review – at least 2 independent referees
- Immediate open access to all articles of all journals
- Page charge waiver for the first 3 years of a journal
- Moderate page charges for authors afterwards
- No extra charges for color illustrations
- Author copyright under the Creative Commons License

In 2009, 83,742 papers were published compared to 39,520 in 2007 (Rousseau, 2010).

All journals are published by Copernicus Publications (www.copernicus.org), a member of the non-profit organization Copernicus Gesellschaft, on behalf of the European Geosciences Union. Copernicus is a global open access leader in geosciences since 2001. It produces 15000 pages/year. Accordingly, the EGU and Copernicus have launched and are operating a dozen of interactive open access sister journals in the geosciences:

- Atmospheric chemistry and Physics (ACP & ACPD))
- Atmospheric Measurement Techniques (AMT & AMTD)
- Biogeosciences (BG & BGD)
- Climate of the Past (CP & CPD)
- Drinking Water Engineering and Science (DWES & DWESD)
- Earth System Science Data (ESSD & ESSDD)
- Geoscientific Model Development (GMD & GMDD)
- Hydrology and Earth System Sciences (HESS & HESSD)
- Ocean Science (OS & OSD)
- Solid earth (SE & SED)
- Social Geography (SG & SGD)
- The Cryosphere (TC & TCD)

An average paper (10 pages) in the final column format costs about 1,000 € covering:

- Editorial support
- Free use of colour figures
- Typesetting of both the discussion and the final version of the paper
- Archiving and distribution of papers and interactive comments

An example: *Hydrology and Earth System Sciences (HESS)*

The journal *Hydrology and Earth System Sciences* (HESS) already existed as a subscription based journal with traditional peer review before it was converted into an interactive open access journal. Soon after the transition, the journal experienced a substantial increase of submissions, publications and citations, demonstrating that traditional journals can be successfully converted into interactive open access journals.

Impact Factor Trend Graph: HYDROLOGY AND EARTH SYSTEM SCIENCES

Click on the "Return to Journal" button to view the full journal information.

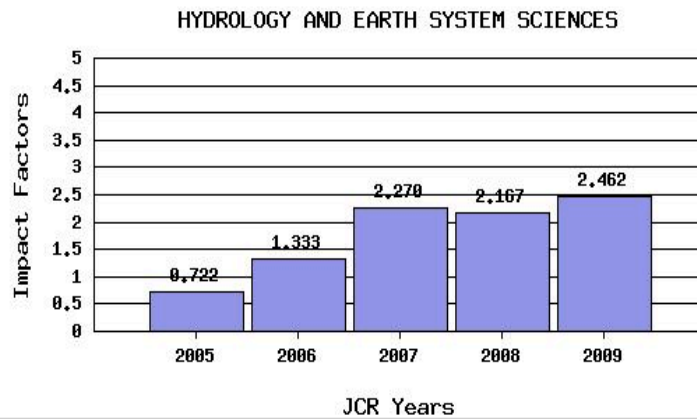


Figure 2. Impact factor trend of Hydrobiology and Earth System Sciences.

Charges paid by institutions

In Europe, some institutions have contracts with Copernicus for automated coverage of service charges incurred by their scientists. They accept to pay for researchers only if the first author of the publication is affiliated to Research units of the institution.

Since 2008, the German Max Planck Society (MPG) and the French Centre National de Recherche Scientifique (CNRS) have contracts with Copernicus. It's a mean to promote some good open access journals. In compensation, the logo of the institution appears on the paper and bellow it's noted that the publication is financed by XXX so it's also a promotion for the institution (Rousseau, 2010, Pöschl, 2010).

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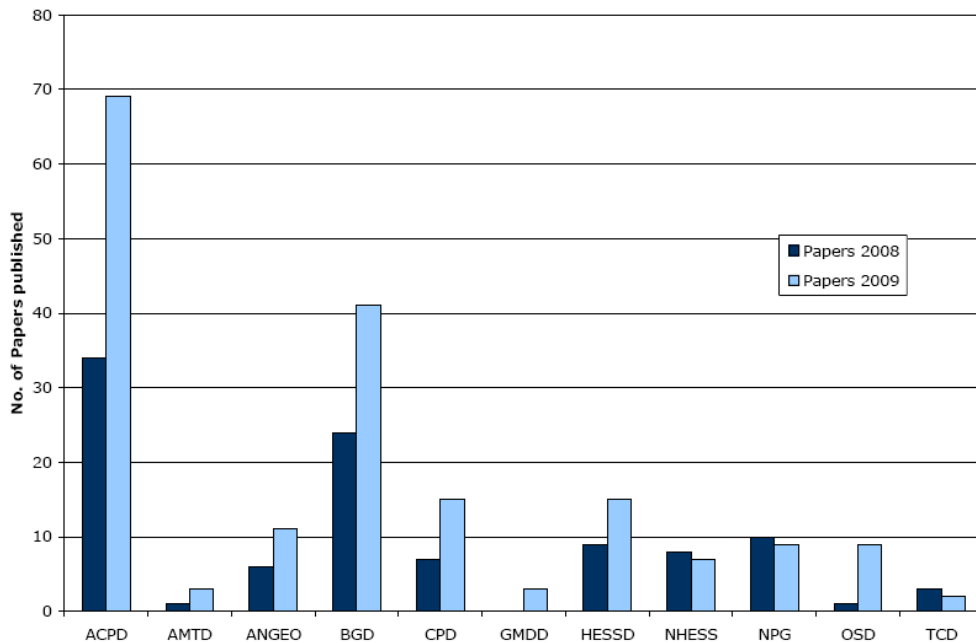
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Figure 3. Example from the French Centre National de Recherche Scientifique.

As you can see on the graph below, the number of papers has increased in EGU titles since publications charges are paid by CNRS.



Conclusion

EGU interactive open access publishing presents many advantages. This particular configuration combines the strengths of traditional publishing and closed peer review with the opportunities of open access and public peer review. This collaborative peer review (public review and interactive discussion) allows free speech and enables a rapid publication of the submitted papers. Also, it ensures high efficiency, leading to high quality papers (having a high reputation and a strong impact) with low rejection rates (10 to 20% here but 30 to 70% in traditional publishing). The transparency of the reviewing process enhances self regulation and saves up the most limited resource in scientific publishing: refereeing capacity (Carslaw, 2008).

With its higher quality and faster publication of the submitted papers, this innovative choice in scientific publication leads to a win-win situation for authors as well as for referees and readers. Today, the point is to know how research institutions will from now on take into account this new fact in their scientific politics and their budget decisions. In view of tight budget, and increasing offer of journals to publish, how will react scientific institutions in face of these new economic models? Evolution of scientific edition will certainly impact day-to-day work of scientists as well as librarians.

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