

(5) IUCAF & WG Interference Mitigation, 2 sessions:

This WG meeting will discuss the technological solutions, regulatory and institutional innovations to mitigate the interference, and especially the radio quiet zones establishment for the new radio telescopes due to the rapid development of telecommunication services. Introductions to the relevant issues are supposed to be made by the two chairs. Two countries short-listed to site the SKA, Australia and South Africa, have authorized the project to establish the world largest Radio Quiet Zone. We expect to learn from their experiences in legislation process, and the stories in negotiations and coordination.

Rendong Nan, president of the Division/Commission, 15 April 2008
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II.8.10. Div.XII/Comm.5/WG *Libraries - Open Access* - State of the Art

What is Open Access?

According to Wikipedia, Open Access (OA) is “free, immediate, permanent, full-text online access for any user, web-wide, to digital scientific and scholarly material, primarily research articles published in peer-reviewed journals. An open-access article has limited copyright and licensing restrictions which means anyone, anywhere, with access to the Internet may read, download, copy, and distribute that article.” <http://en.wikipedia.org/wiki/Open_access>

Open access does not automatically mean universal access. Some impediments continue to exist such as access limited to members affiliated with an institution, language barriers, accessibility barriers, connectivity barriers (Suber, Open Access Overview).

Open Access vs. Open Access Publishing

Open access itself is often confused with open access publishing. While the latter refers to materials available to everybody without subscription fee, the former involves authors self-archiving on their own web pages, at an institutional repository or at central repositories like astro-ph/arXiv.

Author self-archiving is also called the “green” road to OA. Many publishers grant their authors the right to self-archive their papers on their own or through a repository’s website; some permit self-archiving of final versions, with or without formatting or editing (see the publisher copyright and self-archiving policies (SHERPA RoMEO) at <www.sherpa.ac.uk/romeo.php> for more information).

However, self-archiving by individual authors easily neglects two crucial topics: retrieval via a central access point, and preservation. Archives like the astro-ph/arXiv or university repositories such as the University of California’s eScholarship repository, geared toward greater retrieval and storage, fulfil these essential requirements better.

The list of open access archives or repositories has increased greatly in recent years and the Directory of Open Access Journals (DOAJ) makes finding journals from these sources easier. It provides a list of “free, full text, quality controlled scientific and scholarly journals.” However, often these journals do not (yet) have high impact factors; hence scientists, in particular young ones whose career advancements partly depend on highly evaluated publications, prefer to publish in established journals.

Variations in publishers’ approaches

The word “free” (of charge) refers only to the readers of OA articles; serious OA advocates do not claim that the *production* of open access literature is free of costs, even though many argue that it is less expensive to produce than conventionally published literature (Suber, Open Access Overview). In the end, the costs associated with publication have to be paid by someone.

At present, publishers are experimenting with a large variety of approaches towards open access publishing:

- Sponsorship: Journals are funded by institutions. There are no author charges; all content is free to read.
Example: PubMed Central (PMC), the National Library of Medicine (NLM) / National Institutes of Health (NIH) free digital archive of biomedical and life sciences journal literature.
- Hybrid model: Authors can pay to make their articles OA. If the author decides not to pay, his/her article is only accessible via a subscription. The subscription fee may be reduced according to the fraction of OA articles.
- Examples: Springer (“Springer Open Choice”), Blackwell (“OnlineOpen”), American Physics Society (APS, “Free to Read”), Elsevier (“Sponsored Articles”). Prices range from approximately EUR 700 (APS) to EUR 3,000 (Springer) per article.
- Author-pays model: All content is free to read. After acceptance, authors pay a fee to the journals for processing their articles. Examples: *New Journal of Physics*, published by the Institute of Physics Publishing (IOP); *PMC Physics A*, published by BioMed Central
- Institutional membership + page charges: All papers are immediately made freely available at the publisher’s website upon publication; authors from member institutions pay lower page charges. Example: *Nucleic Acids Research (NAR)*, published by Oxford University Press.
- Time-limited access: Selected articles are made available free of charge for everybody. This type of service is typically financed by the publisher as a “teaser” to attract new subscribers. Examples: EDP Sciences “Latest Articles” (full-text of the most recent issues of some journals available free of charge upon registration for

non-subscribers); “IOP Select“ (open access of articles published within the last 30 days)

- Delayed open access: Access is free for all after a given time. Examples: This model is currently used by the major astronomy publishers.
- Immediate open access: Journals that grant immediate open access are listed in the Directory of Open Access Journals (DOAJ). As of January 2008, 12 astronomy titles are listed, among them the *Information Bulletin on Variable Stars* (published by the Konkoly Observatory), the *Journal of Astrophysics and Astronomy* (Indian Academy of Sciences), *Revista Mexicana de Astronomía y Astrofísica* (Universidad Nacional Autónoma de México) and *Astrophysics and Space Sciences Transactions* (ASTRA, Copernicus Publications).

See <www.doaj.org/doi?func=subject&cpid=56> for a complete listing.

The situation in astronomy

As has been stated in previous documents, the OA situation in astronomy is quite favourable compared to other subject areas. This is largely due to the fact that the main journals are published on behalf of learned societies that level out the (within limits understandable) economic interests of publishers, and the reality that the vast majority of authors submit their papers to the astro-ph/arXiv preprint repository.

Funding of the major astronomy journals (“core journals”) is typically shared by the authors (i.e., their institutions) through page-charges and by the readers (their libraries) via an access fee (subscription). For *A&A*, income partly comes from the member states.

All publishers of core astronomy journals apply a policy of delayed open access:

- *ApJ/ApJS* and *PASP*, published by the University of Chicago Press (UCP) on behalf of the American Astronomical Society (AAS), is OA after 2 years
- *AJ*, published by IOP on behalf of the AAS as of January 2008, is OA after 2 years
- *A&A*, published by EDP Sciences on behalf of ESO, is OA after 3 years
- *MNRAS*, published by Blackwell on behalf of the Royal Astronomical Society, is OA after 3 years.

The *A&A* Board of Directors as well as the AAS are monitoring open access trends, but do not intend to modify their policies at this time. The current call for tender for the publishing of *A&A*, to be issued in the course of 2008, reiterates that articles older than three years shall be generally available; publishers are also invited to present further ideas for promoting open access. The AAS continues to apply a business model whereby authors and readers

share the costs; delayed open access to publications is applied after two years. This policy does not only apply to the previous publisher of AAS journals, University of Chicago Press, but also to the new publisher, IOP, as of 2008.

Commercial publishers such as Springer and Elsevier typically do not follow this example. With the exception of medical journals that are included in the (OA-only) PubMed Central, Springer (publisher of journals like *Astronomy and Astrophysics Reviews* and *Optics & Spectroscopy*) does not currently have a policy of OA after a specific time. Likewise, *Icarus*, *New Astronomy*, *New Astronomy Reviews*, *Earth and Planetary Science Letters* and *Chinese Astronomy and Astrophysics*, published by Elsevier, are not available through delayed OA. Commercial publishers typically use other approaches such as the Hybrid model (discussed earlier) towards open access. Author self-archiving is permitted for all above-mentioned publications.

The situation is quite mixed with regard to book series. The *ESO Astrophysics Symposia* are currently published by Springer through a subscription-based model without delayed OA. The same approach has been chosen by EDP Sciences, publisher of the *EAS Publications Series*, and by Cambridge University Press (CUP) for the *Space Telescope Science Institute Symposium Series*. All content is available only to subscribers.

At ESO, considerations are currently ongoing to produce open-access, electronic-only conference proceedings with optional print-on-demand. This could be either done in-house by setting up a repository, or through a commercial publisher. A decision will be taken in the course of 2008.

Since 2004, CUP has also been the official publisher for International Astronomical Union (IAU) publications. The agreement between the IAU and CUP states that electronic files of *IAU symposia* are to be deposited with the NASA ADS within 18 months of publication of the proceedings volume. This clause will also be included in the new version that is currently being negotiated for the years 2009-2013.

The Astronomical Society of the Pacific (ASP) was the previous publisher of IAU publications. They are now best known as publishers of the *ASP Conference Series*. The ASP maintains all current CS e-books on its website for a minimum of three years, at which time they become public domain and are available directly through the ADS.

Other developments

The number of institutional repositories throughout the world is increasing rapidly. Entries in the OpenDOAR (Directory of Open Access Repositories, <www.opendoar.org/>) crossed the 1,000 mark in January 2008. A few examples from Europe: More than 110 university repositories exist in Germany, the second highest number after the U.S. In France, all universities, major higher education schools and major research institutes have signed a common protocol to build the Hyperarticles Online (HAL) archive system, their common platform to host the national research output. All 14 Dutch universities have signed the

Berlin Declaration on Open Access, a major international statement on open access <<http://oa.mpg.de/openaccess-berlin/berlindeclaration.html>>, as have the Royal Netherlands Academy of Arts & Sciences and the SURF Foundation; all repositories are made accessible through the DAREnet gateway. There are more than 100 OA repositories in the UK, approx. 11% of the entries listed in the OpenDOAR (Source: DRIVER Portal, <www.driver-support.eu/en/national/>).

European Commission (EC)

On December 17, 2008, the European Commission issued a mandate for open access. The ERC (European Research Council) Scientific Council released its *Guidelines for Open Access* in which it states that “all peer-reviewed publications from ERC-funded research projects be deposited on publication into an appropriate research repository where available, such as PubMed Central, ArXiv or an institutional repository, and subsequently made Open Access within 6 months of publication.” The OA policy refers to articles as well as to data <http://erc.europa.eu/pdf/ScC_Guidelines_Open_Access_revised_Dec07_FINAL.pdf>.

The mandate was enthusiastically welcomed by open access advocates (see for instance comments by Peter Suber, Open Access News, <www.earlham.edu/~peters/fos/2008/01/oa-mandate-from-european-research.html>).

While there are open access mandates at public funding agencies in Austria, Belgium, France, Germany, Scotland, Switzerland, and the UK, as well as OA recommendations in other European countries, this is the first EU-wide open access mandate, and it ties in very well with the mandate ordered by Congress and the U.S. President in December 2007 (see below).

The EC is funding a number of OA-related projects, among them DRIVER (Digital Repository Infrastructure Vision for European Research) which aims to organise and build a virtual, European scale network of existing institutional repositories from the Netherlands, the United Kingdom, Germany, France and Belgium, and to assess and implement state-of-the-art technology, which manages the physically distributed repositories as one large scale virtual content resource. DRIVER is funded under the European Commission’s 6th Framework Programme <www.driver-repository.eu>.

The U.S.

On December 26, 2007, President Bush signed a law that directs the National Institutes of Health (NIH) to provide the public with open online access to findings from its funded research. This is the first time the U.S. government has mandated public access to research funded by a major agency.

The provision directs the NIH to change its existing Public Access Policy, implemented as a voluntary measure in 2005, so that participation is required for agency-funded investigators. Researchers will now be required to deposit electronic copies of their peer-reviewed manuscripts into the National Library of Medicine’s online archive, PubMed Central. Full texts of the articles will be publicly available and searchable online in PubMed Central no later than 12

months after publication in a journal (“Public Access Mandate Made Law”, Alliance for Taxpayer Access press release, December 26, 2007).

As this law raises the awareness of scientists of open access and makes depositing research in publicly available archives mandatory, it can be expected that the (up to now somewhat reluctant) use of institutional repositories will increase.

CERN

During recent years, CERN has become one of the main players regarding open access among the community of high energy physics (HEP). They are promoting open access through the so-called SCOAP³ (Sponsoring Consortium for Open Access Publishing in Particle Physics) consortium. This initiative aims to convert high-quality HEP journals to open access. The concept foresees that funding bodies and libraries redirect subscription money to the SCOAP³ consortium which pays centrally for the peer-review service; articles will be free to read for everybody (see “Towards open access publishing in high energy physics,” Report of the SCOAP³ Working Party, 2007). Financing is to be distributed yearly according to a “fair-share” model, based on the distribution of HEP articles per country, accounting for co-authorship.

Approx. 90% of HEP articles appear in only six peer-reviewed journals, among them *Physical Review D* (published by the American Physical Society), *Physics Letters B* and *Nuclear Physics B* (both published by Elsevier), *Journal of High Energy Physics* (SISSA/IOP) and *European Physical Journal C* (Springer). These are the first ones the SCOAP³ initiators hope to convert to OA.

CERN, together with DESY (Deutsches Elektronen-Synchrotron, Germany), is currently in the process of gathering signatures of interested European as well as U.S. participants, among them Fermilab, SLAC (Stanford Linear Accelerator) and the UC Berkeley.

However, the SCOAP³ approach does not only find support. Critics argue that in the long run, funding bodies will not sponsor publications that are freely available, and that the proposal will mainly benefit the commercial publishers and put the non-profits at substantial risk.

References and URLs:

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 Directory of Open Access Journals (DOAJ), <www.doaj.org/>. Astronomy journals:
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 ERC Scientific Council: Guidelines for open access, 17 December 2007:
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II.8.11. Div.XII/Comm.5/WG *Libraries* - Manifesto

Correspondence to the Editors of “The Observatory”

Declaration Concerning the Evolving Role of Libraries in Research Centres

The following declaration reflects the concerns of its drafters at the increasing invisibility of research libraries *vis-à-vis* recent accelerated changes in publishing and reader-access technology. It was drafted subsequent to the colloquium *Future Professional Communication in Astronomy*, held at the *Palais des Academies* in Brussels on 2007 June 10-13, although it does not derive directly from that meeting.

The declaration, after a period of consultation and discussion with astronomers and research centre librarians worldwide, will be presented to the International Astronomical Union through its Commission 5 (Documentation and Astronomical Data), part of Division XII (Union-Wide Activities), with the request that it be considered for adoption as official IAU policy. We hope this important issue will generate discussion among the readership of *The Observatory* and would welcome any support for the declaration or comments on its contents.

Yours faithfully,

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