



**A short History of  
Interactive Open Access Publishing**



**Anniversary Publication celebrating  
10 Years of Interactive Open Access Publishing**

### ***Imprint***

A short History of Interactive Open Access Publishing is published by Copernicus Publications.

© Authors 2011. This work is distributed under the Creative Commons Attribution 3.0 License.

Printed in Germany.  
Heimert Print GmbH

ISBN 978-3-942169-03-5

[www.copernicus.org](http://www.copernicus.org)

 **Copernicus Publications**  
The Innovative Open Access Publisher

**Table of Contents**

|                                                                                                     |    |
|-----------------------------------------------------------------------------------------------------|----|
| <b>Don Dingwell</b><br>Greetings from the EGU President                                             | 5  |
| <b>Paul Crutzen</b><br>An Amazing Journey                                                           | 7  |
| <b>Arne Richter</b><br>The "Mainz All-In-One Model" for<br>Open Access Publishing in Sciences       | 9  |
| <b>EGU OA Publications Family 2011</b>                                                              | 15 |
| <b>Ulrich Pöschl</b><br>On the origin and development of<br>Interactive Open Access Publishing      | 17 |
| <b>Martin Rasmussen</b><br>Interactive Open Access Publishing<br>becomes successful and sustainable | 29 |
| <b>References</b>                                                                                   | 39 |

**Don Dingwell**  
EGU President





***Greetings from the  
EGU President***

The European Geosciences Union is pleased to have been able to play its historic role in the development of Interactive Open Access Publishing. Young scientists today are presented with real high-quality alternatives for the choice of their medium of publication. That is the accomplishment of IOAP. On behalf of the EGU I extend the warmest congratulations to all of the essential players that have been and continue to be involved in the process.

## **Paul Crutzen**

Advisory Board  
Member of the  
EGU Journals ACP,  
ESD, and GMD

Chemistry Nobel  
Laureate 1995





## ***An Amazing Journey***

It has been an amazing journey: over a short period of merely a decade, a novel idea originating from Uli Pöschl and developed by an enthusiastic group of hundreds of scientists, created a new way of scientific publishing and communication, initially covering the fields of atmospheric chemistry and physics. The example has since been followed by many successors in other disciplines, with more to come. I congratulate and thank Uli Pöschl and Arne Richter for their pioneering work for the scientific community.



## **Arne Richter**

EGU Executive  
Secretary 2002-2009

Copernicus  
Managing Director  
1988-2007





***The "Mainz All-In-One Model" for Open Access Publishing in Sciences***

After the EGS Office had been established in 1988, both the number of members and of participants at the general assemblies were growing rapidly as well as the number of journals associated with the Society but yet handled and issued by different commercial publishers.

At that time we experienced how to organize and to run large meetings and conferences and, in addition, how to organize the editorial support and how to produce and to market refereed scientific journals. Thus, from 1994 onwards we were able to organize our meetings at venues we selected ourselves and in the way we wanted it to be done, and, at the same time, to launch our first journal of our own making: *Nonlinear Processes in Geophysics*. To ensure that all operations involved were as profes-

sional but as inexpensive as possible, we developed our own internet-based software for the meeting and for the editorial support offices, respectively. By 2000 we were also able to typeset, to layout and to print our own journals in different styles and manners.

At the end of the 1990s three major concepts were discussed regarding the advancements in the publication of our scientific journals:

1. While all publications were still in the classical style and on paper, we experienced to extend our software to include a publication of all articles also directly on the internet – even in an easy-to-read, one-column, landscape format – to be downloaded directly on the PC. And right from the beginning it was ar-

gued that the internet must be free of charge for reading and downloading of manuscripts.

2. In parallel it was suggested that the classical way of publishing final articles hard and fast should be replaced by an open forum of outright discussions in which everyone should be able to take part.
3. Finally, it was proposed that the classical blind and anonymous way of review – occasionally even by the same pre-selected yet anonymous referees – should be replaced by an open and eponymous review procedure, even by including the public.

In 2000 several meetings took place at the Max Planck Institute for Chemistry in Mainz, Germany, by invitation of Paul Crutzen and Ulrich Pöschl together with

a dozen and more scientists, in order to discuss the launch of a new journal in atmospheric chemistry and physics based on the concepts outlined above. The outcome was the "all-in-one" Mainz model for open access publishing of the EGS/EGU journal "Atmospheric Chemistry and Physics (ACP) & Discussions (ACPD)" including a public peer-review and interactive public discussion of all articles submitted for publication, first in the discussion part (ACPD) and then in the final part (ACP).

Up-to-date the EGU publishes 11 journals in accordance to this two-stage concept and 3 journals in accordance to the one-stage concept followed also by the commercial publishers. All our journals are, however, published on the internet true to the motto "free to read and free to download for everyone!"

For the near future of open access publishing I look forward to see:

- that the discussion part will include “real” discussions about the actual topic of a paper rather than only “public comments”;
- a publication also of the final articles not only for PCs but also for tablet PCs and smartphones;
- no page charges for authors, since the income is generated by using the EGU platforms for paid-up information, services and adverts of the many companies, organizations and institutions associated with the geosciences instead (see other public platforms on the internet), true to the motto: Free to Read, Free to Download **and** Free to Publish!

*The "Mainz All-In-One Model" for  
Open Access Publishing in Sciences*

For their future in Open Access Publishing we wish the EGU and Copernicus all the very best and "fair winds and following seas"!

EGU OA  
Publications  
Family 2011





## **Ulrich Pöschl**

ACP Chief  
Executive Editor

EGU Publications  
Committee Chair





***On the origin and  
development of  
Interactive Open  
Access Publishing***

The idea of interactive open access publishing originated from classical lab talk on a Friday afternoon. Frustrated about an apparent lack of clarity and coherence in a series of earlier studies related to my ongoing investigations of ozone reacting with soot in the atmosphere, I dropped into the office of my colleague Michael Weller, a bioanalytical chemist working next door at the Technical University of Munich. It seemed that traditional journal publishing and peer-review were just not sufficient for thorough quality assurance, constructive discussion and integration of scientific knowledge, because many studies did not build on related earlier publications, and some were not even self-consistent even though they had been published in reputable journals with high citation impact factors. Michael

had experienced similar situations, shared my concerns and suggested that public posting and commenting of manuscripts on the internet might be more efficient for scientific exchange and quality assurance than traditional peer review.<sup>1,2</sup>

At first I was skeptical, but then I realized that public review on the internet might indeed resolve or at least improve many issues. I felt that it was time not only to speculate about potential future developments but to try and make things happen. In the evening I began to sketch a concept for an online discussion journal that we later named Atmospheric Chemistry and Physics (ACP). In the morning of Saturday 1 July 2000 the first draft was completed, and I called Paul Crutzen to ask if he would be willing to support the idea. He

found it interesting and invited me to talk it over at breakfast. So I took a train from Munich at 5 am on Sunday, and when I arrived in the late morning we had brunch and a discussion on the sunny terrace of Paul's house in Mainz. He agreed to support the project, and we compiled an invitation list of colleagues who might be ready to join in.

With regard to the practical implementation of the new journal concept, Paul suggested that Arne Richter from the European Geophysical Society (EGS, one of the two predecessors of EGU) might be the right person to contact. A few days later I could reach Arne on his mobile phone. I did not know him at that time, but fortunately he did not mind that I intruded into his summer vacation. With a background sound of wind and waves on a beach in Den-

mark, Arne reacted with the open mind and enthusiasm that I got to know and appreciate very much during the following months and years. He was immediately interested in the innovative idea, suggested to have a meeting after the summer break, and trusted that the experiment would succeed. Quote from his first email response on 20 July 2000: "Auf jeden Fall wird es was ganz Tolles".<sup>3</sup>

After a series of email circulars and discussions among a group of about 20 interested colleagues, the kick-off meetings for ACP took place on 15 September and 9 October 2000 at the Max Planck Institute for Chemistry in Mainz. In very lively and constructive exchange and discussions, we established the key principles of interactive open access publishing, i.e., the two-

stage publication process with public peer-review and interactive discussion, and the further coordination and development of the journal and its editorial board was assigned to the ACP executive committee (Ken Carslaw, Thomas Koop, Rolf Sander, Bill Sturges and myself). As a veritable man of action, Arne swiftly obtained the consent of the EGS council for establishing the new journal and immediately moved on to the technical implementation. Quotes from his email on 18 September 2000: “Dear Council Members, The meeting of the “younger and wilder” atmospheric scientists under the lead of Ulrich Pöschl and Paul Crutzen regarding the launch of a new EGS journal on atmospheric chemistry took place on 15 September in Mainz. The outcome of this very lively extremely interesting meeting is

as follows ...”, and from his email on 16 October 2000: “Lieber Uli, der Vorstand der EGS hat dem Projekt zugestimmt. Wir werden demnaechst dann unser technisches meeting haben ...”.<sup>3</sup>

During the following months, the ACP executive committee had several technical meetings with Arne and his team at the original EGS/Copernicus office in Katlenburg-Lindau, which was a vibrant mix of garage company and scientific institution (spin-off) in an old building of the Max Planck Institute for Aeronomy. In these meetings the software infrastructure, the web pages and the typesetting layout of the new interactive open access journal were designed from scratch in uniquely close cooperation and iteration between technical staff and scientists, which brought lots

of work but also lots of success and fun to all involved parties. In spring 2001 we established the full editorial board (initially ~70 members, now ~150), and we solicited manuscript submissions from the members of the editorial board and the scientific community.

The first discussion papers finally went online on 3 September 2001, and public advertising started after we had sorted out some initial technical hiccups with the functionality of the discussion forum and the stability of the web-servers. Since then, ACP has experienced a steep growth, and it fully achieved the aim of improving the efficiency of scientific communication and quality assurance through transparency and self-regulation. Today ACP is the largest journal in the field of atmospheric sciences and one of the largest



across the fields of environmental and geosciences, offering at the same time top visibility and low rejection rates (impact factor 5.3, rejection rate 15%, 12,000 pages in 2010). The combination of top visibility with high volume and low rejection rate, i.e., high efficiency by self-regulation, is a fairly unique achievement in the world of scientific publishing, where the most visible journals traditionally had relatively small volumes and high rejection rates.<sup>2,4,5,6</sup>

When the EGS and the EUG (European Union of Geosciences) merged in 2002, the newly formed European Geosciences Union (EGU) adopted the EGS publishing activities, including ACP and the interactive open access concept. EGU also signed the Berlin Declaration on Open Access to Knowledge in the Sci-

ences and Humanities.<sup>7</sup> After some further advertising and promotion of the new publishing approach and infrastructure, several council members and other colleagues took the initiative of launching new interactive open access journals that cover most areas of EGU: Biogeosciences (BG) in 2004, Climate of the Past (CP) and Ocean Science (OS) in 2005, The Cryosphere (TC) in 2007, Atmospheric Measurement Techniques (AMT) and Geoscientific Model Development (GMD) in 2008, Solid Earth (SE) and Earth System Dynamics (ESD) in 2010, Geoscientific Instrumentation, Methods and Data Systems (GI) in 2011. Besides these newly founded journals, the traditional journal Hydrology and Earth System Sciences (HESS) also adopted the interactive open access approach in 2004 and

has achieved a strong increase of publication volume and visibility since then. Today, most of the EGU interactive open access journals exhibit similarly steep growth curves, high impact factors, and low rejection rates, confirming the general applicability and usefulness of the two-stage publication process with public peer-review and interactive commenting of discussion papers. Overall, the statistics of our journals and the feedback from the scientific community as well as from publishing professionals and evaluation experts confirm that the interactive open access concept and publications of EGU are among the most innovative and successful open access initiatives in the world. Recently, the same or similar concepts have also been adopted in other scientific areas including economics and life sci-

ences (economics e-journal, PLoS ONE, etc.). **2,5,8,9,10**

The way from the initial conception to the firm establishment of interactive open access publishing was long and laborious. Nevertheless, it was an exciting and rewarding experience in which we shared not only a sense of dedication and achievement for the benefit of science and society, but also very good times and high spirits. I would like to express my gratitude to all people who contributed to this successful development – including the persons named above; all editors, referees, authors and supporters of the EGU open access journals; the team of Copernicus; and the entire scientific community of EGU.

**Martin  
Rasmussen**

Publisher,  
Copernicus  
Publications



**Interactive Open  
Access Publishing  
becomes successful  
and sustainable**

It was my great pleasure to join the successful and ideal connection of a vibrant scientific community like EGU together with an unconventional conference and publishing house like Copernicus in 2004. In those days, the concept of open access publishing was still in its infancy and the partnership Copernicus-EGU was the second publishing corporation after BioMed Central to publish open access with more than one journal. Additionally, the concept of public peer-review was completely new and established just three years ago through ACP. I have still learnt at university that scientific quality assurance is a secret collaboration with an unpredictable outcome. And now, all information became publicly available? That was a kind of revolution.

Starting such an innovative approach in such a well-established environment as scientific publishing industry was unbelievable and amazing, but maybe also shocking and outrageous? Many experts in those days attested open access and public peer-review no future or at least only to be on the fringes. There were doubts about the sustainability of this business model, even about the existence of a real business model, and also about the demand for this free accessibility. Therefore, open access in those days needed strong partners.

Many academic initiatives started open access at universities or research institutions with 1-2 journals financed through research budgets, so far so good. But what happens after the funding phase? Lots of these initiatives never reached a sustainable establishment.

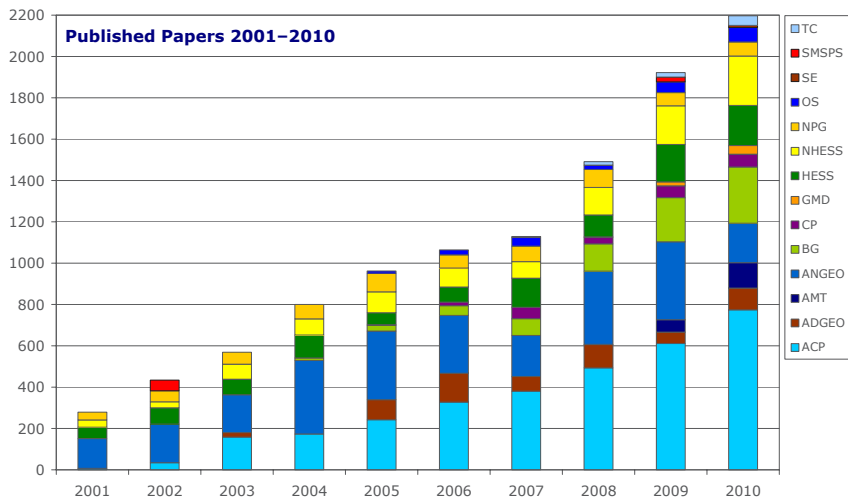
Other publishing houses started open access using donations from foundations, the industry, or their capital generated from traditional subscription-based publishing activities. A number of them had and still have great success. The partnership Copernicus-EGU also started with some money generated from the conferences. But even more important, we started with the confidence, power, and dedication of scientists working for free on this project as well as with the flexibility and low budget of a garage company. This was clearly the decision of a scientist, not of a business man! But it was also very authentic and driven by the willingness to change the nature of scientific publishing and quality assurance.



The first five years could be called the “start-up period” from 2001 to 2006. It was an intensive development and testing phase. The first interactive journal was established and reached inclusion in the Thomson Reuters’ Science Citation Index already after one year (ACP). The concept was transferred to other new journals with other scientific communities (BG, CP, OS). The first transformation of a traditional journal into an interactive journal took place (HESS, 2004). And two well-established subscription-based journals were changed into open access ones (NHES and NPG, 2004). Not interactive, but open access. All these activities were risky and not always accepted by all community members. But this was the only way of proving the feasibility of such innovative concepts. Of course, there was

less time to plan everything in detail, to count all numbers in depth, and to document, calculate, and double-check all aspects. This was scientific chaos. But it was already very successful!

The second five years could be called the “consolidation phase” from 2006 to 2011. The numbers, both in submissions as well as in published papers received an enormous increase. New EGU journal titles were founded (AMT, ESD, GI, GMD, SE, TC) and the last traditional journal was transformed into open access (ANGEO, 2009). Furthermore, we successfully started 12 journals for other scientific associations and initiatives in the fields of geosciences, civil engineering, and humanities (ASR, AS-TRA, ARS, DWES, ESSD, FACTS, HGSS, MetEFF, MS, SAPIENS, SG, WE). The business plans became more detailed



and author-fee payment became more and more accepted. Since 2007, we have moved our open access business numbers into the black. And that is in only after six years which is even the standard establishment phase of a traditional journal at the large publishing houses. But here, we talk about something really new.

The editorial boards grew and the author's origin spread over Europe, North America, Asia, but also South America, Africa, and Australia. New concepts were needed to subsidize author fees, to help a number of authors with waivers, and to make the bothering accounting process for the individual author easier. We signed agreements with the Max Planck Society in Germany as well as with CNRS INSU in France about centralized settlement of pub-

lication charges for their authors. The Helmholtz Association is currently under negotiation and discussions started with CNR in Italy. Furthermore, there is a waiver programme assigning 10% of the overall annual page budget to authors free of charge agreed by the chief editors.

The establishment of the journal titles achieved high levels. The ISI impact factors of our journals increased and reached in some cases number one in their field. The concepts of open accessible reviewer comments and the involvement of the scientific community were adopted by other journal initiatives, e.g. the economics e-journal. The rejection rates were kept on a very moderate level of about 15% in contrast to around 50% at comparable journals. And the journals and their interactive

concept are today very prominent, also outside of the core-community of scientists. ACP, e.g., is a standard example at publisher conferences for public peer-review. And ACP is also an example for a so-called “Mega-Journal” with 12,000 pages in 2010.

As of today, we are publishing more than 4,000 papers with 100,000 pages per year. We have 25 scientific journals, 16 of which belonging to the EGU. The number of journal editors is 850, and our 34,800 individual authors coming from 140 countries. Eleven EGU titles have a Thomson Reuters impact factor, and all titles are indexed in many reference services, archives, copyright libraries and search engines worldwide.

Most of the discussions about the necessity of open access, usefulness of

public peer-review, and acceptance of all these unconventional and fantastic ideas became silent. But the success is very prominent, lively, and loud. And the basic concept is still the same: dedicated scientists spending a tremendous amount of work, high-quality submissions undergoing a transparent but rigorous peer-review, great scientific communities like the EGU, and a publishing house that is now really professional in its business but has kept a bit of the good old garage company in its heart.

I am proud to be part of this adventure and I heartily thank and congratulate all our partners and colleagues for their cooperation and achievements. We are very much looking forward to continuing this collaboration.



## References

- <sup>1</sup> Pöschl, U.: Interactive journal concept for improved scientific publishing and quality assurance, Learned Publishing, [http://www.atmospheric-chemistry-and-physics.net/pr\\_acp\\_interactive\\_journal\\_concept.pdf](http://www.atmospheric-chemistry-and-physics.net/pr_acp_interactive_journal_concept.pdf), 17, 105–113, 2004.
- <sup>2</sup> Pöschl, U.: Interactive open access publishing and public peer review: The effectiveness of transparency and self-regulation in scientific quality assurance, IFLA Journal, [http://www.atmospheric-chemistry-and-physics.net/pr\\_acp\\_poschl\\_ifla\\_journal\\_2010\\_interactive\\_open\\_access\\_publishing.pdf](http://www.atmospheric-chemistry-and-physics.net/pr_acp_poschl_ifla_journal_2010_interactive_open_access_publishing.pdf), 36, 40–46, 2010.
- <sup>3</sup> Pöschl, U.: Arne Richter: A multi-talented character who has made a difference in scientific publishing, EGU General Assembly 2010, Vienna, [http://www.atmospheric-chemistry-and-physics.net/pr\\_acp\\_poschl\\_arne\\_richter\\_wien2010\\_up31.pdf](http://www.atmospheric-chemistry-and-physics.net/pr_acp_poschl_arne_richter_wien2010_up31.pdf), 2010.
- <sup>4</sup> Schultz, D. M.: Rejection rates for journals publishing in the atmospheric sciences, B. Am. Meteorol. Soc., 231–243, 2010.
- <sup>5</sup> Bornmann, L., Schier, H., Marx, W., and Daniel, H.-D.: Is Interactive Open Access Publishing Able to Identify High-Impact Submissions?, J. Am. Soc. Inf. Sci. Tec., [http://www.atmospheric-chemistry-and-physics.net/pr\\_acp\\_is\\_interactive\\_open\\_access\\_publishing\\_able\\_to\\_identify\\_high\\_impact\\_submissions.pdf](http://www.atmospheric-chemistry-and-physics.net/pr_acp_is_interactive_open_access_publishing_able_to_identify_high_impact_submissions.pdf), 62, 61–71, 2011.



<sup>6</sup> ISI Journal Citation Report 2010, Thomson Reuters, <http://apps.webofknowledge.com>, 2010.

<sup>7</sup> Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, [http://www.zim.mpg.de/openaccess-berlin/berlin\\_declaration.pdf](http://www.zim.mpg.de/openaccess-berlin/berlin_declaration.pdf), Berlin, 2003.

<sup>8</sup> ACP Public Relations and Background Information, [http://www.atmospheric-chemistry-and-physics.net/general\\_information/public\\_relations.html](http://www.atmospheric-chemistry-and-physics.net/general_information/public_relations.html), 2011.

<sup>9</sup> EGU Publications Mission Statement, <http://www.egu.eu/publications/statement.html>, 2011.

<sup>10</sup> EGU Position Statement on the Status of Discussion Papers Published in EGU Interactive Open Access Journals, <http://www.egu.eu/statements/position-statement-on-the-status-of-discussion-papers-published-in-egu-interactive-open-access-journals-4-july-2010.html>, 2010.

**Publishing Interactive**  
**10**  
Years  
**Open Access**