

Going Electronic? Receipt of Print Journal Issues and their Electronic Availability

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ABSTRACT: The Scripps Institution of Oceanography (SIO) Library receives many print journal subscriptions, which are also available through site-licensed electronic access. To inform collection development, we were curious whether the electronic version was available by the time we received print journal issues. We compared print receipt with electronic availability for individual print issues received during a six-week study period. Results of this study demonstrate that 35% of our newly received print issues lagged behind the issue numbers available electronically; overall 84% of our print issues had electronic versions at the time of receipt, either the same issue number or future issue numbers. Collection development for our print subscriptions is now better informed as we consider shifting some of our critical print subscriptions to electronic access, especially for journals duplicated in print in sister libraries on the main campus.

The Scripps Institution of Oceanography (SIO) Library receives many print journal subscriptions, which are also available through site-licensed electronic access. Site-licensing is established at the consortial level (University of California's California Digital Library), the campus level (University of California San Diego), or the library level (SIO Library). Though we knew a few cases when a print journal issue was available before its electronic version, we didn't have an informed view of the availability of electronic issues compared to our print issues. A study was proposed to compare print receipt with electronic availability for individual print issues received during a six-week study period. Conducted from 14 May 1999 to 2 July 1999, this is a snapshot look at the timeliness of ejournal issues compared to print issues received; a longer study would give a more complete look.

Using the journal *Sedimentary Geology* as an example, the study did the following:

1. On 2 June, 1999 the print issue of *Sedimentary Geology*, volume 125, issue 3-4, is received in the mail by the SIO Library Serials Processing Unit
2. Issue 125:3-4 is checked-in using the Innopac serials checkin subsystem. A location code in the serial checkin record signals ejournal availability
3. Data about the print issue is entered on a logsheet: title, publisher, volume, issue, date received, frequency
4. The UCSD public catalog ROGER, our record for UCSD Libraries' site-licensed ejournals, is searched; the catalog record indicates ejournal as well as print holdings (Figure 1). In the catalog record, a link to the ejournal is located under the title and publisher information.

<i>Title</i>	Sedimentary geology
<i>Published</i>	[Amsterdam, New York, Elsevier Scientific Pub. Co.]
Click on the following to:	
Connect to v.100(1995)- NOTE: Some issues may be lacking. (Access restricted to UCSD IP addresses)	
SIO 1 SE27 <i>Loc</i>	SIO Flr 2, 1 Current
<i>LIB. HAS</i>	1- (1967-)
<i>Latest Received:</i>	May 1999 125:3-4
<i>Loc</i>	INTERNET
<i>Identity</i>	Electronic journal
<i>LIB. HAS</i>	100- (1995-)

Figure 1. ROGER catalog record for a serial with Internet connection to ejournal content

5. On the ejournal site, the presence of full text (PDF and/or HTML) for *Sedimentary Geology*, volume 124 and issue 3-4 is confirmed.
6. Data about the availability of the full text ejournal issue is entered on a logsheet: volume, issue, date and currency: current, ahead or behind the print issue (Table 1)
7. If the full text is not available online, then its presence is checked again when the next print issue of the same title arrives
8. An Excel spreadsheet (Table 1) was used to analyze the data

Journal Title	Publisher	Print vol. & issue	Date Print recv'd	Web volume available	Date ejournal confirmed	No. of issues ahead	Is ejournal Current	No. of issues behind	Frequency
Journal of Structural Geology	Elsevier Science	21:5	6/2	21:5	6/2		X		10 no. a year
Journal of the American Chemical Society	American Chemical Society	121:19	6/2	121:21	6/2	2			Weekly
Lithos	Elsevier Science	47:1-2	6/2	47:1-2	6/2		X		6 no. a year
Pure and Applied Geophysics	Birkhauser-Verlag	154:2	6/2	154:2	6/2		X		Monthly
Hydrobiologia	Kluwer Academic Publishers	387-388	6/9	392:2	6/9	4			36 no. a year
Sedimentary Geology	Elsevier Science	125:3-4	6/2	125:3-4	6/2		X		Monthly
Tetrahedron	Elsevier Science	55:22	6/2	55:16	6/2			6	Semi-monthly
Tetrahedron Letters	Elsevier Science	40:23	6/2	40:15	6/2			8	Weekly

Table 1: Sample of data in the Excel spreadsheet

In following the link from our ROGER catalog record to the ejournal's Web page, the presence of full text for the corresponding print issue was indicated by PDF or HTML files. Some ejournal issues were accessible before the corresponding print issue was received and some after. If only abstracts were available electronically, the issue was not considered as available electronically. Since the trigger for this survey is the arrival of a print issue, this methodology does not establish the length of time an electronic issue is available before its print version arrived in SIO Library. For those ejournal issues that were available on the day that we received the corresponding print issue, it is safe to assume that almost all of the electronic issues were available before the print issue was received by us. When we checked a print issue for electronic availability and electronic issues were available that numbered ahead of the print issue in hand, then this data was recorded as the number of electronic issues ahead of the current print issue.

During the study period, print issues from journals with electronic counterparts were received from 27 publishers. Data was collected on 139 individual journal titles during the study period. Because we received more than one print issue of some titles (i.e. weekly and monthly publications) we were able to collect data corresponding to a total of 249 print issues for those 139 journal titles.

35% of the print issues for which we looked online had electronic journal issues that were one or more issue numbers ahead of the print issue in hand ("Ejournal is Ahead" column in Table 2). Thus roughly one third of our print issues were behind the issue numbers that were available electronically. In addition, 49% of the print issues for which we looked online had electronic journal issues of the same issue number already available by the time we received our print issue ("Ejournal is Current" column in Table 2). These electronic journal issues that were available and of the same issue number when we received our print issue were undoubtedly available by a matter of days to weeks before our receipt of the print issue. These two percentages can be represented in combination as follows: we already had electronic access to 84% of our print journal issues by the time we received the print issue ("Ahead" and "Current" columns in Table 2). Thus researchers who closely track the literature to maintain a competitive edge will have a decided advantage with electronic journals, particularly since one third of our print issues actually have electronic issues available that number in advance of our print issues. Electronic issues lagged behind our print issues in issue number for only 16% of the print issues we received ("Ejournal is Behind" in Table 2). One would expect this percentage to diminish significantly and within months rather than years as scholarly journal publishers become more experienced with electronic publishing.

Individual Publishers (N=27)		# of titles (N=139)	# of print issues (N=249)	% of all issues checked in		
				Ejournal is Ahead	Ejournal is Current	Ejournal is Behind
Academic Press		10	17	41% (7/17)	59%(10/17)	
American Association for the Advancement of Science		1	2		100% (2/2)	
American Chemical Society		6	17	41% (7/17)	59%(10/17)	
American Geophysical Union		1	2			100 % (2/2)
American Institute of Physics		2	5	80% (4/5)	20% (1/5)	
American Meteorological Society		7	13	8% (1/13)	92% (12/13)	
American Society for Biochemistry & Molecular Biology		1	4	100% (4/4)		
American Society of Pharmacognosy		1	1		100% (1/1)	
Birkhauser-Verlag		2	2	50% (1/2)	50% (1/2)	
Cambridge University Press		3	8	75% (6/8)	12.5% (1/8)	12.5% (1/8)
Elsevier Science		64	113	25% (28/113)	44% (50/113)	31% (35/113)
Evolutionary Ecology		1	1		100% (1/1)	
Institute of Physics		1	1		100% (1/1)	
Kluwer Academic Publishers		9	10	80% (8/10)	20% (2/10)	
National Academy of Sciences		1	2		100% (2/2)	
Optical Society of America		1	3		100% (3/3)	
Oxford University Press		4	9	33.3% (3/9)	66.6% (6/9)	
Rockefeller University Press		1	2	50% (1/2)	50% (1/2)	
Royal Society of Chemistry		1	3	66.6% (2/3)	33.3% (1/3)	
Science Service		1	3		100% (3/3)	
Society for General Microbiology		1	1		100% (1/1)	
Society for Industrial and Applied Mathematics		1	1	100% (1/1)		
Springer		1	1		100% (1/1)	
Springer-Verlag		7	8	38% (3/8)	62% (5/8)	
The Royal Society		3	4	25% (1/4)	75% (3/4)	
University of Chicago Press		3	9	89% (8/9)	11% (1/9)	
Wiley		5	7	43% (3/7)	43% (3/7)	14% (1/7)
TOTAL	Publishers = 27	Titles = 139	Issues = 249	Ahead 35% (88/249)	Current 49% (122/249)	Behind 16% (39/249)

Table 2. Percentage of print issues checked in with electronic issues ahead, current or behind

During the study period we received 47 titles from 17 publishers with electronic journal issues that were one or more issue numbers ahead of the print issues we received (Table 3). For many titles with electronic issues numbered ahead of our print issue, we received more than one print issue during the study period. Table 3 shows how many electronic issue numbers were available ahead of the print issue number we received. For Analytical Biochemistry, in the third column, three print issues of Analytical Biochemistry were received. For the first print issue we received, the electronic issue was 1 issue number ahead of the print issue number in hand. For the second and third print issues we received, the most current electronic issue number was the same as the print issues in hand. One can see in Table 3 that electronic publishing of issue numbers in advance of the print issue number is not consistent but is certainly greatly appreciated!

Publisher (N=17)	Survey titles with electronic issues AHEAD of their print issues (N=47)	# of issues ahead
Academic Press	Analytical Biochemistry	1,0,0
	Biochemical and Biophysical Research Communications	1,2,1
	Journal of Molecular Biology	2,4,2
American Chemical Society	Biochemistry	1,1,1
	Journal of Organic Chemistry	0,0,1
	Journal of the American Chemical Society	1,2,1
American Institute of Physics	Physical Review Letters	1,1,1
	Physics of Fluids	1,0
American Meteorological Society	Journal of the Atmospheric Sciences	0,0,1,0
American Society for Biochemistry & Molecular Biology	Journal of Biological Chemistry	1.2.2.2
Birkhauser-Verlag	Cellular and Molecular Life Sciences : CMLS	1
Cambridge University Press	Journal of Experimental Biology	3,3,2
	Journal of Fluid Mechanics	1,1,1
Elsevier Science	Analytica Chimica Acta	0,2,1,0
	Aquaculture	2,1,2
	Aquatic Botany	1,0
	Atmospheric Environment	2,3
	Biological Conservation	1,0
	Continental Shelf Research	1,0
	Earth and Planetary Science Letters	1,1,0
	Ecological Modelling	4
	FEBS Letters	-2,2,2
	Journal of Hydrology	0,1
	Journal of Volcanology and Geothermal Research	0,1
	Marine Pollution Bulletin	3,3
	Phytochemistry	3,4,2,3
	Precambrian Research	1,0
	Quaternary Science Reviews	1
Tectonophysics	2,1,1	
Kluwer Academic Publishers	Biogeochemistry	1
	Boundary-layer Meteorology	2
	Climatic Change	2
	Hydrobiologia	4
	Journal of Atmospheric Chemistry	1
	Journal of Paleolimnology	2,1
	Water, Air, and Soil Pollution	1
Oxford University Press	EMBO Journal	1,1,1
Rockefeller University Press	Journal of Cell Biology	0,1
Royal Society of Chemistry	Journal of the Chemical Society. Perkin Transactions I	0,2,1
Society for Industrial & App. Math	SIAM Journal on Applied Mathematics	2
Springer-Verlag	Climate Dynamics.	1,1
	Contributions to Mineralogy and Petrology	1
The Royal Society	Proceedings. Mathematical, Physical and Engineering Sciences	1
University of Chicago Press	Astrophysical Letters	5,5,6,6
	The Astrophysical Journal	2,4,3,4
Wiley	Earth Surface Processes and Landforms	1,1
	International Journal of Climatology	-1,2

Table 3. Electronic journals: number of issues available ahead of the print issues

Some titles are stellar in publishing electronic issues well in advance of print issues, e.g. Astrophysical Letters, Astrophysical Journal, Phytochemistry, Journal of Experimental Biology, Journal of Molecular Biology, Journal of Biological Chemistry. Two of the titles that published electronic journal issues ahead of their print issues at some time during our short study also had an electronic issue that lagged behind the print issue (FEBS Letters and International Journal of Climatology). Scholarly electronic journal publishing is in its infancy so

the variation in Table 3 or within a specific title isn't surprising.

In this study only 16% of the print issues we received had electronic journal issues lagging behind in issue number. This 16% represents 39 issues from 21 titles (from a dataset of 249 issues from 139 titles) (Table 4). It is expected that this percentage will diminish greatly as electronic publishing matures. The low level of this number is a testimony to the energy of scholarly journal publishers who have been very successful in ramping up for electronic publishing within a relatively short period of time.

The range of lagging ejournal issue numbers is 1 - 10 for the 21 titles listed in Table 4. In this study, twelve titles published by Elsevier/Pergamon Press (comprised of 28 issues) are a large portion of the ejournal issues lagging behind print issues in issue number. Overall, Elsevier has a very good record of timely delivery of electronic journal issues; 69% (Table 2) of Elsevier issues were available electronically at the time we received print issues or one or more issue numbers in advance of our receipt of print issues.

Publishers N=27	Journal Titles N=21	No. of issues BEHIND (N=39)	Frequency
American Geophysical Union	Geomagnetism and Aeronomy	4,5	Bi-monthly
Cambridge University Press	BioEssays	1	Bi-monthly
Elsevier Science	Journal of Asian Earth Sciences	6	Bi-monthly
	Marine Structures	1,1	Weekly
	Environmental Pollution	1	Semi-monthly
	FEMS Microbiology Letters	1	Monthly
	Trends in Ecology & Evolution	7	10 no. a year
	FEBS Letters	2	Bi-monthly
Pergamon Press (Elsevier Science)	Applied Geochemistry : Journal of the International Association of Geochemistry and Cosmochemistry	1	Monthly
	Bioorganic & Medicinal Chemistry Letters	4,5,6	Monthly
	Chemosphere	3,5,6,7	Monthly
	Computers & Geosciences	1	Semi-monthly
	Deep-sea Research. Part I, Oceanographic Research Papers	1,2	Weekly
	Deep-sea Research. Part II, Topical Studies in Oceanography	1,2	Monthly
	Environment International	3	Semi-monthly
	Journal of African Earth Sciences	2	Semi-monthly
	Quaternary International : The Journal of the International Union for Quaternary Research	1	Weekly
	Tetrahedron	5,6,7,8	Monthly
	Tetrahedron Letters	6,8,8,9,10	Monthly
	Tetrahedron, Asymmetry	1,2,3	Weekly
Wiley	International Journal of Climatology : a Journal of the Royal Meteorological Society	1	Semi-monthly

Table 4: Publishers & journal titles whose electronic issues lagged behind print issues

PUBLISHERS FOR WHOM WE RECEIVED OVER TEN ISSUES DURING SURVEY

Elsevier Science

Sixty-four issues were received during the survey period. 61% of the print issues were also the most current issue number available electronically. 28% of the print issues received revealed future issue numbers already available electronically. Electronic issue availability lagged behind the print issue for 11% of the total print issues received. Four high-interest titles were selected from these 11% and issue availability was checked a second time in an effort to identify possible electronic publishing patterns. For example, on 23 June 1999, when the SIO Library received the print copy of FEMS Microbiology Letters, 175:2, the most current web issue was 175:1. The site was re-checked on 2 July 1999, when not only 175:2 but also 176:1 had become available. Marine Structures demonstrated a similar electronic trend by the web being one issue behind the print on day of receipt, but managed to catch up and even be ahead one issue just

eight days later. Environmental Pollution was one issue behind the print version on the date of receipt. The timeliness of Trends in Ecology & Evolution was of particular interest when the website was seven issues behind the current print issue on the day of receipt. The second search just one month later, revealed the title was not only current, but also even one issue ahead of the latest print issue received by the SIO Library.

Pergamon Press (Elsevier Science)

Forty-eight issues were received. 21% of the print issues were also the most current issue number available electronically. Electronic issue availability lagged behind the print issue for 58% of the total print issues received. 21% of the print issues received revealed future issue numbers already available electronically. Elsevier's Pergamon electronic publishing is obviously at a different stage of electronic publishing development than the rest of Elsevier. Two examples are Tetrahedron and Tetrahedron Letters. The ejournal version of Tetrahedron was eight issue numbers behind our receipt of a print issue. This same issue number was checked again one week later and the electronic holdings were improved but still four issues behind the print issue number we had received one week prior. Tetrahedron Letters also lagged behind the print by eight issue numbers on the day of receipt and still six issue numbers behind one week later.

Academic Press

Seventeen issues were received. 59% of the print issues were also the most current issue number available electronically. 41% of the print issues received revealed future issue numbers already available electronically. Journal of Molecular Biology was particularly timely, averaging three electronic issue numbers ahead at the time of print issue receipt.

American Chemical Society

Seventeen issues were received. 59% of the print issues were also the most current issue number available electronically. 41% of the print issues received revealed future issue numbers already available electronically.

American Meteorological Society

Thirteen issues were received. 92% of the print issues were also the most current issue number available electronically. 8% of the print issues received revealed future issue numbers already available electronically.

PUBLISHERS FOR WHOM WE RECEIVED TEN OR LESS ISSUES DURING SURVEY

A longer survey period with receipt of more print issues would give a better picture of these publishers from whom we received ten or less issues during the six week survey period.

Cambridge University Press: Eight issues were received and seven of them were either the most current issue number available electronically or the electronic version was one or more issue numbers ahead of print.

Kluwer Academic Publishers: Ten issues were received and all were either the most current issue number available electronically or the electronic version was one or more issue numbers ahead of print. Hydrobiologia is four issue numbers ahead electronically compared to print.

University of Chicago Press: Nine issues were received and all were either the most current issue number available electronically or the electronic version was one or more issue numbers ahead of print. University of Chicago Press has an outstanding ejournal performance compared to print which may be another way of saying that they need to mail out their print issues more quickly!

Oxford University Press: Nine issues were received and all were either the most current issue number available electronically or the electronic version was one or more issue numbers ahead of print.

Springer-Verlag: Eight issues were received and all were either the most current issue number available electronically or the electronic version was one or more issue numbers ahead of print.

Wiley: Seven issues were received all but one was either the most current issue number available electronically or the electronic version was one or more issue numbers ahead of print.

DISCUSSION

In general, an ejournal issue number is available to our users ahead of our receipt of the corresponding print issue number either by days or weeks or by one or more issue numbers --- 84% of the print journal issues we received fit this statement. Can we drop a print subscription and rely on an electronic subscription? The indicators are positive. What are some collection development issues?

Academics and other users often express strong preferences for some titles to be continued in print, especially for key titles. Journals are their scholarly lifeblood so adaptation to change takes some time. Some academics may need a bridge period to become comfortable with relying on the electronic version instead of the print. The economics of library funding may well set the pace for dropping print and

relying on online more than the level of academic acceptance for the relatively new medium of electronic journal publishing. However it may certainly be advisable to move more conservatively on very high interest titles impacting the largest numbers of users. Starting with the lower interest and/or very expensive titles would be a wise strategy.

It is unclear at this time whether one should rely solely on the electronic version of a journal containing images of very high quality that may not be available at such high quality electronically, e.g. satellite images and electron micrographs. So one factor may be the journal content. Another factor is archiving. It is unclear at this time whether the archival version of a journal is the print version or the online version; publishers differ on this issue. Your collection may have an archival role that you don't wish to surrender to the vagaries of commercial and society electronic publishing, particularly the ownership status of electronic backfiles when titles change publishers. Your library may be considered the archival collection for marine science for your campus, university, or consortium and you would be expected to have an archival print subscription while everyone else (including you) has access to the electronic version.

Another factor to consider is the possible lack of renewal of an electronic journal contract in the years ahead. If print subscriptions are dropped based on electronic availability through a consortium, what happens when the consortium fails to sign a contract renewal? Does your contract cover continued backfile access beyond the contract period? One hopes that titles caught out in such a situation are not high interest or core titles for one's collection interests. Once the funds are shifted away from a print subscription, it is difficult to find those funds again a few years later. In addition, it is difficult to find one-time funds to purchase a print gap while one relied on electronic.

SIO Library benefits from its presence with the University of California San Diego library system as well as the University of California library system. Thus our users have access to electronic journals beyond what SIO Library can accomplish with its own print subscriptions and/or its own resources. This consortial benefit affords SIO Library the opportunity to review its journal subscriptions in a very different light. These results have guided us in our thinking about print journal collection management, particularly for non-marine science journals that are available elsewhere on campus or in the university system. SIO Library is considered a systemwide resource collection for oceanography among the University of California libraries. Marine science journals will undoubtedly be continued in print at SIO Library in an archival capacity, even if a campus or university-wide site license to electronic versions is available. However every print journal subscription that is not marine science in scope and is also available electronically is now very open for consideration as a result of this study. Particularly of interest are journal titles that SIO Library duplicates in print with sister libraries on campus and for which SIO Library is not the core subject collection, e.g. chemistry, physics, molecular biology, genetics, cell biology. Some of these areas include relatively expensive titles so the benefit of consortial electronic access is significant.

Results of this study helped SIO Library better represent the status of electronic journal publishing to our academics and other users. Previously SIO Library could say we had access to a large group of electronic journals but we couldn't say much about the quality of that access in the most critical factor of timeliness. Now we can say something and it is very positive indeed.