

From Books to Bytes: Changes in the ESO Libraries over the Past Decade

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Ten years in the lifetime of an astronomy library may not be much, but the past decade brought many changes, and it may be worthwhile to pause for a moment and look back. Ten years ago, we spent most of our time doing paper work, dealing with incoming invoices and processing new books. Our tasks centred on the publications physically located in the libraries.

Today, the physical library sites have decreased in importance, and the virtual library is about to take their place. The Internet has become the essential tool to retrieve information and provide rapid service to our users. Instead of making publications available in the library, it has become more important to provide access through the library so that astronomers can reach them conveniently from their desktops.

The Early 90s: Focus on the In-House Library Collection

During the early nineties, ESO maintained libraries in Garching and at La Silla as well as a smaller third library in La Serena. The main focus of our attention was on the resources physically available in the ESO libraries. Book acquisitions, journal issue check-in and other technical tasks demanded a large amount of time. After payment, all purchased items belonged to the library. The concept of "fair use" allowed us to photocopy journal articles for personal and research purposes as well as to send them to requesting libraries through inter-library loan. This assured (almost) equal and fair access to the scientific literature for researchers from rich and less fortunate institutes alike. Continued access to the astronomical literature was guaranteed because libraries archived publications of long-lasting interest.

Newsletters and reports from observatories around the world brought information about ongoing projects to the astronomers' attention. Occasionally, ESO scientists and engineers needed articles and books that were not available at ESO. Document delivery services were not yet in place, and obtaining publications from other libraries was a time-intensive process.

Many astronomers stopped by the library regularly to look at new journal issues, preprints and latest book acquisitions. Their visits provided ample op-

portunities for discussion about library matters and for suggestions and comments.

The Mid-90s: Electronic Journals

The Internet revolutionized communication and information access. In order to bring the library holdings to the astronomers' desktops, our catalogue became available online in 1992. At that time, access was via a non-graphical telnet interface that was replaced in 1996 by a more user-friendly web catalogue. A paradigm shift in information retrieval occurred in the mid-nineties with the advent of electronic publications. They opened a whole new world of challenges as well as concerns (see Table 1, top). Archiving electronic documents became one of the most heatedly discussed topics among librarians. E-publications cannot be stored once for good like paper documents, assuming that they will always be usable as they were at the time of their creation. Technology is changing rapidly; microfilm, microfiche, and the 5.25" diskette remind us how quickly storage media and the corresponding reading devices can become obsolete. In the early days of electronic publications, various archiving models were considered, ranging from off-line storage on CD-ROMs to simply discarding archives after some years. To date, a definitive solution is still pending.

We have spent a lot of time understanding, reviewing, and negotiating license agreements for electronic journals. Previously, copyright had determined for which purposes publications could be used, but these regulations were not extended to the electronic environment. Instead, contracts had to be signed which often reduced user rights and left questions, in particular regarding future access. What will happen if subscriptions end? Will we be allowed to access the volumes we already paid for after cancellation, or will we lose access to back issues? Will archives be maintained if a journal ceases publication or a publisher is sold to another company? Like many other observatory libraries, ESO does not belong to a university system where contracts are negotiated and signed by the central library for all affiliated branch libraries. This means that we have had to discuss any amendment directly with the pub-

lisher, trying to achieve the best possible conditions for our users. Some electronic journals were not subscribed because of unacceptable usage conditions or outrageous prices. During these years, communication and networking among astronomy librarians was invaluable. In 1988 the first conference on *Library and Information Services in Astronomy* (LISA) was held, and there was a strong wish among the community for another meeting. LISA II took place at ESO Garching in 1995; it provided an excellent opportunity for discussion about the changing world of libraries not only among librarians, but also with participating astronomers, publishers and computer specialists.

With the growing acceptance of the *arXiv.org* (astro-ph) e-print server since 1996, preprints were undergoing major changes. Electronic preprints allowed astronomers to distribute research results long before publication in journals, and observatories, in order to save on shipping costs, considered switching from paper to electronic format. This trend became obvious in our libraries when we started to receive lists of titles and authors instead of the actual preprints. Later, even these were substituted by pointers to the institutes' web pages where preprints were made available. It was a logical consequence to provide access to these web sites from our library pages. For the ESO libraries, the World Wide Web has always been an attractive way of providing information. Already in the early nineties, we began to explore its opportunities, and the library homepage was among the first at ESO. Since then, the content and layout have undergone several changes, and the number of pages has grown considerably. In particular for new users, the homepage often is the first point of contact with the library (www.eso.org/libraries/).

In 1994, the La Serena library was transferred to La Silla, the one at La Silla, in turn, moved to the Vitacura offices in Santiago. From that time onwards, the La Silla library was unstaffed except for occasional visits by the librarian. In the course of the years, its usage decreased, and book purchases were slowly reduced to reflect the changed user behaviour. Rising journal subscription costs, partly resulting from considerable extra fees for electronic access charged by some publishers,

were a constant matter of concern. In 1999, cancellations of less frequently used journals became necessary. This marked the beginning of a change from purchasing publications “just in case” to “just in time” – documents were no longer obtained because someone may eventually be interested, but only when they were actually requested. It was our responsibility to find the most cost-effective and efficient solution for each publication.

2000 Onwards: Virtual Libraries

Despite the increasing availability of electronic documents, print publications continue to arrive in our libraries as before. Up to now, electronic format hasn't replaced paper, but complements it. For most journals the print edition is still regarded as the reference version, and astronomy books are not even available yet in electronic format. Traditional library tasks like bookbinding, journal check-in, and book processing still demand their share of time. On the other hand, it is obvious that collection development in the digital age takes on a new face. The notion of all purchased publications being physically located within the four walls of our libraries has ceased to exist. Electronic books, once they are of importance in astronomy, will have to be integrated into our catalogue. Bibliographic records of electronic journals already contain hyperlinks to journal homepages so that users can access them seamlessly from the webcat. In 2002, ESO Management decided to establish an electronic-only library at the VLT telescope site at Paranal. The number of books purchased for Paranal will be kept at the very minimum and journals will be available in electronic format only. Also for the La Silla library, the emphasis will be on electronic access from now on. As a first step, existing print subscriptions including core astronomy journals were stopped for La Silla. The trend seems to be clear: astronomers retrieve publications electronically and print them locally. Figure 1 shows the number of *ApJ*, *AJ* and *PASP* article downloads from 2000 to 2002; the total number in-

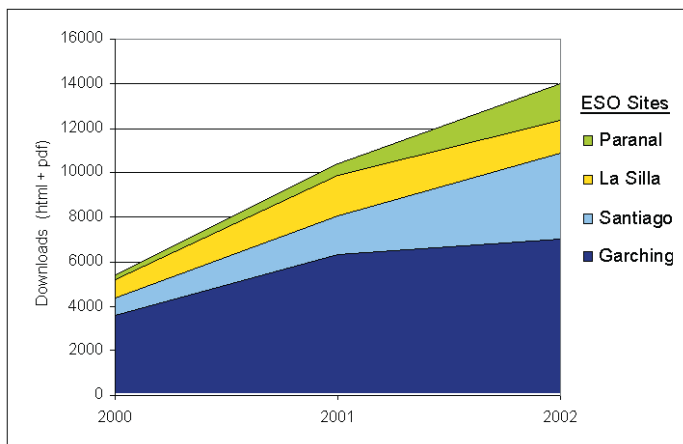


Figure 1: Article downloads from major astronomy journals, 2000 – 2002.

	Early 90s	2000+
Print versus Electronic Publications		
Format	Print documents	Electronic (networked) documents
Material location	Library	Publishers' servers
Usage rules	Copyright	Contracts
Purchase concept	Library owns purchased publications	Access only for duration of contract
Archiving	Done by libraries	To be determined
Information Retrieval and Provision		
Information access	Locally in the library	From anywhere, at any time
Information resources	On paper	Interconnected databases; non-electronic resources become marginalised
Library visibility	Users are aware of the library and its services	Users bypass the physical library; library role becomes invisible
Past and present		
Library Mission and Role		
Mission statement	Fulfill the information needs of our users by selecting, collecting, preserving, and providing access to relevant resources	
Tools	Monitor, evaluate and, if appropriate, apply available information retrieval tools	
Interaction with users	Tailor library services according to the specific needs of users	
Mediation	Learn about requirements of library users; use results for service enhancement within the library and as feedback to publishers	

Table 1: What has changed and what hasn't: Library functions and role in the past decade.

creased by a factor of almost 2.6. Some questions remain though: How will astronomers cope with this approach in the long run? Will increased demand for electronic format result in even higher prices for e-journals? Will print-only resources be neglected completely in future?

During recent years, the library has become involved in bibliometric studies to measure scientific return from telescopes. Since the early nineties, we have compiled the bibliography of papers by ESO staff and visitors. While its initial purpose was to provide a complete list of publications for the ESO Annual Report, it has matured into a database on the use of ESO telescope data in refereed journal articles, including information on the instruments used for observations as well as observing programme IDs. These data may be linked to the AVO (Astrophysical Virtual Observatory) databases in the future.

The electronic age has been upon us for several years now. Astronomers have become used to interconnected resources being available from any-

where, at any time through the Internet, and they often bypass the library in their search for information. Our role in providing access to information resources has become invisible; many of the tasks we accomplish are not immediately noticed by the users, or are not attributed to libraries. The question may arise: do we still need libraries? The answer can be illustrated by an anecdote that dates from the time of LISA II. During program preparations, one of the organizers (not a librarian) suggested to change the full name of the conference to *Library and Information Systems in Astronomy*, but the librarians insisted that the S stands for Service, and the original name remained unaltered. Personalized service, tailored to the individual needs of the library users, distinguishes libraries from software tools. The “human factor” remains important also in the digital age, be it for “troubleshooting” if things go wrong or for tricky cases of information retrieval for which users appreciate assistance. Although many changes have occurred in library management and information provision during the past years, the library's mission and role are still the same (Table 1): we fulfil the information needs of our users by selecting, collecting, preserving, and providing access to relevant resources. We monitor, evaluate and, if appropriate, apply available information retrieval tools. By communicating with library users, we learn about their requirements and use the results for service enhancement within the library and as feedback to publishers and information providers. In this way, we sustain the traditional library functions and at the same time respond to the changes that occur in the way astronomers do their research today.