

Observatory Publications — Quo Vadis?

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Abstract.

In the first part we discuss briefly the history of observatory publications. Then we express our opinion about the role and value of observatory publications as inexpensive means of information exchange. We think that observatory publications should be preserved on the web, and we argue that the tradition of observatory publications should be continued, The web could provide the effective means for circulation. Moreover, we introduce the idea of preserving the contents of observatory websites in the form of observatory publications: in linear text form, bound to finite volumes, and numbered as a part of a series (note that this does not necessarily involve paper). Observatories should cooperate with databases, they would need methodological help, standards should be strengthened, and the community of astronomy libraries should take part in this effort.¹

1. History of observatory publications

Even in the most ancient of days, astronomers found it indispensable to record their observations. Throughout the millennia, observations were communicated in greatly varying methods, ranging from cuneiform clay tablets to digital media.

Before the era of book-printing, observations were preserved in manuscript form. With the advent of typography came the printed calendars. Regiomontanus' *Deutsche Kalendarium* had countless Hungarian editions in the 1600's, whilst the geographer David Frohlich published his calendars in native Hungarian. Contrary to earlier calendars, this had accepted the Copernican system. The Jesuit University of Nagyszombat started the regular publication of calendars ever since 1679. These had already contained astronomical articles, some of which referred to observations made.

¹The slides of the talk are available from: <http://www.konkoly.hu/staff/holl/prague/0.html>

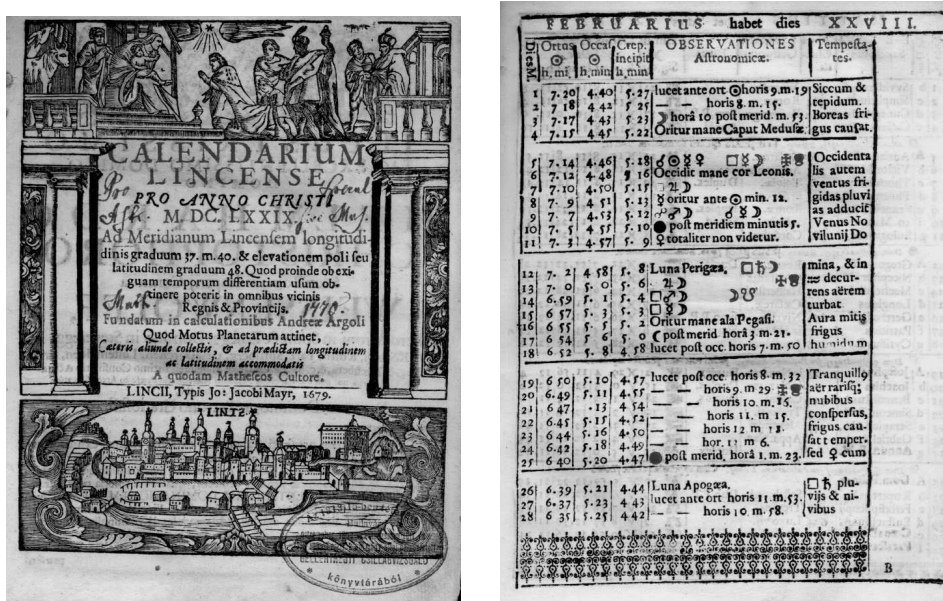


Figure 1. A Nagyszombat calendar

Ephemerides and other tables were published in manuscript and later in printed format. Regiomontanus, who worked in Hungary for a time, published the "Tabulae Directionum" and "Tabulae magna primi mobilis".²

Meanwhile, the correspondence of astronomers provided means for communicating discoveries and observations rapidly, and this was facilitated by the regular traffic of postal coaches. Several scientific discoveries had first come to light in these letters. Ferenc Weiss, head of the Observatory at Nagyszombat engaged in extensive correspondence with renowned astronomers, like J.J. Lalande, Ch. Mayer and P. Wargentin (Vargha 1990, 1992). These astronomers regularly sent their results to Nagyszombat, which gesture was reciprocated by Weiss sharing his own results.

Now the first astronomical almanac in the world was the "Connoissance des Temps", launched in 1679, and still surviving to this day. Apart from astronomical tables, it also, albeit sparingly, started to include observations, and general ideas and thoughts, in the form of letters addressed to the editor. An example worth mentioning is Franz Xaver von Zach's obituary of Sylvain Bailly, which was included in the almanac in the form of a letter addressed to de Lalande.

From the mid-eighteenth century numerous almanacs were launched one after the other. These collected observations made in different places. Such was Hell's "Ephemerides Astronomicae" (from 1756) and the "Astronomisches Jahrbuch" from Berlin, which was published regularly from 1774.

²IOHANNES REGIOMONTANUS: CANONES LXIII IN TABULAM PRIMI MOBILIS (Hungarian National Library), http://www.oszk.hu/kiallit/cimelia/magyar/2/k_02_24.htm

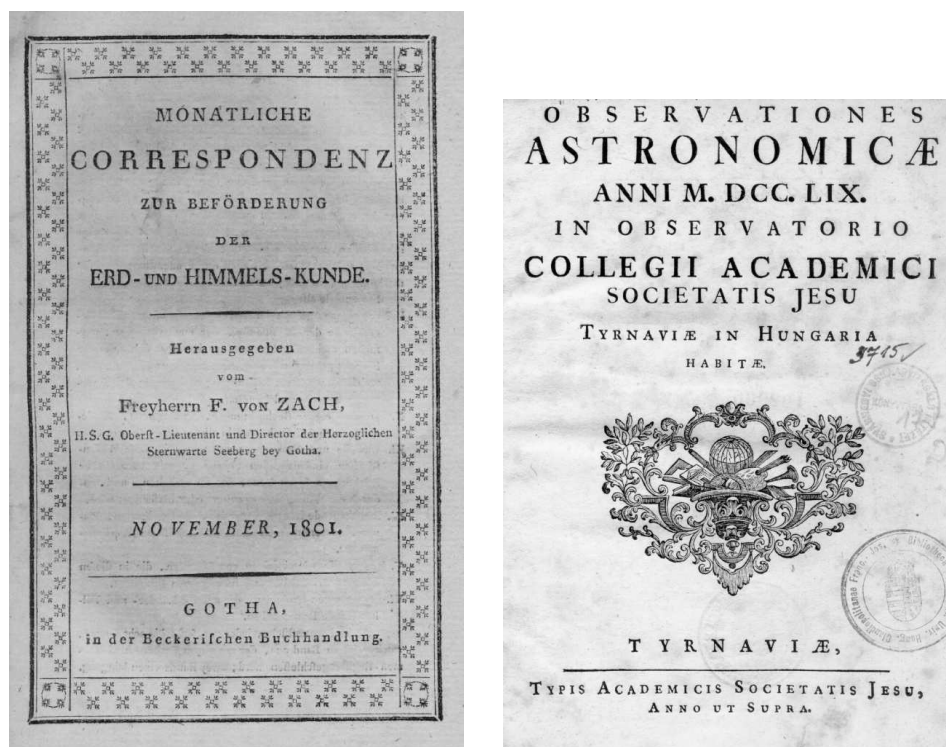


Figure 2. The first astronomical journal: the "Monatliche Correspondenz", and an observatory publication from Nagyszombat

To promote the fast exchange of information, on the first of January 1800, the first astronomical journal was born. It was the "Monatliche Correspondenz", under the editorship of Zach - the same person who had organised the first international conference in astronomy, and initiated the first international survey project (searching the "missing" planet between Mars and Jupiter).

From the 1750's certain observatories deemed it necessary for their observations to be regularly made available in print. In Hungary, the Observatory of Nagyszombat University issued the "Observationes Astronomicae Tyrnaviensis" between 1756 and 1770, its editor being Ferenc Weiss. The Observatory later moved to Buda together with the whole of the University. A new Observatory built decades later on the top of St. Gellert's Hill published only one volume of its observations.³

By the 19th century observatory publications (OP's) became very important pulling together astronomers. To see this, we only need to mention such grandiose projects as the Potsdam Catalogue, the BD and the Cordoba Durchmusterung. Observations were not the only topic for OP's - the "Harvard Monographs" series published important textbooks on different fields of astrophysics. Other OP's published correspondence of astronomers, and so on. Library ex-

³Observationes Astronomicae..., Daniel Kmeth, 1821, Buda

change was one of the important links between institutions and societies. The Hungarian astronomer Karoly Nagy has established relations between the Hungarian Academy of Sciences and the American Philosophical Society, starting a regular exchange of publications.

The observatory founded by Miklós Konkoly-Thege in Hungary, at Ogyalla, published the first of its "Beobachtungen" in 1883. Several catalogues were published by Konkoly's Observatory: a spectral catalogue, a photometric catalogue, and photometry of variables.⁴ The little observatory of Kalocsa published a long series of solar observations of prominences and sunspots.⁵

2. Role and value

In their prime observatory publications carried a huge amount of information, more than, or comparable in volume to journals. Several of them were of high scientific standard, guaranteed by the standing of the publisher (the Observatory), and the editor (most often the director). It had been quite usual that the director was displayed as the author. OP's contain highly important catalogues⁶ and observational material still used and cited.⁷

The most frequently cited papers published in the Konkoly Obs. Communications are those containing large observational material of variable stars.⁸

OP's provided an inexpensive means of information exchange. There would have been no chance for Hungarian observatories in the 19th or the early 20th centuries to collect the material now preserved in Konkoly Obs. Library without library exchange. About 25-30% (by volume) of the Konkoly Obs. Library collection consists of OP's.

A further important role of the OP's was that they provided a unique vista on the scientific program of the publishing institution. Today, when telescopes are mostly national/international facilities, observatories have discontinued their publications, and with that, we feel: they have also lost much of their "character".

⁴Spektroskopische Beobachtung der Sterne zwischen 0° und -15° zu 7.5ter Grosse; N. Konkoly; Halle, 1887; Beobachtungen... Ogyalla, 8/II, Photometrische Durchmusterung des Sudlichen Himmels, I.; A. Tass, L. Terkán; Ogyalla 1916; Publ. Kon. Ung. Astr. Obs. I. Photometrische Beobachtungen Verand. Sterne; A. Tass; Ogyalla 1918 - Budapest 1925; Publ. Kon. Ung. Astr. Obs. II.

⁵Protuberanzen beobachtet in den Jahren 1888., 1889., 1890 am Haynald- Observatorium von J. Fenyi S.J., Heft VIII., Kalocsa, 1902

⁶Both the BD and HD were published in OP's.

⁷A recent example: Jurcsik et al., 2001, AJ 121, 951 cites Harvard Ann., Bamberg Veroff., Leiden Ann., D. Dunlop Publ., Harvard Obs. Circ., Harvard Coll. Obs. Bull. among others.

⁸Examples from Konkoly Obs. Communications/Mitteilungen: No. 58: Szeidl: RR Lyrae Stars in Messier 3; No. 63: Szeidl: Some Variable Stars in Messier 3; No. 70: Szabados: Northern Cepheids, I.; No. 71: Olah and Szeidl: Period Changes of RR Lyraes I.; No. 76: Szabados: Northern Cepheids, II.; No. 77: Szabados: Northern Cepheids, III.; No. 80: Patkos: UBV Photometry of SV Cam 1973-80; No. 94: Szabados: Period changes...; No. 96: Szabados: Northern cepheids...

3. Preserving observatory publications on the web

We maintain the following: that the rich heritage contained in OP's should be preserved, and made more easily accessible through the Internet. Pages should be scanned and made available in image format, while tables should be converted to machine-readable format (ASCII being the best). The important catalogues originally published in OP's are, for the most part, available electronically - but smaller tables, and observational material are not. The most important task would be digitizing those containing observational material still relevant, like variable star photometry.

Bibliographic information should be entered into ADS. This is not as easy as it may seem - for instance, Konkoly Obs. has published its communications under different names, while the Observatory itself has changed name several times.⁹ Not all of papers had abstracts, and the language is not always English. Furthermore, some OP's were published by observatories that do not exist any more.

Konkoly Obs. Mitteilungen/Communications are already present on our webpages. The first 50 issues are represented merely by a table of contents, from No. 51. onwards there are abstracts, No. 100. is available fully in PostScript.¹⁰ ADS contains the first few issues of Mitteilungen/Communications in image form, and bibliographic information is present in the Abstract Service for the full series. We intend to scan all the back issues, and provide important tables (observational material) in ASCII as well.

4. Continuing observatory publications on the web — preserving web contents in observatory publications

We are also arguing that the tradition of observatory publications should be continued, making use of modern technical possibilities. We feel that today, the primary role of OP's should be preserving certain kinds of observational material (i.e. photometric observations), and publishing papers based on observational material gathered with local facilities, together with the description of the instrumentation used.

We think that scientific standards could be kept high: OP's should be peer-reviewed, just like mainstream research journals. The web could be the effective means for circulation. Electronic OP's should be closely linked to the existing bibliographical and astronomical databases, which provide visibility to the papers.

The recent shift towards commercial journals puts a heavy burden on library budgets. Investing in its own electronic publication system, and accessing OP's of others freely (in essence, the modern form of library exchange) would be much

⁹Mitteilungen der Sternwarte Budapest-Svabhegy; Astronomische Abhandlungen des Kon. Ung. Astr. Obs. von Konkoly's Stiftung in Budapest-Svabhegy; Mitteilungen der Konkoly-Sternwarte Budapest-Szabadsaghegy; Mitteilungen der Sternwarte der Ung. Akad. der Wiss. Budapest-Szabadsaghegy; Communications from the Konkoly Observatory of the Hung. Acad. Sci.

¹⁰<http://www.konkoly.hu/Mitteilungen/Mitteilungen.html>

NASA Astrophysics Data System (ADS)

Bibcode: MTACL...1 [Thumbnails](#) [Previous page](#) [Next page](#)

ASTRONOMISCHE ABHANDLUNGEN DES KÖN. UNG. ASTROPHYSIKALISCHEN
OBSERVATORIUMS VON KONKOLY'S STIFTUNG IN BUDAPEST-SVÁBBEGY
HERAUSGEGEBEN VOM DIREKTOR
Band I. Nr. 1.

ÜBER DIE
RÄUMLICHE VERTEILUNG
DER STERNE

VON
Dr. LADISLAUS DUNST

BUDAPEST, 1929

John F. Wilkes Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

Figure 3. The first Konkoly Obs. Mitteilungen in ADS

cheaper to observatories than maintaining the recent subscriptions for several journals. From the mainstream journals only the best and the most cost effective (noting their scientific value over price) should be subscribed to. A reference to the Budapest Open Access Initiative should be made here.¹¹ This initiative launched at a meeting of the Open Society Institute held in Budapest, calls for free and unrestricted availability of scientific literature in electronic form.

Konkoly Observatory continues the publication of its *Communication/ Mitteilungen* series, and new issues are fully available on the web, both in PostScript and HTML (with tables in ASCII, starting from No. 101).

Moreover, we would put forward the idea of preserving some of the contents of observatory websites in the form of observatory publications: in linear text form, bound to finite volumes, and numbered as a part of a series. Note that this does not necessarily involve paper. Nowadays, observatory websites contain huge volume of information. Archiving, quality, referability are problems, just to mention a few. Condensing the essence of this information in the form of electronic OP's would be beneficial for future generations.

5. Technical possibilities, standards, support

To achieve all of this, observatories need technologies for running their electronic publications with similar service level as present mainstream journals. An important part of this is inter-linking information with databases. Technologies, standards already well established in astronomy, like the use of BIBCODE's (Schmitz et al. 1995),¹² the tagged bibliographic descriptions used by ADS,¹³ the GLU system developed at CDS (Fernique et al. 1997),¹⁴ should be employed. Moreover, initiatives outside of astronomy should be watched closely, like the Open Archives Initiative¹⁵ (Lagoze et al. 2001) and the Open Citation Project.¹⁶ The OAI aims to build the inter-operability framework for E-print archives, while the OpCit targets reference linking and citation analysis for open archives.

The Observatories need methodological help, and strong standards are required, which, at the same time, have to be flexible enough to be of use for the different kinds of publications that will emerge. There is a need for cooperation between astronomy libraries - both in improving the standards, and for taking care of publications of observatories that no longer exist.

¹¹<http://www.soros.org/openaccess/>

¹²<http://simbad.u-strasbg.fr/guide/node45.html> and
http://adsabs.harvard.edu/abs_doc/help_pages/data.html#bibcodes

¹³http://adsabs.harvard.edu/abs_doc/help_pages/taggedformat.html#taggedformat

¹⁴<http://simbad.u-strasbg.fr/glu/glu.htx>

¹⁵<http://www.openarchives.org/>

¹⁶<http://opcit.eprints.org/>

Finding the suitable data format and archiving/backup/migration policies is of great importance. OP's that are 200 years old are still readable, modern publications should be preserved for just as long a time.

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