

COMMISSION 6

ASTRONOMICAL TELEGRAMS

TELEGRAMMES ASTRONOMIQUES

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TRIENNIAL REPORT 2009–2012

1. Introduction

As earlier, the main activity of the Commission was performed by the Central Bureau for Astronomical Telegrams (CBAT), effectively directed by Dan Green. These three years were a difficult period for the Bureau and thus for the Commission because the Bureau unexpectedly had to move from the Smithsonian Astrophysical Observatory, its home since 1965, to the Harvard University's Department of Earth and Planetary Sciences. This move caused many serious administrative and logistical problems, effectively solved by the CBAT Director, Dan Green, and CBAT Director Emeritus, Brian Marsden. A great shock, not only for our commission but for the whole astronomical community, was Brian's death on November 18, 2010.

The flow of new astronomical discoveries becomes stronger and stronger, making the activity of the CBAT an increasingly difficult job, and funding remains a serious problem. We are most grateful to all institutions, listed in the CBAT report below, who provided funds permitting to continue this work, really needed by the astronomical community. Special thanks are due to the Department of Earth and Planetary Sciences for providing new home to the CBAT. We also gratefully acknowledge the cooperation between the CBAT and the Minor Planet Center.

In my opinion, the *IAU Circulars*, the CBAT Electronic Telegrams (*CBETs*), facilities provided by the CBAT web site remain one of the most important means of informing the astronomical community on discoveries of objects of special interest. Personally, I would like to thank Dan Green for his great effort and energy, which made my work as the Commission President very easy.

N. N. Samus
President of the Commission

2. Report of the Central Bureau for Astronomical Telegrams

There were 264 *IAU Circulars* and 1334 *Central Bureau Electronic Telegrams (CBETs)* issued during the triennium 2005-2008:

Dates	Circulars	CBETs
2008 July-Dec.	Nos. 8957-9007	Nos. 1423-1640
2009 Jan.-June	Nos. 9008-9054	Nos. 1641-1864
2009 July-Dec.	Nos. 9055-9103	Nos. 1865-2107
2010 Jan.-June	Nos. 9104-9156	Nos. 2108-2344
2010 July-Dec.	Nos. 9157-9190	Nos. 2345-2612
2011 Jan.-June	Nos. 9191-9220	Nos. 2613-2756

This was the third Triennium in which the Central Bureau issued electronic-only *CBETs* to aid in the rapid dissemination of reports. The *CBETs* have evolved into a full supplemental and complementary publication to the *Circulars* during this past Triennium, reflecting the move toward electronic publication and away from printed publication. It is the intention that all announcements of objects — except for supernovae — requiring designation by the Central Bureau (novae, comets, solar-system satellites) continue to be noted on the printed *Circulars*; supernovae are now published almost entirely on *CBETs*, due to their great numbers, so publication of most items regarding supernovae on the *Circulars* has ceased due to the unfortunate lack of sufficient financial support from the supernova community (though a few supernova researchers generously continue to be long-time supporters of the CBAT through their paid subscriptions).

Subscribers may receive the *Circulars* in printed and/or electronic form, the latter being available by e-mail or by logging in to the Computer Service, either directly on the Bureau's computers or via the World Wide Web. Since 1997, the *Circulars* have been made freely available at the CBAT website, but following complaints by paying subscribers, the general delay in posting for non-subscribers is now about one year (expanded in late 2004 from the previous 4-6 weeks). The *CBETs* are also posted at the CBAT website, with the earlier *CBETs* also available freely (and, like the *Circulars*, are indexed via the web-based bibliographic "Astrophysics Data System", the ostensible replacement to the now-defunct *Astronomy and Astrophysics Abstracts*).

Funding is currently being sought to allow the CBAT to post all electronic *Circulars* and *CBETs* freely. However, the CBAT still functions primarily based on paid subscriptions. The U.S. National Science Foundation accepted a proposal to fund the CBAT Director's salary at a 50-percent level during February 2008-January 2010. The Director of the Smithsonian Astrophysical Observatory then decided in 2009 that he no longer wished the CBAT to be located at SAO, its home since 1965, and the CBAT Director obtained an invitation from the Department of Earth and Planetary Sciences (under Prof. Stein Jacobsen) at Harvard University to move the CBAT there; this move was accomplished during February-August 2010, with the CBAT transitioning from computers at SAO to new ones at EPS/Harvard during the course of the year 2010.

The CBAT thanks Assistant CBAT Director G. V. Williams for help in the computer transition, as well as Michael Rudenko (SAO) in this regard. Thanks also go to Prof. Jacobsen and the EPS Department at Harvard for generously provided office space and the infrastructure to keep the CBAT running seamlessly during the transition. The CBAT also gratefully acknowledges a couple of grants from the Tamkin Foundation (Los Angeles, California) to help with purchasing new computer equipment, following its long commitment to funding the CBAT with the Minor Planet Center at SAO. Director Emeritus Brian G. Marsden also was instrumental in helping get the CBAT moved from SAO to EPS/Harvard, until his untimely death on 2010 November 18. Great additional effort

is being expended by the CBAT Director to seek alternate — and more extensive and long-lasting — sources of income, including from international sources.

The number of subscriptions to the printed *Circulars* was under 100 at the end of June 2008, continuing the slow decline (the number of such subscriptions peaked around 800 in the 1990s); the cost of printing the *Circulars* has continued to pay for itself from paid subscriptions to the printed *IAUCs*, so this printing will be maintained until the point is reached where a loss occurs. The Computer Service has also slowly declined by about 10 percent in the last triennium (to just under 400 in June 2011).

Supernovae and comets have continued to dominate the activities of the Bureau, as related in the annual reports of the Bureau as published in the *IAU Information Bulletins* and made available at the Commission-6 website

(URL <http://cfa-www.harvard.edu/iau/Commission6.html>). The pattern continues regarding increasing numbers of comet discoveries from NEO surveys being first reported as objects of asteroidal appearance, where they are often posted on the MPC's "NEO Confirmation" webpage because of their unusual motion – follow-up observations then showing some of the objects to be of cometary appearance. The working link between the CBAT and MPC continues to be highly useful in the joint announcement of such objects. *CBETs* were issued in the past three years by Marsden, Williams, and Rudenko in their generous assisting of the CBAT Director upon his travels.

A huge change in the way that the CBAT deals with extra-solar-system discoveries of novae, supernovae, and other variable/transient objects was planned out in 2010 and implemented at the beginning of 2011: the Bureau's new "Transient Objects Confirmation Page" (TOCP), which was modelled somewhat after the Minor Planet Center's "Near-Earth-Objects Confirmation Page" (NEOCP). The astronomical community had for years been asking for more automation to the manner in which the CBAT handles discovery reports, and the TOCP has successfully answered the problem surrounding manual intervention by CBAT staff, where staff members cannot be available 24 hours a day to issue reports of new discoveries. The TOCP, then, permits registered users to post discovery information immediately at the TOCP website; the main TOCP page (which can be found at website URL <http://www.cbat.eps.harvard.edu/unconf/tocp.html>) lists all of the spectroscopically unconfirmed objects that have been posted at the TOCP, while a second TOCP webpage has objects that have been removed from the TOCP (and noted as having been published on *CBETs/IAUCs* or having some other explanation given). When posted on the TOCP, each object automatically gets a provisional TOCP positional designation in proper IAU format (of the form TCP J12345678+0123456; prefixes PSN and PNV also used) and is given its own webpage, upon which follow-up observations can be contributed by registered users. The TOCP has become very popular among both professional and amateur astronomers, and many amateurs are contributing useful confirming observations in real time to the TOCP website. The CBAT continues to maintain its "Astronomical Headlines" webpage, which contains discovery information of all objects announced by the CBAT; note that, with the change to EPS/Harvard from SAO, the website URL has changed to <http://www.cbat.eps.harvard.edu/Headlines.html>.

The project of working to scan in older printed *IAUCs* continued during the past triennium, as the first few hundred *Circular* cards (including two series of *Circulars* issued prior to the present series from Copenhagen and from Belgium) were scanned in and posted on the CBAT website. This was done initially using the Harvard College Observatory Library's copy, which has many damaged cards due to the fact that they were mailed in the first several decades with no protecting envelopes. Librarians at the U.S. Naval Observatory and the Copenhagen Observatory Library sent copies of hundreds of cards where cleaner copies were needed for the scanning, and their efforts are gratefully

acknowledged. Due to the transition from SAO to EPS/Harvard in 2010, this project was temporarily shut down (save for numerous requests that came from researchers who contacted the Director for information that they needed on specific objects, leading to the scanning and web-posting specific old *Circulars*), but the scanning of old *IAUCs* will be hopefully completed in the coming triennium.

The CBAT Director interacts with members of numerous other Commissions at the triennial IAU General Assemblies and during the course of the triennium by e-mail in efforts to increase the value of the CBAT to all astronomers, and all scientists are encouraged to dialogue with the CBAT Director regarding how the work of the CBAT can be more useful to their own work. For example, the CBAT works closely with Commission 22 to announce reports regarding both old and new meteor-shower activity and with the GCVS team in Moscow to issue formal new permanent variable-star designations to new Galactic novae.

The *IAU Circulars* have continued to serve as the official announcement medium for the annual Edgar Wilson Award for amateur discoveries of comets; the CBAT is attempting to move the Awards administration from SAO to EPS/Harvard, as the CBAT is officially responsible for the announcement of comet discoveries and names.

The CBAT, the IAU, and the astronomical community lost a giant with the death of Brian Marsden in late 2010. His selfless work to get astronomical discoveries out via the Central Bureau from its move to Cambridge in 1965 (and the Minor Planet Center from its move to Cambridge in 1978) until his death cannot be understated. A year later, Brian's absence is keenly felt particularly in the area of comets. He ably served as Director Emeritus to the CBAT from his retirement as Director in 2000, in many respects (including working together to issue new comet discoveries with the MPC, issuing *CBETs* while the current Director was travelling, and refereeing many items published by the CBAT).

Since the *IAU Circulars* are in fact refereed (to a greater extent than many contributors realize), the CBAT benefits from consultation with members of Commission 6 in their various areas of astronomical expertise, as well as referees from the general astronomical community.

D. W. E. Green
Director of the Bureau