

## COMMISSION 6

## ASTRONOMICAL TELEGRAMS (*TÉLÉGRAMMES ASTRONOMIQUES*)

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## **PROCEEDINGS BUSINESS SESSIONS, 11 August 2015**

### **1. Introduction**

IAU Commission 6 “Astronomical Telegrams” had a single business meeting during Honolulu General Assembly of the IAU. It took place on Tuesday, 11 August 2015. The meeting was attended by Hitoshi Yamaoka (President), Daniel Green (Director of the Central Bureau for Astronomical Telegrams, CBAT, via Skype), Steven Chesley (JPL), Paul Chodas (JPL), Alan Gilmore (Canterbury University), Shinjiro Kouzuma (Chukyo University), Paolo Mazzali (Co-Chair of the Supernova Working Group), Elena Pian (Scuola Normale Superiore di Pisa), Marion Schmitz (chair IAU Working Group Designations + NED), David Tholen (University of Hawaii), Jana Ticha (Klet Observatory), Milos Tichy (Klet Observatory), Giovanni Valsecchi (INAF/Italy), Gareth Williams (Minor Planet Center). Apologies: Nikolai Samus (General Catalogue of Variable Stars, GCVS).

### **2. Program**

Following the reorganisation of IAU Commissions and Divisions, Commission 6 will cease to exist at the end of this General Assembly. It served an advisory role to the CBAT.

Yamaoka, Green, Samus and Richard West had circulated a document ‘Reporting Astronomical Discoveries: Past Present and Future’, detailing the history and functions of CBAT. CBAT is the official worldwide clearing house for new discoveries of comets, solar system satellites, novae, supernovae, and other transient astronomical events. This

procedure has worked very well throughout the 20th century and into the 21st century. Discoverers have been honoured by the formal announcement of their discoveries in the publications of the CBAT.

Starting 10 years ago, there have been discussions on supernovae reporting and designations. This still needs more discussion. On 2015/06/15 Avishay Gal-Yam of the Supernova Working Group wrote: “Our first order of business would be to start the automated “name server” for SNe, so that we can return to SNe being regularly named already in 2016 (very few are named this year). A prototype software is in place and we will send you all a request for comments later this summer.”

Samus replied: “I completely agree that we should cooperate. However, I am deeply concerned about any automated naming systems. I already have a number of RR Lyrae stars in the GCVS with Supernova names (!), and they were announced as Supernovae during the strict IAU times! As for Novae, we are ready to continue the early-naming GCVS practice, suggested about 15 years ago by Green.”

Galactic novae used to be designated by the GCVS a year after discovery. However, since 2000 or so, the GCVS designation has been given at the same time as the nova is announced in the *IAU Circulars (IAUC)* or in a *Central Bureau Electronic Telegram (CBET)*. Schmitz commented that there can always be a cross identification between the GCVS designation and other names should other nomenclature become more popular.

### 3. Report of CBAT

Green presented a detailed report on the activities and funding of the Central Bureau for Astronomical Telegrams (CBAT). The report is included in the President’s report, appended below.

### 4. Questions / Discussion

The secretary of Division D Steering Committee (Elena Pian) was also disappointed at the relatively low number of votes for the “Supernova” Commission proposal, which had been submitted in early 2015 to IAU for a new Commission under Division D. However, it appears that, independent from the number of votes, the cause of this proposal was not well served by its too technical character. During the review, the Div D Steering Committee thought that the proposal submitted for a Supernova commission (that would have to take up some of the duties and scopes of C6) was too much oriented on technical problems and thus more suitable for a Working Group instead. This is the reason why “Supernova” was not approved as a commission but rather as a WG and the proposers encouraged to come back at the next opportunity (in 3 years) with a new commission proposal.

Schmitz suggested that the documentation part might be handled by a documentation working group within the newly created Commission B2 chaired by Michael Wise.

David Tholen noted that the IAU’s budget included an Office for Young Astronomers with a budget around 50k-100k Euros so he was surprised that CBAT wasn’t funded. Division presidents need to support CBAT.

Green recalled that the Beijing meeting of the EC asked him for a proposed budget and increase but nothing happened. He gets thousands of emails a year, most from the general public. So both CBAT and the MPC are important for publicity. Thus Green is mystified by the motives of the EC. He noted that Jay Pasachoff’s textbook advises reporting discoveries to the CBAT. So it is curious that there not more support from the EC.

Yamaoka noted that new Commission C2 Astronomy Education and Development was promoting professional-amateur cooperation. He proposed that CBAT act as a pipeline or contact point.

Yamaoka had heard that all *CBETs* would be accessible to all enquirers after July. Green corrected this impression. There is no access without a password. After one year *CBETs* and *IAUCs* are freely available. Yamaoka reported that some Japanese amateurs say the *IAUCs* are freely available. Green replied that some subscribers pass the circulars along to a larger group. It is unfortunate but eWe pick our battles'. Green finds subscriptions a chore but the income is needed. In earlier times the US National Science Foundation (NSF) paid 50 asked for 100 just for the U.S. Everyone wants everything for free.

On the SNe lists for recent years Green is getting help from David Bishop who collaborated with the previous Supernova Working Group. David Bishop maintains a website for all SNe images. He has agreed to sort through the images of all TOCP objects that have spectroscopic confirmation. When that is done he will go through the TOCP objects without spectra, probably.

Paolo Mazzali noted that this year's SNe designations are up to only 2015T. So many SNe have not been designated despite spectroscopic confirmation. A faster designation process is needed. Green agreed that SNe designation had fallen behind and he was trying to get up to date. He added that the TOCP designations are formal IAU designations but understands that the year-letter designations are preferred.

Schmitz appreciated the CBAT designations. There are some two dozen groups reporting in the ATel, all using their own designations. Follow-up work often uses the ATel designations. Schmitz is trying to link ATel codes to the IAU designations. Not all authors consistently use the IAU designations.

Green commented that this problem will not necessarily be solved by CBAT. Younger and even some middle-aged astronomers are bucking CBAT. With the internet it is harder to control. For example, they ignore C5 recommendations on catalogue designations. No context. Everything needs to fit in with standards. Green is not sure how to get people to obey standards. This is an important function of the IAU. Need to have respect for standards.

Mazzali replied that if SNe observers got IAU designations quickly then more would use them. As a referee he won't let SN papers go through without an IAU designation, and most journal editors agree with this policy. A more pro-active role by CBAT (e.g. grabbing SNe from archives and giving them proper IAU names) would also show that CBAT cares and would be a major incentive for the SN community to get back to standard practice. None of the observing groups have actually called their SNe "SNyyyyab", which means that the IAU is seen as the owner of the SN designation. The IAU should take this as a sign of respect, but should not ignore the danger that at some point people will lose this. Yamaoka asked who the Supernova Working Group will report to. Also the ProAm Working Group.

The report of Commission 6 will be published in the *IAU Transactions*. This time the Transactions reports will contain elegancy reports' giving a history of each commission. Yamaoka will write the report with help from past presidents and members of C6. The report is required by October 31st.

David Tholen asked Green what fraction of his time was spent on CBAT business. Green replied that it wasn't 100 sources of income. He could do all the essential stuff with 50% of his time. But what defines 'essential'? Answering questions from news media, school children, etc, takes a lot of time. Tholen thought that this public relations work needs to be driven home to the EC. Green added that he deals with a lot of amateurs in

nova discoveries and follow-up observations of novae and comets. Many amateurs help. So his work is split between professional and amateur astronomers. Tholen said that this work should be emphasised to the EC. Green replied that it was. He drew the EC's attention to it five years ago.

Tholen noted that CBAT was a victim of its past. The previous director, Brian Marsden, was a Smithsonian civil servant so he didn't cost the IAU anything. Green added that the IAU now needs to find that salary. Tholen noted that the IAU's Minor Planet Center is now fully funded by NASA.

H. Yamaoka  
*President of the Commission*

HY thanks A. C. Gilmore for providing an accurate record of the session.

## LEGACY OF COMMISSION 6 (ASTRONOMICAL TELEGRAMS)

### 1. Introduction

Commission 6 existed since the beginning of the IAU as a steering committee to assure and advise on the best functioning of the Central Bureau for Astronomical Telegrams (CBAT) and to act as the official link between the CBAT and the IAU. The members of Commission 6 proposed that the work of this commission and of the CBAT should continue with constant development to best suit the evolving needs of the astronomical community; unfortunately, while the 2015 IAU Executive Committee rejected the proposal to continue the work of Commission 6, it is hoped that it can be renewed at a future General Assembly. The CBAT has long been interdisciplinary and has some benefits from being so, with members of Commission 6 coming from throughout the IAU to help with their advice. The CBAT has long served (since 1883) an important public role for the international astronomical community in announcing discoveries and follow-up information of/for new astronomical objects – not only to astronomers but also via the news media and in educational outreach. The IAU has long benefitted from its broad exposure through its offices like the CBAT and the Minor Planet Center, with them giving good publicity to the IAU.

The CBAT, which has been an important part of the IAU since the IAU was founded in 1920, continues to fulfill an essential dissemination function in the field of astronomy and astrophysics. The Central Bureau has always been important in getting discovery information out quickly and to a broad spectrum of the international astronomical community – not just to small, specialized segments of the community. The CBAT crosses many interdisciplinary areas in astronomy and astrophysics, making available refereed reports and alerts that enable observers to do follow-up or confirming observations that are of an urgent nature over many observational wavelengths. It is imperative to have a broad, non-specialized agency for giving out alerts of brighter, readily visible objects that have urgency for observation with smaller telescopes located in countries around the world – not just for a small set of observers and objects. Especially in this age of expanding astronomical surveys with automated telescopes, there is an expressed need for the more important and brighter objects to be singled out for attention.

The Bureau has served the international astronomical community by announcing official designations and names, helping to standardize such designations, reduce some of the chaos that is present outside of such standard procedures and provide stability. The work of Commission 6 and the CBAT has thus contributed to asserting IAU's unique mission

in the designating and naming of celestial objects (and the respected source for discovery claims) – perhaps the IAU’s most visible role. The refereed publications of the CBAT – its IAU Circulars (IAUCs) and Central Bureau Electronic Telegrams (CBETs) – are very much appreciated by the astronomical community and are heavily referenced, and their historical continuity can be viewed as a plus. Filtering out of false alarms has long been noted as a hallmark of the CBAT, meaning that the community can trust what is published by the Bureau. The passage from CBAT Director to Director from 1883 until now has been a continuous relay with successive Directors passing on their experience, the advantage being the presence of a standard reporting of astronomical discoveries that maintains the respect of the community and transcends politics.

## 2. Operation of the CBAT

The Central Bureau for Astronomical Telegrams originated in 1882 with the Editors of the *Astronomische Nachrichten* because a centralized, trustworthy office was needed by which astronomers around the world could contribute and retrieve/receive discovery information in a timely manner. Upon the inception of the IAU nearly a full century ago, the CBAT was taken under the umbrella of the IAU (it had moved to Copenhagen during World War I and remained there until its move to Harvard/SAO in 1965). It was only natural that the IAU adopted the CBAT officially when the IAU was formed, as an important IAU-supported function for the community. The CBAT has always been one of the highest-profile parts of the IAU due to its publication of astronomical discoveries and follow-up information, as well as alerts on other transient or time-sensitive astronomical events. The CBAT is well known to the news media and educational institutions (long noted in popular astronomy books and college textbooks), as well as online now, as a respected source for reporting new discoveries and follow-up observations of novae, supernovae, other interesting eruptive variable objects, comets, significant meteor showers and bursts, and providing occasional urgent announcements of occultations, near-earth approaches by objects, impacts on other objects in the solar system, new names of solar-system satellites, etc. – and this, in turn, has given good publicity to the IAU.

The CBAT has had relatively few Directors in the last century (only six or seven, in fact), and the experience gained by each successive Director has been passed on to their successors usually through years of working with the Bureau by junior astronomers who then became Director. The CBAT Directors have necessarily maintained invaluable connections across many different areas of astronomy, and this has contributed to the neutrality and fairness with which the Bureau’s reputation is usually perceived across the astronomical community – often amicably resolving problems occurring among various astronomers regarding discovery claims, etc.

The CBAT has strived for 132 years since its inception in Kiel to be at the forefront of technology. Its Transient Objects Confirmation Page (TOCP) has been a great success over the past two IAU triennia since its deployment, providing a way for registered users to post directly on the CBAT website discovery and follow-up information. Transient objects automatically receive preliminary IAU designations based on position and are communicated to VOEvent prior to later formal publication and designation. It is recognized that technology is rapidly advancing how communications made in all fields, including especially astronomy. The Bureau has had RSS feeds for several years that anyone can freely subscribe to, to obtain all CBETs as soon as they are published. The CBAT has worked across fields of astronomy to adapt procedures and material for publication in standardized ways to aid observers in their work.

The CBAT regularly receives complements from astronomers around the world for hard work at refereeing reports competently and avoiding most of the politics that is unfortunately omni-present. The CBAT and Commission 6 often hear appreciation for the work of the CBAT because of politics that goes on within specialized communities. There are some professional astronomers connected with large surveys who point out the large numbers of discoveries and say that discovery status is becoming irrelevant, but that view is not shared by many, and the many for whom discovery status is relevant should be respected. With increasing numbers of survey objects discovered now and in the years to come, it will be ever more important to separate the brighter (more easily observable) from the fainter objects observed by more specialized observers, and the CBAT serves that function for the community.

The IAU has received much good publicity over the years as a result of the work of the CBAT and Commission 6. The interaction of the CBAT staff with astronomers internationally across many disciplines has helped to link the community, as well, and give good exposure to the general public. This is an area that the IAU could perhaps better benefit from, through more active support of the CBAT.

The CBAT fields thousands of emails each year with reports that need vetting. These are dealt with by experienced, knowledgeable staff members who understand a wide variety of astronomical discoveries and objects; they know how to bridge the gap between all of the groups involved, from professional astronomers to lay people. There is an ever-increasing need for scientists to make their discoveries not only understandable but also interesting to the general public, and the CBAT is situated to be a prime player in this arena in the coming years.

The CBAT benefitted in the past by having its Directors holding positions at institutions that paid their salaries. But things have changed in the last few decades, in which the work involved in maintaining the CBAT has required more work and thus more staff; Brian Marsden creatively attacked this problem to get additional help by increasing subscription prices and instituting line charges for non-discovery, non-confirmation follow-up observations that would be published on the printed IAU Circulars. However, when the World Wide Web went public in the mid-1990s, the working model of having CBAT staff salaries paid by subscriptions and line charges began to wane gradually, so that now, two decades later, the paid subscriptions pay for less than one full salary.

There have arisen new specialty groups in astronomy and astrophysics in recent years that issue e-mail notifications (and maintain websites with such issuances) about specific events, such as gamma-ray bursts, variable-star outbursts, etc. This is a quite natural occurrence, serving the community well. But most of these outlets are not refereed, and they do not have formal international sanction for such policies as assigning designations to comets, novae, supernovae, satellites, etc. The historical link of the CBAT to its predecessors over the last two centuries has meant that there has been a continuation of Directors who have carried the experience of working with the astronomical community and maintaining a rapport with astronomers worldwide to ensure that an orderly and respected process of announcing new discoveries can continue.

### 3. Origins and History of the CBAT and its Publications

During most of the 19th century and up to World War I, the *Astronomische Nachrichten* essentially served *de facto* as the main international publication of record for announcing new astronomical discoveries, and this role was formalized around 1882 with the establishment of a Central Bureau, or *Zentralstelle*, in Kiel under the direction of the *A.N.*'s editor, C. N. A. Krueger. Discoveries continued to be announced in the formal

pages of the *A.N.*, but the *A.N.* also established separate circulars for dissemination of information regarding new transient discoveries such as comets. Already in the 1870s, the Associated Trans-Atlantic Cable Companies arranged for ten free astronomical telegrams to be transmitted via the ocean cables between the Secretary of the Smithsonian Institution in Washington, DC, and the Astronomer Royal in Greenwich (London). Harvard College Observatory in 1883 became the center for disseminating astronomical-discovery announcements via telegram in the western hemisphere, the announcement process evolving also into the use of printed (and mailed) circulars early in the 20th century.

The CBAT began in Kiel, Germany, in 1882, where the world's most preeminent astronomical journal (*A.N.*) was published (not a coincidence!). The *A.N.* was published approximately once a week for many years in the 19th century, and it was considered a primary source for announcing new discoveries of astronomical objects, but it was a journal format (and thus larger than the announcement bulletins and circulars that would follow in the 20th century). Telegrams were issued from Kiel (and Harvard College Observatory, and soon also Copenhagen), but these were generally coded to avoid mistakes (and thus not generally readable), and copies of old telegrams are exceedingly rare – the printed versions being the sole surviving form of most older discoveries. The *A.N.* staff began its own version of the *HCO Bulletins* in 1919, which the Kiel editors named the *Beobachtungs-Zirkulars*. The *B.Z.* were typeset onto paper that was smaller than that of the parent *A.N.* publication, and it focussed on reports of new discoveries and follow-up information for such objects as minor planets, variable stars, novae, and comets. The \**B.Z.*\*, which was produced more irregularly than the *A.N.* (but which could be produced more quickly due to its smaller size), continued publication until 1944 (from Berlin), when the War forced a permanent end to its production.

During the wartime communication disruptions in Germany that started in 1914, the Copenhagen Observatory assumed management of the Central Bureau under the direction of Elis Strömngren, who had worked with the Central Bureau in Kiel and was familiar with the workings of the Bureau. After the war, the Kiel center resumed limited operations and the newly formed International Astronomical Union (IAU) set up its own bureau in Uccle at the beginning of 1920 (with G. Lecointe as its director). This peculiar situation with three bureaus lasted until 1922, when the Copenhagen center was adopted as the official IAU Central Bureau. The name at Copenhagen soon changed to Bureau Central des Télégrammes Astronomiques, or Central Bureau for Astronomical Telegrams (CBAT). The IAU charged the Central Bureau with issuing time-sensitive astronomical news concerning discoveries of celestial objects and other information, which initially occurred via telegram and also by printed postcards known as *IAU Circulars* (*IAUCs*) – with the first such *Circular* issued on 1922 October 22 to announce the discovery of a new comet by Baade at Bergedorf.

The first *IAUCs* were published at the Royal Observatory of Uccle (where Nos. 1-31 of the first series were issued), and later at the Copenhagen Observatory (where Nos. 1-1883 of the second series were issued). The 31 *Circulars* that were published by the IAU's Uccle office of the Central Bureau during 1920-1922 were printed on regular-sized paper. When the Elis Strömngren at the Copenhagen Observatory assumed publication of the *IAUCs* in 1922, they started over again at No. 1 and continued printing their circulars on cards for easier mailing. (The IAU was actually formed in 1919.) The postcard concept goes back to 1914, when Strömngren began issuing urgent astronomical information on postal cards because of disruptions incurred by the first world war that affected the CBAT at Kiel; when the IAU moved its CBAT to Strömngren's direction at Copenhagen in 1922, Strömngren naturally transformed his early postcard system into the new version of the *IAUCs*.

“Pre- and non-IAU/CBAT” postcard circulars were published at Copenhagen beginning in 1914. The *HCO Announcement Cards* and the *HCO Bulletins* were Harvard publications that served as the mailed output from the western-hemisphere’s version of the CBAT during 1895-1964 (with the *HCO Circulars* during 1895-1898), while western-hemisphere “central bureau” unprinted astronomical telegrams also were issued from HCO beginning in 1883 after transferral of this task was completed from the Smithsonian Institution in Washington, DC. The *HCO Circulars* were another related publication with more expanded information. The postcard-sized *Harvard Announcement Cards* (*HACs*) began in 1926, initiated by Harlow Shapley to serve as an American counterpart to the Copenhagen *Circulars*, whose distribution was severely disrupted by World War II. Back in Copenhagen, upon Strömngren’s death in 1947, Julie Vinter Hansen assumed the role of CBAT Director. Under her watch, the CBAT was supported by grants from the IAU and from the Danish Rask-Örsted foundation. The Copenhagen directorship passed to K. A. Thernöe in the early 1960s. Thernöe’s retirement was announced at the IAU’s General Assembly on 1964 September 1, at which time Fred L. Whipple (as Director of the Smithsonian Astrophysical Observatory) offered to take over the running of the CBAT, with Owen Gingerich as the obvious new Director, since Gingerich had been editing the *HACs*.

Thus, starting 1965 January 1, the CBAT operated until 2010 on behalf of the IAU at the Smithsonian Astrophysical Observatory (SAO) in Cambridge, Massachusetts, under the successive directorships of Owen Gingerich (1965-1968), Brian G. Marsden (1968-2000), and Daniel W. E. Green (2000-present). Gareth V. Williams (also Associate director of the MPC at SAO) has served as Assistant Director of the CBAT for many years; both Williams and Michael Rudenko have played important continuing parts over recent years in helping to maintain computers and software for the operation of the CBAT, as well as serving to help the Director issue CBETs when needed during his travels. In 2010, the CBAT moved from SAO to the Earth and Planetary Sciences Department at Harvard University, where it continues now.

#### 4. The Continuing Need for the Central Bureau

The need for an objective, neutral central astronomical bureau for collecting, verifying, and announcing new discoveries has not abated with the Internet. In fact, it is frequently noted that the Internet has polarized many relationships in the astronomical community, and the CBAT often receives praise and encouragement for continuing to serve the community in verifying, designating, and announcing discoveries of new comets, novae, supernovae, solar-system satellites, and other transient objects of interest to both astronomers and the general public. Astronomers are often fiercely protective of their discovery claims, wishing recognition for discoveries that help enable them to continue their work. The CBAT recognizes that not only is proper refereeing required to do a proper job in issuing announcements (and follow-up information) of new discoveries but also proper diplomacy is needed to work out issues or problems involving more than one individual or group. While the United States has become dominant in the field of astronomy today – with more money, more astronomers, and more discoveries resulting from this fact than from other countries – there is also a need to recognize that the international community is important. The need for the CBAT is readily visible in the high citation rate of CBAT publications every month in the standard astronomical and general-science literature, as well as in the fact that a great many institutions and astronomers worldwide continue to pay for receiving the CBAT publications.



It has been suggested that the name “Telegrams” is outdated, even if it does give an instant identity to the work of the CBAT (telegrams ceased being used by the CBAT two decades ago, when it employed an online computer service a decade before the World Wide Web, and the CBAT had one of the first astronomical websites). When Commission 6 was proposed to continue beyond August 2015, with the new IAU commission structure, Commission 6 suggested that the IAU name be changed to “Discoveries and Alerts” or just “Alerts”; thus, Central Bureau for Astronomical Discoveries and Alerts (CBADA), and the Commission being named “Astronomical Discoveries and Alerts”.

So the CBAT will continue to function and evolve for the astronomical community, which importantly is comprised of both professional and amateur astronomers. Amateur astronomers continue to make important astronomical discoveries and follow-up observations. A focus is needed to continue on highlighting the most important discoveries in an age where big surveys are producing an overwhelming amount of data. The IAU Executive Committee rejected the proposal for a new commission to replace Commission 6 and has deemed the CBAT not important to its cause, but it is hoped that the CBAT will be embraced again more completely at future General Assemblies by future Executive Committees, together with other important offices including the Minor Planet Center and the variable-star bureaus, with an eye to funding such important projects as highly visible and useful functions of the IAU.

D. W. E. Green  
*Director of the Bureau*