新天体の発見報告

内藤博之（なよろ市立天文台）

第2回新天体捜索者会議 2018.11.18

CBAT (天文電報中央局)
Central Bureau for Astronomical Telegrams

- 1882年のサングレーザー（太陽の近くを通る彗星）をきっかけに、新天体情報を知らせる目的でキール（ドイツ）に設立。

- 現在（1965年から）は、ハーバード大学内で運営。

- 非営利機関。IAUC/CBETの購読費が主な資金源。寄付も受け入れ。

- 彗星、太陽系の衛星、新星、超新星、その他の突発天体の新発見の情報センターとしての役割

- 新天体（彗星、新星、超新星など）の符号、名前を（IAUC/CBETを通じて）公表

CBAT (天文電報中央局)

Central Bureau for Astronomical Telegrams

How to Report a Discovery

発見報告先

Discovery of many kinds of transient astronomical phenomena (e.g., comets, novae, supernovae, etc.) should be reported to the CBAT. The Bureau is responsible for assigning designations to comets and supernovae.
Meteor(ite)/fireball reports should not be reported to the Bureau, but to the Fireball Data Center of the International Meteor Organization (e-mail: idac@imo.net).

Discoveries of new minor planets should be reported to the Minor Planet Center.

CBAT Webサイトより

- 彗星 => CBAT
- 新星 => CBAT
- 超新星 => CBAT
- 小惑星 => MPC

CBAT: cbatiau@eps.harvard.edu へメールで報告

第1回のクロージングのテーマ

- 新天体はどこに報告？
- 符号問題に何ができるか？
- 面白い天体現象は？
- 第2回新天体会議は？

第1回のクロージングのテーマ

- 新天体はどこに報告？
- 符号問題に何ができるか？
- 面白い天体現象は？
- 第2回新天体会議は？

第1回のクロージングのテーマ

第1回新天体捜索者会議集録

https://www.nayoro-obs.jp/stellanova2015/StellaNova2015_proc_web.pdf

CBAT (天文電報中央局)

Central Bureau for Astronomical Telegrams

How to Report a Discovery

発見報告先

Discovery of many kinds of transient astronomical phenomena (e.g., comets, novae, supernovae, etc.) should be reported to the CBAT. The Bureau is responsible for assigning designations to comets and supernovae.
Meteor(ite)/fireball reports should not be reported to the Bureau, but to the Fireball Data Center of the International Meteor Organization (e-mail: idac@imo.net).

Discoveries of new minor planets should be reported to the Minor Planet Center.

CBAT Webサイトより

- 彗星 => CBAT
- 新星 => CBAT
- 超新星 => CBAT
- 小惑星 => MPC

- 彗星 => MPC + CBAT/Dan. Green
- 新星 => TOCP + CBAT/Dan. Green
- 超新星 => TNS
- 小惑星 => MPC

CBAT: cbatiau@eps.harvard.edu へメールで報告

CBAT (天文電報中央局)

Central Bureau for Astronomical Telegrams

Information You Should Include In A Discovery Report

報告内容

All discovery reports **should include** the following:

- your name
- your address and contact details (preferably e-mail address, otherwise telephone/fax number)
- date and UT time of observation
- observation method (e.g., naked eye, visual telescopic observation, photographic, or telescopic CCD)
- specific details on instrumentation (aperture size, f/-ratio, etc.) and exposures (type of film or CCD, length of exposure, etc.)
- observation site (name of location, giving either city/town and state/province/country, or some other geographical name nearby); longitude and latitude and elevation above sea level can be useful

- 名前
- 連絡先（Eメールアドレス）
- 観測日時（UT）
- 観測方法（CCDカメラなど）
- 望遠鏡・観測装置
- 露光時間、観測フィルター
- 観測地点（住所）
- （新天体の）位置
- （新天体の）明るさ
- 新天体と判断した理由（比較画像など）

MPC (小惑星センター)

Minor Planet Center

The Minor Planet Center (MPC) is the single worldwide location for receipt and distribution of positional measurements of minor planets, comets and outer irregular natural satellites of the major planets. The MPC is responsible for the identification, designation and orbit computation for all of these objects. This involves maintaining the master files of observations and orbits, keeping track of the discoverer of each object, and announcing discoveries to the rest of the world via electronic circulars and an extensive website. The MPC operates at the Smithsonian Astrophysical Observatory, under the auspices of Division F of the International Astronomical Union (IAU).

All of the MPC's operating funds come from a NASA Near-Earth Object Observations program grant. Much of the computer equipment that the MPC uses was provided by the Tamkin Foundation.

The MPC is inviting applications for a position.

Running Tallies

Near-Earth Objects Discovered

THIS MONTH:	155
THIS YEAR:	1777
ALL TIME:	19175

Minor Planets Discovered

THIS MONTH:	257
THIS YEAR:	7725
ALL TIME:	789069

Comets Discovered

THIS MONTH:	1
THIS YEAR:	33
ALL TIME:	4025

Observations

THIS MONTH:	983364
THIS YEAR:	16.7 million
ALL TIME:	199.8 million

https://www.minorplanetcenter.net

MPC (小惑星センター)
Minor Planet Center

MPC: obs@cfa.harvard.edu へメールで報告

【記入例】

```
COD Q33
CON Long. 142 28 58.01 E, Lat. 44 22 25.10 N, Alt. 161m, GPS
OBS H. Naito
MEA H. Naito
TEL 1.6-m f/12 telescope + MSI
NET UCAC-4
ACK Report on 2018 Nov. 18
AC2 naito@nayoro-obs.jp
```

＊フォーマット（カラムナンバー不要）

```
0         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890
            * C2018 11 17.45678 12 34 56.78 +87 65 43.2           12.3 V      Q33
            * C2018 11 17.56789 12 34 67.89 +87 65 32.1           12.2 V      Q33
            * C2018 11 17.67890 12 34 89.90 +87 65 21.0           12.1 V      Q33
```

新発見 (C13)

観測日時（C16-C32）　赤経（C33-C44）　赤緯（C45-C56）　明るさとバンド（C66-C71）　天文台コード（C78-C80）

TOCP

Transient Objects Confirmation Page

Central Bureau for Astronomical Telegrams

Publications & Services
Subscriptions
On-line IAUCs
On-line CBETs
IAUC/CBET RSS Feeds
TOCP RSS Feeds
MPC RSS Feeds
Search IAUCs/CBETs

Discoveries
Astronomical Headlines
TOCP
Press Information Sheets
What to Report
How to Report

Lists
Supernovae List
Nova List
Comet magnitudes
Comets
Edgar Wilson Award
Minor-Planet Satellites

Links
CBAT
IAU Commission 6
Cometary Science Center
Minor Planet Center
Origins/Harvard
EPS/Harvard

CBAT "Transient Objects Confirmation Page"

Discovery of many kinds of transient astronomical phenomena (e.g., comets, novae, supernovae, etc.) are traditionally reported to the CBAT. The Bureau is responsible for assigning designations to such astronomical objects as comets, supernovae, and Galactic novae.

This webpage, designed in 2010 for activation on 2011 January 1, replaces the former "Unconfirmed Objects Page" that the CBAT ran quite successfully during the previous decade, and which was updated manually by CBAT staff members. In contrast, this new webpage is designed to be updated automatically both by astronomers worldwide who are registered (via the CBAT) to do so and (when necessary) manually by CBAT staff. This addresses a strong desire in the astronomical community for immediate posting of interesting new transient objects, to solicit confirming observations (and thus to provide a place to post confirming observations, to help prevent potentially unnecessary observations at multiple observatories).

The TOCP is designed for use with stationary, extra-solar-system objects only. Data will be postable to the TOCP directly only by registered users, who can access RSS feeds and/or receive e-mails of new postings. There is no subscription charge for access (or posting) to the TOCP. Once items are posted on the TOCP, they will be available as RSS feeds -- as has been the case since 2009 for CBETs and IAUCs. The discovery reports posted on the TOCP will be sent automatically in standard XML format to the VOEvent system.

In order to post a discovery or follow-up observation to the TOCP, a user must be registered with the Central Bureau; instructions on registering and posting to this webpage are given here.

Click here for a **Key to the TOCP columns below**.

NOTE: TOCP discoveries that are published on CBETs/IAUCs or dismissed for other reasons are removed from this webpage and are listed on this separate webpage with cross-reference information..

Current TOCP Data::

---

http://www.cbat.eps.harvard.edu/unconf/tocp.html

TOCP

Transient Objects Confirmation Page

***Discovery* observation submission (scroll down for follow-up submissions):**

```
         1         2         3         4         5         6         7         8
123456789 123456789 123456789 123456789 123456789 123456789 123456789 123456789

Type     Date (UT)      R.A. (2000.0) Decl.    Mag. p   Offset    Locale    A C
TCP 2009 11 10.8811*  06 26 57.68 +24 29 06.8  16.2 U              Gem       1 7
PSN 2010 02 08.92   *  13 29 15.92 +46 30 14.0  15.8 U                        0 0
PSN 2010 06 18.47   *  22 54 20.33 +11 46 54.7  18.4 U   10E   2S  U12237    9 -
PNV 2010 10 13.5566*  00 44 26.56 +41 31 13.6  17.8 C 1350E 306N  M31       3 1
```

Submit

Column(s)	Usage
1–3	Suspected object type, where the prefix "PSN" is for objects that are deemed by the observers to be possible supernovae, "PNV" is for "possible novae", and "TCP" is for all other transient variable objects (especially where the observer is uncertain what type of object may have been observed).
5–19	Date of observation, given in UT to precision as high as a second of time (0.00001 day) if desired, and of the form YYYY MM DD.DDDDD (where YYYY is the year, MM is the month of form 01 to 12, and DD.DDDDD is the decimal date).
19	Must be an asterisk (*) to indicate this is a possible discovery.
23–45	The object's position. The RA **must** have 2 and only 2 digits following the decimal point, and the declination **must** have exacly 1 digit following the decimal point.
48–51	Magnitude of the object at the given date/time, with a decimal point in column 44.
53	The bandpass (e.g., U = unfiltered CCD, 'T' = technical-pan film, 'V' for V magnitude, 'R' for R or red magnitude, lower-case 'v' for visual magnitude, etc.).
55–64	Offset in seconds of arc, used for an object with respect to a nearby presumed-host galaxy — given to digits only (no decimal places), so that the offset in arcsec (**NOT seconds of time**) of right ascension appears in columns 55–58 (right-justified), with and "E" for east and "W" for west in column 59, and the offset in arcsec of declination appears in columns 60–63 (right-justified), with "N" for north and "S" for south in column 64.
67–75	What galaxy the variable appears to be possibly connected with (for extragalactic variables) or the 3-letter IAU abbreviation of the constellation if the variable is in the Milky Way.
77	A number from 0 to 9, specifying the number of previously designated (and not later retracted) supernovae discovered by the same observer (as listed in the CBAT webpage file of supernovae); the number 9 signifies 9 or more discoveries.
79	The number of days between known frames taken by the discoverer (and others, if relevant), with a nine (9) indicating nine or more days, a zero (0) signifying 0.5 day or less, and a dash (–) indicating only a single frame (a blank indicates that this datum is unknown).

TOCP

Transient Objects Confirmation Page

***Discovery* observation submission (scroll down for follow-up submissions):**

```
         1         2         3         4         5         6         7         8
123456789 123456789 123456789 123456789 123456789 123456789 123456789 123456789

Type     Date (UT)      R.A. (2000.0) Decl.    Mag. p   Offset    Locale    A C
TCP 2009 11 10.8811*  06 26 57.68 +24 29 06.8  16.2 U              Gem       1 7
PSN 2010 02 08.92   *  13 29 15.92 +46 30 14.0  15.8 U                        0 0
PSN 2010 06 18.47   *  22 54 20.33 +11 46 54.7  18.4 U   10E   2S  U12237    9 -
PNV 2010 10 13.5566*  00 44 26.56 +41 31 13.6  17.8 C 1350E 306N  M31       3 1
```

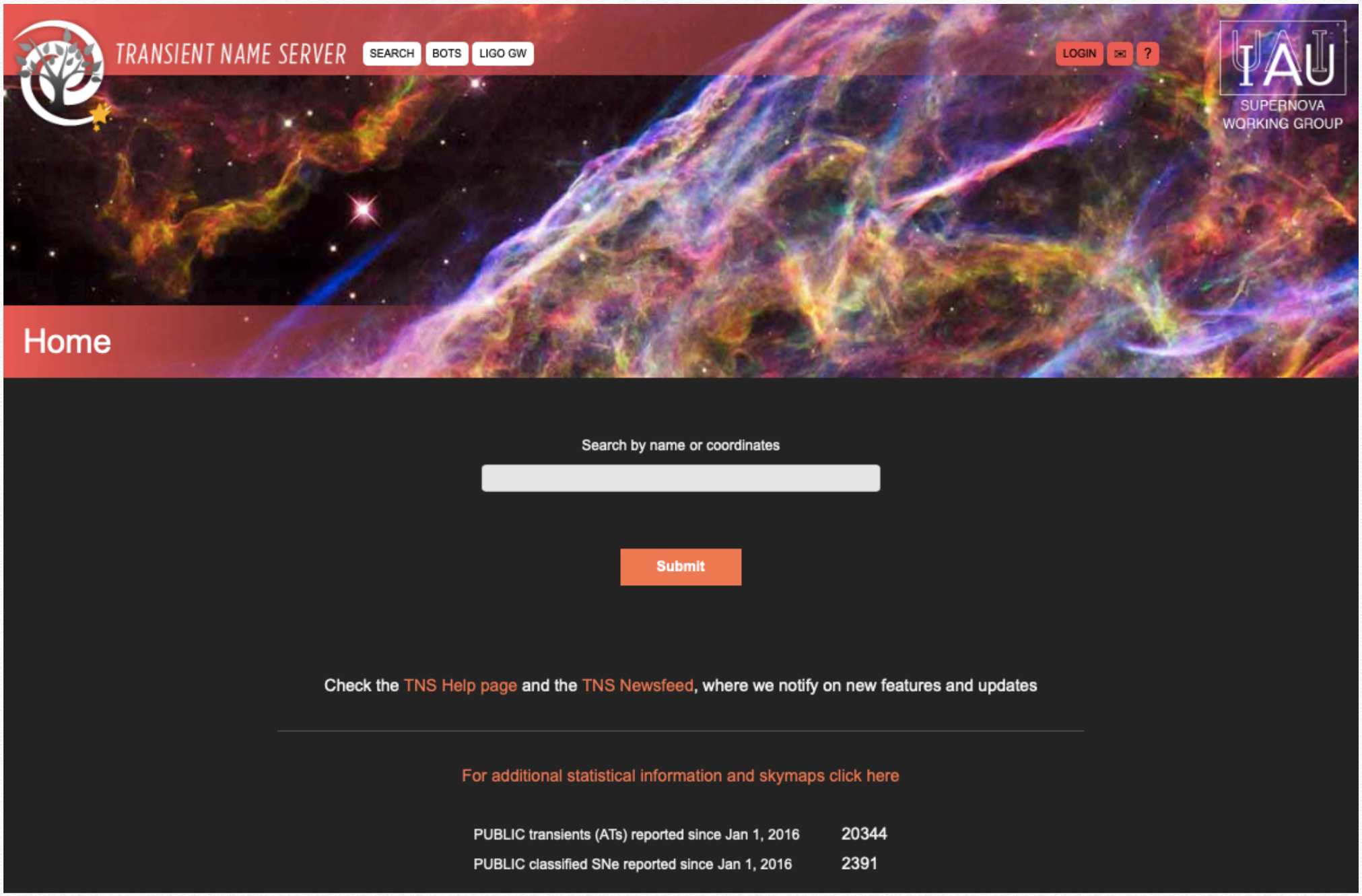
超新星（PSN）はTNSへ

Submit

Column(s)	Usage
1–3	Suspected object type, ~~where the prefix "PSN" is for objects that are deemed by the observers to be possible supernovae~~, "PNV" is for "possible novae", and "TCP" is for all other transient variable objects (especially where the observer is uncertain what type of object may have been observed).
5–19	Date of observation, given in UT to precision as high as a second of time (0.00001 day) if desired, and of the form YYYY MM DD.DDDDD (where YYYY is the year, MM is the month of form 01 to 12, and DD.DDDDD is the decimal date).
19	Must be an asterisk (*) to indicate this is a possible discovery.
23–45	The object's position. The RA **must** have 2 and only 2 digits following the decimal point, and the declination **must** have exacly 1 digit following the decimal point.
48–51	Magnitude of the object at the given date/time, with a decimal point in column 44.
53	The bandpass (e.g., U = unfiltered CCD, 'T' = technical-pan film, 'V' for V magnitude, 'R' for R or red magnitude, lower-case 'v' for visual magnitude, etc.).
55–64	Offset in seconds of arc, used for an object with respect to a nearby presumed-host galaxy — given to digits only (no decimal places), so that the offset in arcsec (**NOT seconds of time**) of right ascension appears in columns 55–58 (right-justified), with and "E" for east and "W" for west in column 59, and the offset in arcsec of declination appears in columns 60–63 (right-justified), with "N" for north and "S" for south in column 64.
67–75	What galaxy the variable appears to be possibly connected with (for extragalactic variables) or the 3-letter IAU abbreviation of the constellation if the variable is in the Milky Way.
77	A number from 0 to 9, specifying the number of previously designated (and not later retracted) supernovae discovered by the same observer (as listed in the CBAT webpage file of supernovae); the number 9 signifies 9 or more discoveries.
79	The number of days between known frames taken by the discoverer (and others, if relevant), with a nine (9) indicating nine or more days, a zero (0) signifying 0.5 day or less, and a dash (–) indicating only a single frame (a blank indicates that this datum is unknown).

TNS

Transient Name Server



https://wis-tns.weizmann.ac.il

TNS

Transient Name Server

野口敏秀さんのTNSガイド

http://park8.wakwak.com/~ngc/images/TNS_GUIDE_20160222.pdf

（2018年内に新バージョン公開予定）