

Recherche des Astéroïdes :

Apport des Amateurs

Actualisation 2006

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Les Rencontres du Ciel & de l'Espace 2006

Plan :

- Pourquoi observer les Astéroïdes ?
- Mon matériel : Site, Télescope, Caméras
- Méthodes :
- Dépouillement
- Statistiques d'observation
- Désignations, magnitudes à la détection
- Avenir des recherches amateurs de nouveaux astéroïdes

Pourquoi Observer les Astéroïdes ? (1)

- **Suivi des Astéroïdes connus :**
 - Une grande plage de magnitude pour les 400000 objets de la base MPC
 - Certains n'ont pas été observés depuis plusieurs années
 - Abordable quel que soit le matériel Télescope + CCD
 - Précision $< 1''$: peut-être atteinte sans trop de difficultés
 - Faire œuvre utile...
- **Détecter des nouveaux Astéroïdes :**
 - Par an: les professionnels détectent 60000 nx, les amateurs 2000 nx
 - 534 en 10 ans par des amateurs français, c'est très peu
 - De plus en plus difficile et dans quelques années ??
 - Un site obligé celui de Christophe Demeautis
- **Observation et contrôle des magnitudes :**
 - Site AUDE / MAP
 - Un acteur extrêmement actif Gérard Faure (observation visuelle)
- **Observation des rotations :**
 - Un site incontournable celui de Raoul Behrend
 - On ne connaît que quelques milliers de courbes photométriques
 - Découverte d'astéroïde double

Pourquoi Observer les Astéroïdes ? (2)

- **Observations des occultations :**
 - Presque réservée aux amateurs, car nécessité de nombreuses “cordes”
 - Connaissance des dimensions des Astéroïdes
 - Abordable par tous les observateurs, plus on est de fous, plus c’est précis
 - Une grosse difficulté : la mesure temporelle des événements
- **Site du MPC aux USA :** [IAU Minor Planet Center.htm](http://iau-minorplanetcenter.org/)
 - Facile d’accès, très didactique et son personnel est très coopératif
- **Expérience acquise :**
 - Très importante
 - Permet de connaître ses «performances »
 - Couvre de nombreux domaines de l’astronomie
 - Spectroscopie ?

IAU: Minor Planet Center

The **Minor Planet Center** (MPC) operates at the [Smithsonian Astrophysical Observatory](#), under the auspices of Division III of the [International Astronomical Union \(IAU\)](#), with significant funding coming from subscriptions to the various services offered by the Center.

The MPC is responsible for the designation of minor bodies in the solar system: minor planets; comets (in conjunction with CBAT); and natural satellites (also in conjunction with CBAT). The MPC is also responsible for the efficient collection, (computation,) checking and dissemination of astrometric observations and orbits for minor planets and comets, via the [Minor Planet Circulares](#) (issued generally on a monthly basis), the *Minor Planet Circulares Orbit Supplement (MPO)* (issued three or four times per year), the *Minor Planet Circulares Supplement (MPS)* (issued three or four times a month) and the [Minor Planet Electronic Circulares](#) (issued as necessary, generally at least once per day).

- [Names have been assigned to \(136199\) 2003 UB₃₁₃ and its satellite \(IAUC 8747 \[PDF\]\)](#).
[Added 2006 Sept. 13]
- [Search the MPC site](#). [Added 2004 Apr. 19]
- MPC [publications and services](#).
 - [How do I report material to the MPC?](#) Notes and technical details.
 - [Information we need from observers in order to start using the new observation format](#)
 - [Subscription information](#).
 - [On-line MPECs](#).
 - [Web access to the computer services](#).
 - Information on how to access the various Web-based services, including PS/PDF versions of the *MPCs*, *MPOs* and *MPSs*.
- MPC Financial Supporters
 - [Details on institutions and individuals who are contributing to the MPC](#) are now available.
 - [Support for computer equipment used by the MPC is provided by the Tamkin Foundation](#).
 - The MPC is supported in part by the [Brinson Foundation](#) and by the TABASGO Foundation.
- Services for Observers
 - [The NEO Confirmation Page](#)
 - [The NEO Confirmation Page \(in R.A. order\)](#)
 - NEA candidate last added/updated (or page modified) on Oct. 6.60 UT.
 - There are three NEA candidates in need of confirmation at the present time.
 - [The NEO Page](#).
 - The [NEA Observations Planning Aid](#).
 - [Date of Last Observation of NEOs](#) not seen in a while, with easy access to ephemerides.
 - Lists of [bright](#) and [faint](#) recovery opportunities for old one-opposition objects.
 - [Minor Planet & Comet Ephemeris Service](#)
 - Generate current ephemerides for an arbitrary list of (up to 100) minor planets and comets.

- Generate an HTML page that you can put on your own web site to encourage others to follow-up your discoveries.
 - [A collection of links to follow-up pages](#)
 - [Natural Satellites Ephemeris Service](#) [Added 2004 July 2]
 - Generate ephemerides for the outer irregular satellites of the giant planets.
 - [New Object Ephemeris Generator](#)
 - Generate ephemerides for "new" discoveries before assignment of official provisional designations.
 - [MPChecker](#)
 - Check possible new minor planet suspects for known objects.
 - [MPC Orbit Database \(MPCORB\)](#)
 - Download the freely-accessible MPC Orbit Database (MPCORB)
 - [The Distant Artificial Satellites Observation page](#), allowing you to observe artificial objects that may (or have been) confused with natural objects. [Added 2003 March 2]
 - [Guide to Minor Body Astrometry](#) Notes for new or potential astrometric observers [Updated 2006 June 1]
 - [Dates of Last Observation of Distant Objects](#)
 - An MPES-aware listing of the dates of last observation of Centaurs, TNOs and SDOs.
 - [A page allowing you to prepare customized versions of the observable-object lists.](#) [Added 2003 Jan. 29]
 - [Sky coverage](#)
 - See which parts of the sky have been searched recently and add your own coverage information.
 - [On-line access to the observation summary pages from each batch of MPCs.](#)
 - Summary pages from 2006 July 11 issue now available.
 - Newly-available batches are normally put on-line several days after the ECS files are released.
 - [Link to preliminary version of Observer Summary pages for checking purposes](#)
 - Pages intended for 2006 Sept. 7 issue now available.
 - [Ephemerides and orbital elements](#) for comets, NEOs, distant objects and bright minor planets.
 - [The MPC Status Page](#). This page lists the enhancements that have been made to various MPC services, as well as listing known problems with pages/scripts on this site and their resolution.
 - [Page listing known problems with contacting certain e-mail addresses.](#) [Added 2003 Sept. 14]
 - [Links to mirror copies of many of the MPC web pages.](#) [Added 2003 Aug. 18]
- [Documentation](#)
- [Astronomical headlines](#) from recent circulars.
 - [Press Information Sheets](#) [Updated 2000 July 21]
- Various [lists and plots](#).
 - Look here for all sorts of tabulations and plots, including NEO tables.
 - The plots of the solar system mentioned in a recent BBC News item are available here: [inner solar system \(out to Jupiter\)](#); [innermost solar system \(out to Mars\)](#); and [outer solar system \(Jupiter and beyond\)](#).
 - [The Animations Page](#): A collection of various animations prepared at the MPC.
- [Index](#) to the CBAT/MPC/ICQ pages.
 - [List of new features on these pages.](#) [Updated 2006 June 20]
 - Details on [stellar occultations by minor planets](#) from IOTA.

- [Minor Planet Lightcurve data](#) [Updated 2006 Mar. 28]
- [Credits \(and awards\)](#) and a [user-feedback form](#).

 [_SAO](#)  [_CBAT](#)  [_ICQ](#)



Year	# Pro	(CCD)	(NUM)	#Amat	(CCD)	(NUM)	us	jp	hr	it	au	fr	uk	de	si	ca
2006	34483	34483	73	869	869	1	243	95	0	56	180	54	14	51	6	0
2005	77307	77307	923	1720	1720	50	796	15	0	51	239	151	34	134	10	0
2004	55229	55228	2489	1551	1551	102	821	9	0	19	303	78	10	152	19	0
2003	46614	46511	4784	1420	1420	240	774	0	0	11	261	64	4	116	133	0
2002	64539	64431	11357	1617	1617	579	1210	81	0	12	66	4	1	105	22	0
2001	70759	70530	21084	2374	2374	1163	1682	202	17	80	86	33	0	100	52	0
2000	70333	70094	31568	2034	2027	1215	871	179	387	93	144	13	0	80	114	19
1999	45756	45687	17723	3096	3030	2317	768	698	927	153	190	35	0	86	65	14
1998	30394	28540	10220	1836	1721	1343	289	590	382	222	204	49	4	56	1	0
1997	10239	9137	2271	1988	1811	1377	369	1158	7	231	40	53	20	35	12	0
1996	8910	6746	1399	1333	1067	882	273	803	26	167	11	0	26	2	0	4
1995	9667	9065	1121	1189	736	756	28	969	4	159	0	0	25	2	0	2
1994	5391	2581	1028	948	453	618	6	796	0	144	0	0	2	0	0	0
1993	6361	913	1674	672	109	369	0	623	0	49	0	0	0	0	0	0
1992	3966	794	947	910	5	401	0	908	0	2	0	0	0	0	0	0
1991	4711	419	1058	734	0	349	0	725	0	4	0	0	5	0	0	0
1990	4253	10	938	658	0	251	0	653	0	2	0	0	3	0	0	0
1989	2779	0	591	606	0	273	1	582	0	7	0	0	16	0	0	0
1988	2065	0	561	426	0	219	0	411	0	15	0	0	0	0	0	0
1987	2623	0	330	134	0	65	0	128	0	6	0	0	0	0	0	0
1986	2702	1	370	51	0	31	0	43	0	8	0	0	0	0	0	0
1985	1781	0	348	24	0	6	0	22	0	2	0	0	0	0	0	0
1984	1494	0	268	21	0	8	1	19	0	1	0	0	0	0	0	0
1983	1574	0	230	16	0	8	0	14	0	2	0	0	0	0	0	0
1982	2652	0	373	28	0	8	0	23	0	5	0	0	0	0	0	0
1981	3766	0	1428	17	0	8	0	15	0	2	0	0	0	0	0	0
1980	2106	0	292	7	0	3	0	3	0	4	0	0	0	0	0	0
							8266	9768	1750	1511	1724	534	165	919	434	39

Total number of professional discoveries (CCD/Numbered objects) = 610056 522477 122866

Total number of amateur discoveries (CCD/Numbered objects) = 26422 20510 12643

184 Valmecca Observatory (Serge Deconihout)

185 Observatoire astronomique jurassien (Michel Ory)

224 Ottmarsheim (Claudine Rinner)

615 Saint-Véran

947 Saint-Sulpice (B. Christophe)

Matériels (1)

- **Objectifs :**
 - Couvrir le champs le plus grand possible tout en détectant des astéroïdes très faibles
- **Site :**
 - Peu de ciel visible autour de l'écliptique
 - Lumières du village, lumières de Paris qui polluent l'horizon sud
 - Turbulences, transparence, magnitude visuelle limite 5.5 au zénith et 4 vers le sud
 - Des conditions d'observation loin d'être optimales
- **Télescope :**
 - Construction personnelle
 - T600 F = 3360 Newton + lame de fermeture
 - Monture anglaise à berceau, focalisation électrique
 - Avantages : fiabilité,
 - Pas de Goto
- **Compromis sur le temps de pose :**
 - Détecter les astéroïdes les plus faibles, approcher la magnitude 20 si possible
 - Mouvements "parasites" des astéroïdes
 - Réfraction, turbulence, qualité du suivi

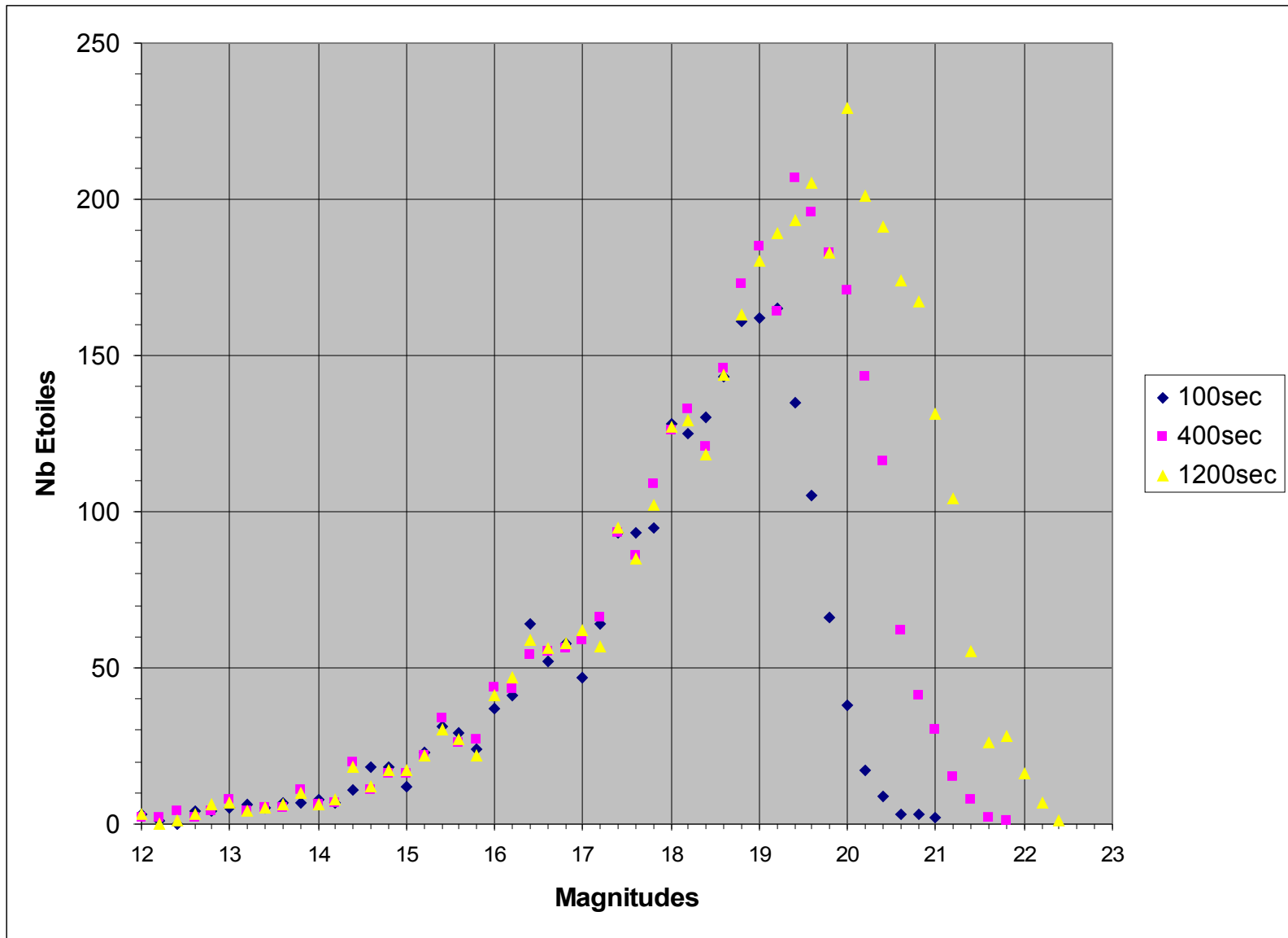
Matériels (2)

- **Caméra CCD :**
 - HiSys 22 (équipée d'un Kaf 400) utilisée pendant 8 ans,
 - consacrés principalement à la mesure d'astéroïdes connus
 - AP8P Apogee depuis 2003
- **Caractéristiques :**
 - CCD Site aminci 1024x1024 24 μ
 - 24.6mm x 24.6mm champs : 25' x 25'
 - Résolution : 1.47'' / pixel
 - Dynamique : 16 bits
 - Port // : lecture d'une image 35 sec.
- **Performances :**
 - Refroidissement 50°C sous l'ambiante
 - Des contraintes dues à l'humidité ambiante (graisse à vide comme joint)
 - Les câbles ont été remplacés à cause de la piètre qualité des connecteurs
 - Le temps de lecture est long et pas de solution pour le réduire
 - Coût...
 - Avenir...

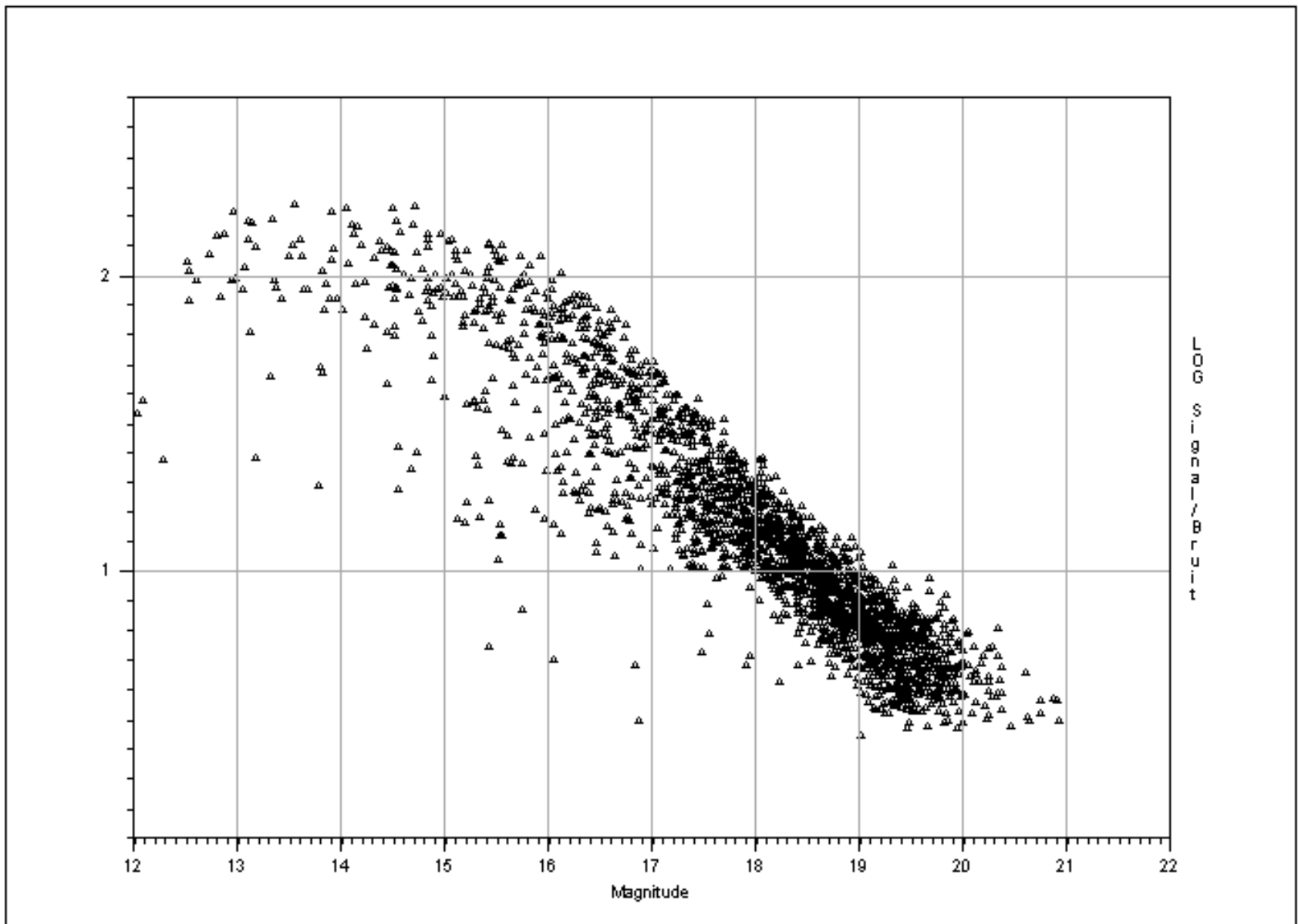
Matériels (3)

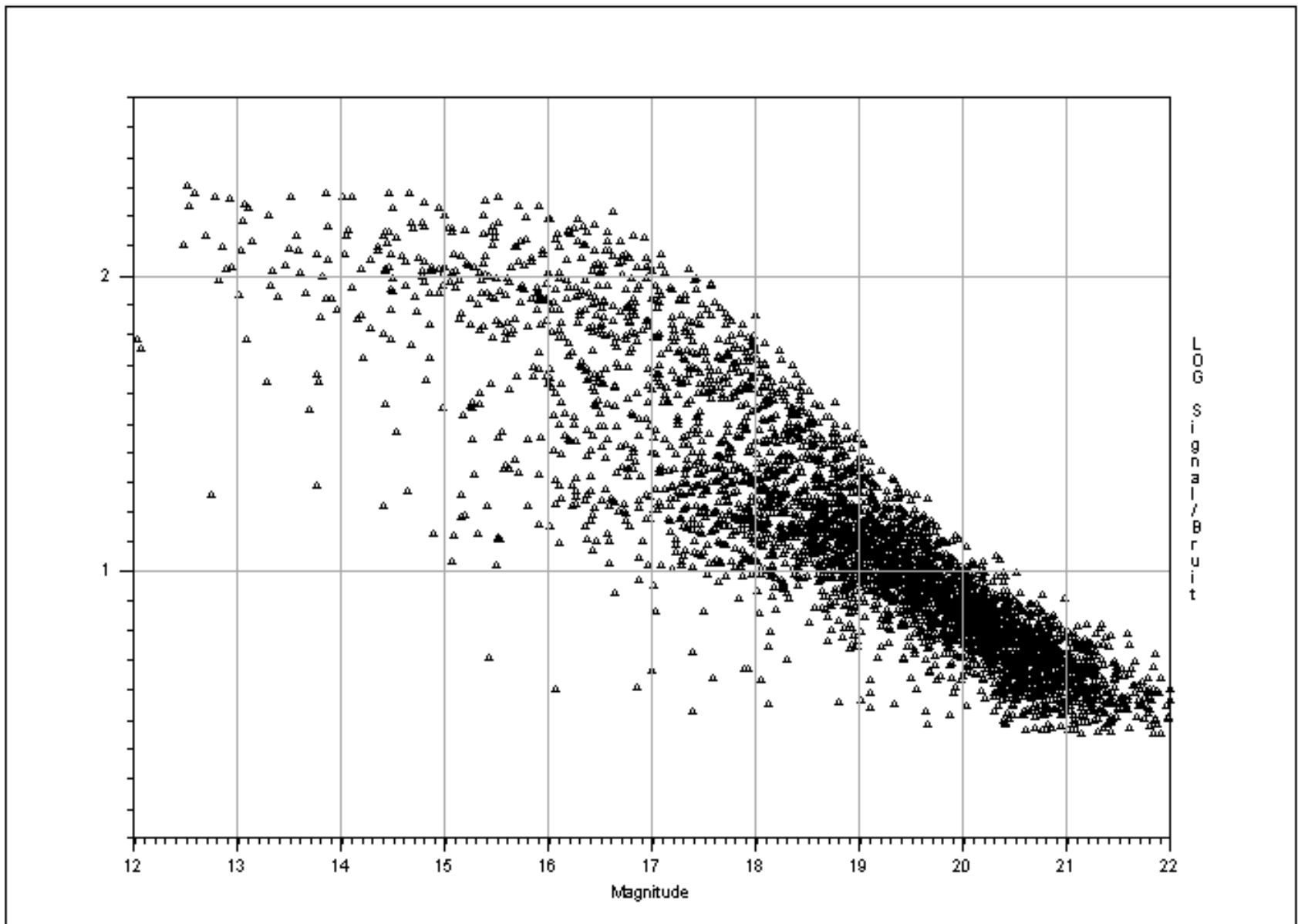
- **Logiciels :**
 - Maxim de «Cyanogen » utilisé pour enregistrer les images
 - Maxim pour le traitement des 'Bias', 'Dark' et 'Flat'
 - Maxim pour recentrer les images et les superposer
 - Iris pour translater les images afin de compenser le mouvement de l'astéroïde
 - Prism pour les mesures statistiques et de qualité d'image
 - Maxim PinPoint LE avec USNO-A2.0 ou UCAC2 pour l'astrométrie des astéroïdes
- **PC :**
 - Enregistrement des images 1 PC
 - Transfert des images Liaison Ethernet
 - Traitement sur 1 PC rapide
 - (il faut traiter les images le jour même pour préparer la nuit suivante)
 - Confort nécessaire pour assurer le meilleur «Blink»
- **Mesure du temps de milieu de pose :**
 - Pas trop critique (mouvement des astéroïdes $\sim 30''$ / heure)
 - A fournir au 1/100000 de jour
 - J'utilise le PC qui pilote le T600 mis à l'heure par DCF77
- **Conditions d'observation :**
 - Capacité de l'observateur à rester au frais pendant de longues heures
 - Pouvoir assumer la régularité des observations
 - Avoir une petite expérience, elle s'acquiert très vite

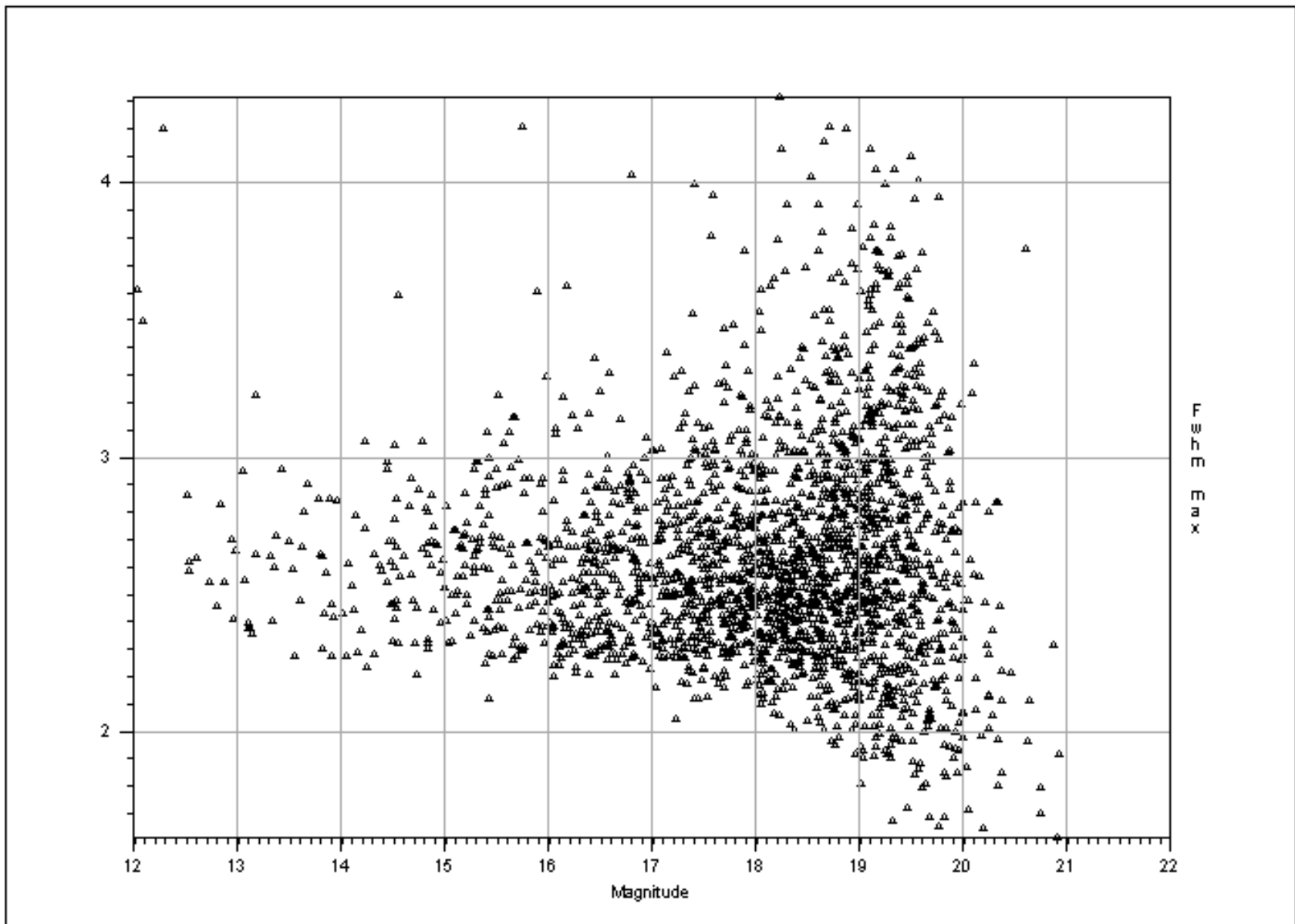


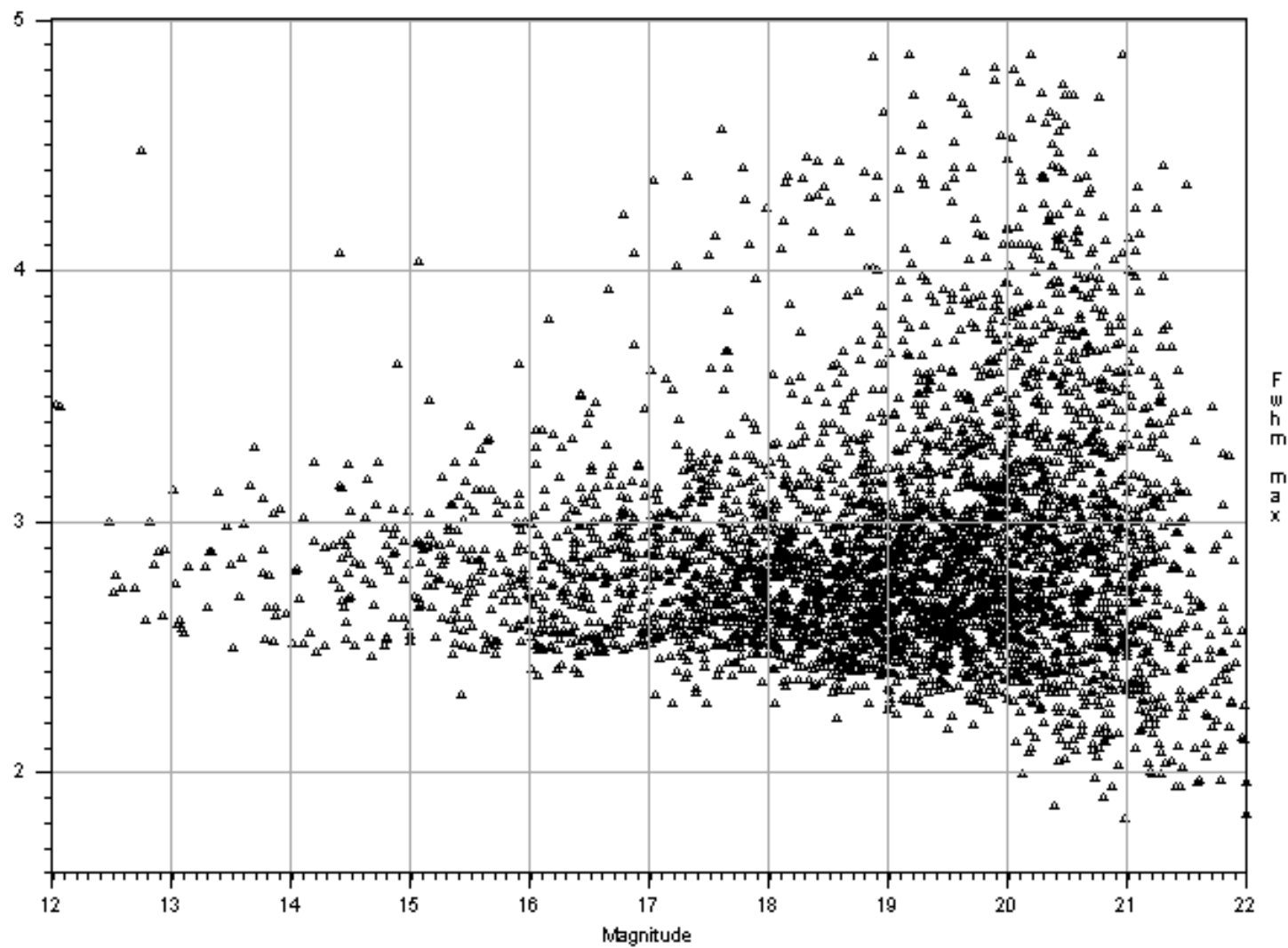


Réalisé avec PRISM (Analyse, Photométrie, Mesures sur toutes les étoiles)



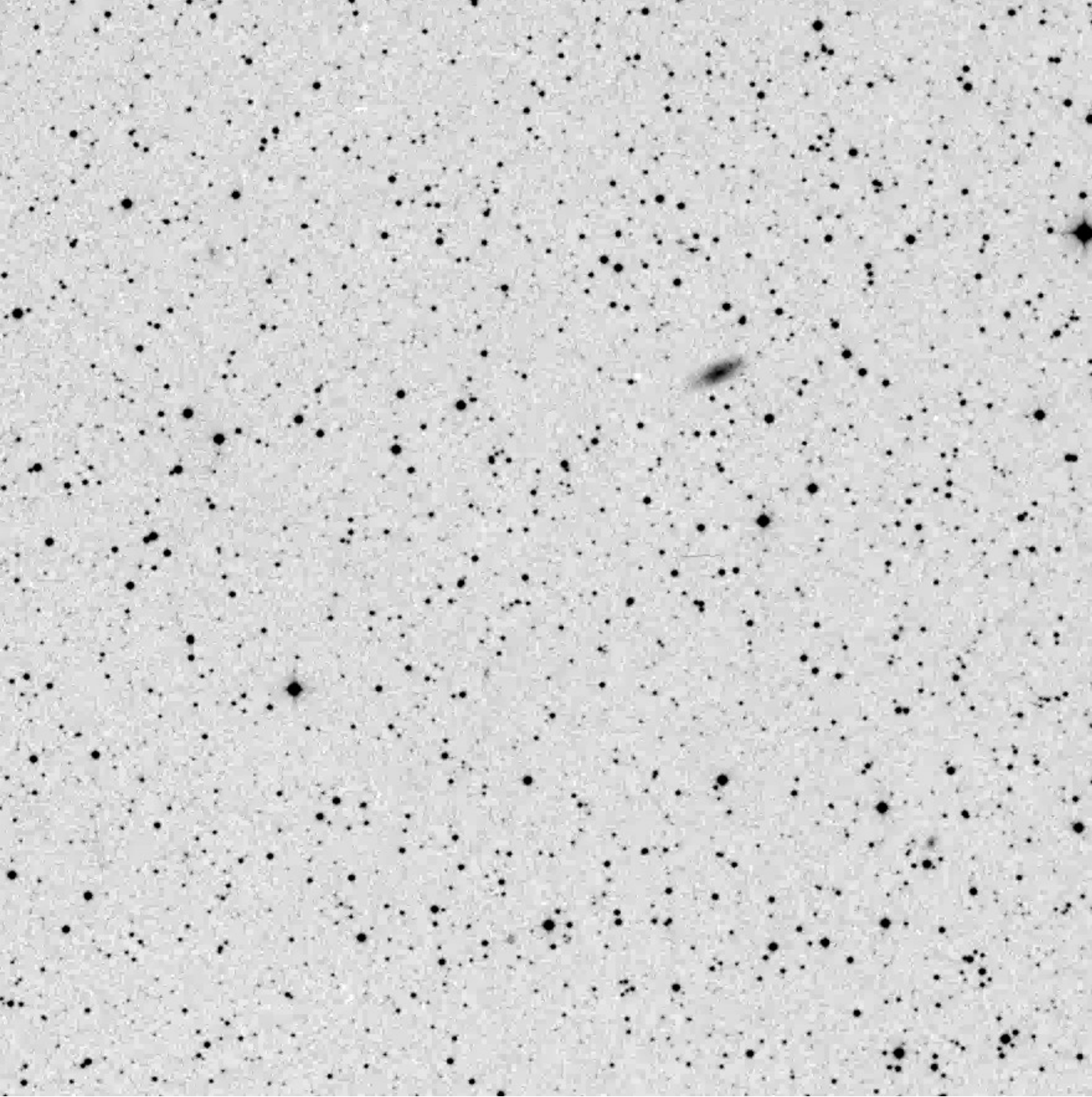






Méthode :

- **Ou observer, quand observer ?**
 - Vers le point anti-solaire (en moyenne 5 astéroïdes dans le champs de $25' * 25'$)
 - Au-dessus de l'écliptique en évitant les parties trop denses de la voie lactée
 - Entre le dernier et le premier quartier de lune (+ de 10 jours)
- **Préparation :**
 - Tirer sur papier les champs à observer (j'utilise RealSky)
 - afin d'être sûr de bien pointer et de le refaire plusieurs fois dans la nuit
 - Avec les variations de réfraction c'est pas forcément évident
 - Attention à perdre le minimum de champs sur les bords (surface importante)
- **Action :**
 - En hiver et au printemps je fais 4 poses de 100 sec. sur 6 champs (A,B,C,D,E,F)
 - Une heure après on recommence
 - Une heure après on recommence
 - En été je fais 3 séries de 9 poses de 100 sec. pour chaque champs
 - Ne pas oublier de les enregistrer et de bien enregistrer l'heure du milieu de pose
 - Attention à la qualité de la focalisation qui doit être conservée sur plusieurs heures,
 - pendant que la température extérieure varie
 - Contrôler la qualité de la turbulence



AD : 07h 04m 08s
De : +22° 18' 09''

Dépouillement :

Offset, Dark et flat :

Rapidité du PC (on n'a pas trop de la journée pour dépouiller)

Nécessité d'un bon flat (très difficile avec CCD aminci) pour des images bien uniformes

Superposer les images si nécessaire pour obtenir la sensibilité

Superposer les images après décalage du mouvement présumé de l'astéroïde

Monter le fond pour bien voir le bruit (on ne cherche pas à faire une belle image)

L'objectif étant de bien faire apparaître les astéroïdes faibles

Blinker les images

C'est le moment le plus critique et le plus excitant

On a trouvé un astéroïde : [MPCChecker Minor Planet Checker.htm](#) results

Vérifier s'il n'est pas déjà connu (base MPC, site MPC/check): [MPCChecker.htm](#)

Il n'est pas répertorié :

Le mesurer correctement car si l'on commet trop d'erreur il ne sera pas retenu par le MPC

Attention si l'astéroïde est très faible la mesure astrométrique est très imprécise

Envoyer ses mesures au MPC avec le bon format

Il faut 2 jours d'observation et pas plus

Contrôler la validité des mesures et du format (vérification linéaire ou Findorb)

Prévoir sa position pour les jours prochains : [New Object Ephemeris Generator.htm](#)

Préparer la nuit suivante [New Object Ephemerides BCH.htm](#)

MPChecker: Minor Planet Checker

Use the form below to prepare a list of known minor planets in a specified region. Notes on using this form are given at the bottom of this page.

If you wish to report the non-functioning of (or errors in) this service, please use [this feedback form](#). But ensure that you have seen [this note on computing limits](#) before reporting anything.

Date : UT

Produce list of known minor planets around:

this J2000.0 position: R.A. = Decl. =

or around these observations:

Radius of search = arc-minutes

Limiting magnitude, $V =$ Observatory code =

Output matches in order of:

increasing distance from specified position increasing Right Ascension

Display motions in arcseconds per minute or hour
or degrees per day

Display total or separate motions

Output designations in unpacked or packed form

Output:

- all objects
 just those flagged as needing observations
 just numbered objects

- just unnumbered objects
 - just those nearly-numberable unnumbered objects
 - Don't include planets and irregular outer satellites
 - Include planets and irregular outer satellites
 - Include ONLY planets and irregular outer satellites
- Return: plain HTML page or MPES-aware HTML page

Useful Tips

We hope that the information given below will be useful in helping you to use the minor-planet checker form properly.

Date

The date to be entered is the UT date of your observation (given to 0.1 or 0.01 of a day). The default is now. The date should be within two years of the present. If you have an older suspect you wish to check, please contact the [Central Bureau for Astronomical Telegrams](#) (for novae and supernovae) or the [Minor Planet Center](#) (for minor planets).

Absolute Position

The J2000.0 right ascension should be entered in one of the following forms: HH MM; HH MM.d; HH MM.dd; HH MM SS; HH MM SS.d; or HH MM SS.dd. HH represents the hours, MM the minutes, SS the seconds and d/dd any decimal part of the minutes or seconds. Leading zeroes are to be given when any quantity is less than 10.

The J2000.0 declination should be entered in one of the following forms: sDD MM; sDD MM.d; sDD MM.dd; sDD MM SS; or sDD MM SS.d. s represents the sign ('+' or '-', must be given), DD the degrees, MM the minutes, SS the seconds and d/dd any decimal part of the minutes or seconds. Leading zeroes are to be given when any quantity is less than 10.

Some examples of valid input follow.

- If the position you wish to search around is 7h13.7m, -14°2', you would enter `07 13.7' and `-14 02' in the relevant boxes
- If the position is 14h3m8s, +1°48'.3, you would enter `14 03 08' and `+01 48.3'.

Observation

One or more 80-column observation records can be typed or pasted into the writable icon.

The date of the search, central position and observatory code will be taken from the observation record. Multiple observations of the same object will be reduced to a single observation. If you are entering search fields, rather than observations, ensure that each search field has a unique "designation".

Radius of search

The default setting of 15 arcminutes is thought to be appropriate for the standard amateur setup, considering the motion of main-belt asteroids. It may be lowered (down to 5 arcminutes) or raised (up to 300 arcminutes) as desired. If your specified radius exceeds the

maximum allowable radius, the maximum value will be used.

Limiting magnitude for search

The default setting of $V = 20.0$ may be changed as necessary. Note that you should set this value to be at least 1.0 magnitude fainter than your telescope's limiting magnitude to allow for poorly-known minor-planet magnitudes.

Observatory code

By default, the calculation is performed for the geocenter (code 500). If you wish to do the calculations for a specific site, enter the appropriate observatory code in the writable icon.

Output

By default all types of objects are searched for. By selecting other options you can restrict the search to just numbered or unnumbered minor planets or nearly-numberable minor planets. If this latter option is chosen, the maximum search radius is 900 arcminutes. It is important to remember when using the nearly-numberable option that the vast majority of the nearly-numberable objects are in fact numbered in the next batch of *MPCs*. This means that in the period immediately after *MPC* preparation there may be very few objects selected.

Computing Limits

Note that this form is not intended for checking large number of fields. There is a maximum limit for CPU time associated with this script. If this limit is exceeded, the job will be aborted. This prevents a handful of users running long lists of checks from clogging up the web server for other users. It is far more efficient to submit large batches of unidentified observations to the MPC for automatic processing than it is to try and id the objects through this service.

We are very pleased to acknowledge the support of [Process Software Corporation](#) and their excellent VMS Web server, Purveyor.



This service runs on the [Tamkin Foundation Computing Network](#).



MPChecker

Here are the results of your search(es) in the requested field(s):

The following objects, brighter than $V = 22$, were found in the 15.0-arcminute region around R.A. = 00 00 00, Decl. = +00 00 00 (J2000.0) on 2006 10 21.54 UT:

Object designation	R.A.			Decl.			V	Offsets		Motion/hr		Orbit	Further observations? Comment (Elong/Decl/V at date 1)
	h	m	s	°	'	"		R.A.	Decl.	R.A.	Decl.		
1994 GD5	23	59	45.1	-00	03	00	21.1	3.7W	3.0S	24-	9-	4o	Very desirable between 2006 Nov. 1
2002 PP96	00	00	09.7	-00	06	50	19.2	2.4E	6.8S	18-	4-	4o	Very desirable between 2006 Oct. 3
2006 SV194	23	59	59.9	+00	07	44	21.3	0.0W	7.7N	16-	13-	V	Desirable between 2006 Oct. 21-28.
2006 SG114	23	59	16.3	+00	03	11	21.5	10.9W	3.2N	22-	3-	4d	Leave for survey recovery.
2006 RX80	00	00	49.0	+00	00	37	21.4	12.2E	0.6N	21-	1-	12d	Leave for survey recovery.
2002 VS46	00	00	14.5	-00	11	59	20.2	3.6E	12.0S	19-	16-	2o	Desirable between 2006 Oct. 27-Nov
2006 SL100	00	00	33.9	-00	09	15	21.6	8.5E	9.3S	19-	10-	8d	Leave for survey recovery.

Number of objects checked = 342796

Explanatory Notes

- The positions are J2000.0 and are "quick look" positions designed for identification, not the rigorous comparison of observations with theory.
- Offsets, intended for use by supernova hunters, are given in arc-minutes as the coordinates of the parent galaxies are rarely given to arc-second precision.
- The motions are in arcseconds per stated time unit (if minutes or hours) or degrees/day.
- Right-ascension motions include the $\cos(\text{Decl.})$ term.
- The brief orbit descriptor is either:
 - the number of oppositions (if marked with `o'),
 - the arc-length in days (if marked with `d') or
 - `V' if it is a Generalized Väisälä solution.

- Comets are listed regardless of how faint they are. No magnitude estimates are supplied for comets. The heliocentric distance, r , is displayed in the Comments column. Most comets more than 5 AU from the sun will be beyond the reach of most observers, but the information is displayed to enable identification should an outburst occur.
 - If you are requesting objects other than just planets and natural satellites, a count is displayed of the number of objects that were checked. If the count is less than 300000, then the file of elements used by this service may have been truncated and this fact should be [reported](#).
-

This service operates on [Process Software Corporation's](#) excellent VMS Web server, Purveyor.



These calculations have been performed on the [Tamkin Foundation Computing Network](#).

New Object Ephemeris Generator

Use the form below to generate ephemerides for your new objects prior to the assignment of official provisional designations. You enter at least two observations (in the [normal MPC format](#)) for each object into the form below. The observations of each object can be on the same night. Up to 100 observations may be entered on this form. Then select `Generate ephemerides` to obtain the ephemerides.

Observations that are not [formatted correctly](#) will be rejected. Ensure that there is a Carriage Return at the end of the last observation.

Generate ephemerides

Clear/reset form

Enter observations below (a guide is included to allow manual entry of the data on those platforms that do not allow cut-and-paste operations):

```
NNNNNPPPPPPANNYYYY MM DD.ddddd HH MM SS.dd sDD MM SS.d MM.M B OO
```

By default, ephemerides are geocentric, begin "now" and are for 7 days at 1 day intervals. The desired start date for the ephemeris should be entered in YYYY MM DD format, e.g., 2000 June 7 = 2000 06 07. Note that these ephemerides are intended to assist current observations only.

[Observatory code](#):

Start date for ephemerides:

Number of ephemeris positions to output

Ephemeris interval: Ephemeris units: days hours

Display ephemeris positions in: truncated sexagesimal or full sexagesimal or decimal units

Display motions as: "/sec, "/min, "/hr or %/day.

Total motion and direction Separate R.A. and Decl. motions

Generate ephemerides

Clear/reset form

New Object Ephemerides

The results of your request are given below. If any of the observations you entered were formatted incorrectly, the reasons for rejecting them are given.

Object 1 : BCH0362

BCH0362 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000)			Decl.			Elong.	V	Motion	
										"/hr	P.A.
2006 10 19.0		01 58 38	+11 32 36	173.7	20.4	39.54	224.6				
2006 10 20.0		01 57 53	+11 21 18	174.9	20.4	39.76	224.7				
2006 10 21.0		01 57 07	+11 10 00	176.1	20.3	39.92	224.8				
2006 10 22.0		01 56 21	+10 58 36	177.3	20.3	40.03	224.8				
2006 10 23.0		01 55 35	+10 47 18	178.4	20.3	40.07	224.9				
2006 10 24.0		01 54 49	+10 35 54	178.9	20.2	40.06	224.9				

Object 2 : BCH0363

BCH0363 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000)			Decl.			Elong.	V	Motion	
										"/hr	P.A.
2006 10 19.0		01 57 49	+11 46 00	173.9	20.4	34.70	253.5				
2006 10 20.0		01 56 54	+11 42 00	175.1	20.4	34.93	253.5				
2006 10 21.0		01 55 59	+11 38 00	176.3	20.3	35.11	253.4				
2006 10 22.0		01 55 04	+11 34 00	177.5	20.3	35.23	253.4				
2006 10 23.0		01 54 09	+11 30 00	178.8	20.2	35.30	253.3				
2006 10 24.0		01 53 14	+11 25 54	179.8	20.2	35.30	253.3				

Object 3 : BCH0364

BCH0364 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000)			Decl.			Elong.	V	Motion	
										"/hr	P.A.
2006 10 19.0		01 58 36	+11 57 06	173.6	20.8	31.86	252.6				
2006 10 20.0		01 57 47	+11 53 12	174.8	20.8	32.07	252.6				
2006 10 21.0		01 56 56	+11 49 24	176.0	20.8	32.23	252.5				
2006 10 22.0		01 56 06	+11 45 30	177.2	20.7	32.34	252.5				
2006 10 23.0		01 55 16	+11 41 36	178.4	20.7	32.41	252.4				
2006 10 24.0		01 54 25	+11 37 42	179.6	20.6	32.43	252.4				

Object 4 : BCH0365

BCH0365 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000)			Decl.			Elong.	V	Motion	
										"/hr	P.A.
2006 10 19.0		01 58 04	+12 02 12	173.7	21.0	34.79	260.5				
2006 10 20.0		01 57 08	+11 59 54	174.9	21.0	34.95	260.4				
2006 10 21.0		01 56 12	+11 57 36	176.1	21.0	35.08	260.4				
2006 10 22.0		01 55 15	+11 55 12	177.4	20.9	35.17	260.3				
2006 10 23.0		01 54 18	+11 52 54	178.6	20.9	35.22	260.2				
2006 10 24.0		01 53 22	+11 50 30	179.7	20.8	35.23	260.2				

Object 5 : BCH0366

BCH0366 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000) Decl.			Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		01 58 26	+11 49 30	173.7	20.8	34.48	259.7	
2006 10 20.0		01 57 30	+11 47 00	174.9	20.8	34.65	259.7	
2006 10 21.0		01 56 34	+11 44 30	176.1	20.8	34.77	259.6	
2006 10 22.0		01 55 38	+11 42 00	177.4	20.7	34.86	259.5	
2006 10 23.0		01 54 42	+11 39 30	178.6	20.7	34.92	259.5	
2006 10 24.0		01 53 46	+11 36 54	179.8	20.6	34.93	259.4	

Object 6 : BCH0367

BCH0367 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000) Decl.			Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		02 31 54	+05 58 12	165.2	20.1	32.75	253.5	
2006 10 20.0		02 31 03	+05 54 30	166.2	20.1	33.10	253.8	
2006 10 21.0		02 30 12	+05 50 48	167.1	20.0	33.41	254.1	
2006 10 22.0		02 29 20	+05 47 12	168.0	20.0	33.68	254.4	
2006 10 23.0		02 28 27	+05 43 30	168.8	20.0	33.92	254.6	
2006 10 24.0		02 27 34	+05 40 00	169.6	20.0	34.13	254.9	

Object 7 : BCH0368

BCH0368 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000) Decl.			Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		02 31 23	+05 52 12	165.3	20.3	27.58	266.9	
2006 10 20.0		02 30 38	+05 51 36	166.2	20.3	27.85	267.0	
2006 10 21.0		02 29 53	+05 51 06	167.2	20.3	28.09	267.2	
2006 10 22.0		02 29 08	+05 50 30	168.1	20.3	28.32	267.4	
2006 10 23.0		02 28 22	+05 50 00	168.9	20.2	28.51	267.5	
2006 10 24.0		02 27 36	+05 49 36	169.7	20.2	28.69	267.7	

Object 8 : BCH0369

BCH0369 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000) Decl.			Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		02 31 57	+05 35 30	165.1	21.2	32.24	244.9	
2006 10 20.0		02 31 09	+05 30 00	166.0	21.2	32.69	245.4	
2006 10 21.0		02 30 21	+05 24 36	166.9	21.2	33.09	246.0	
2006 10 22.0		02 29 32	+05 19 12	167.7	21.1	33.45	246.5	
2006 10 23.0		02 28 43	+05 13 54	168.5	21.1	33.75	247.0	
2006 10 24.0		02 27 52	+05 08 42	169.2	21.1	34.00	247.5	

Object 9 : BCH0370

BCH0370 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000) Decl.			Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		02 32 15	+05 40 36	165.0	20.3	36.80	255.6	
2006 10 20.0		02 31 17	+05 37 00	166.0	20.3	37.42	256.0	
2006 10 21.0		02 30 18	+05 33 24	167.0	20.3	37.98	256.5	
2006 10 22.0		02 29 18	+05 29 48	167.9	20.2	38.48	256.9	
2006 10 23.0		02 28 17	+05 26 24	168.7	20.2	38.92	257.3	
2006 10 24.0		02 27 16	+05 23 00	169.5	20.2	39.29	257.8	

Object 10 : BCH0371

BCH0371 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000)		Decl.	Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		02 27 44	+15 02 06	165.9	20.9	32.21	253.7	
2006 10 20.0		02 26 53	+14 58 24	167.1	20.9	32.78	253.5	
2006 10 21.0		02 26 00	+14 54 36	168.3	20.8	33.30	253.4	
2006 10 22.0		02 25 07	+14 50 48	169.5	20.8	33.77	253.3	
2006 10 23.0		02 24 13	+14 46 54	170.8	20.8	34.19	253.2	
2006 10 24.0		02 23 19	+14 42 54	172.0	20.7	34.55	253.1	

Object 11 : BCH0372

BCH0372 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

Date	TT	R. A. (2000)		Decl.	Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		02 29 04	+14 56 18	165.6	20.3	33.39	254.3	
2006 10 20.0		02 28 10	+14 52 36	166.9	20.3	34.08	254.2	
2006 10 21.0		02 27 15	+14 48 54	168.1	20.2	34.72	254.1	
2006 10 22.0		02 26 19	+14 45 00	169.3	20.2	35.29	254.0	
2006 10 23.0		02 25 23	+14 41 06	170.5	20.2	35.80	253.9	
2006 10 24.0		02 24 26	+14 37 06	171.8	20.1	36.25	253.8	

Object 12 : BCH0373

BCH0373 Prepared 2006 Oct. 18.35 UT From Väisälä orbit

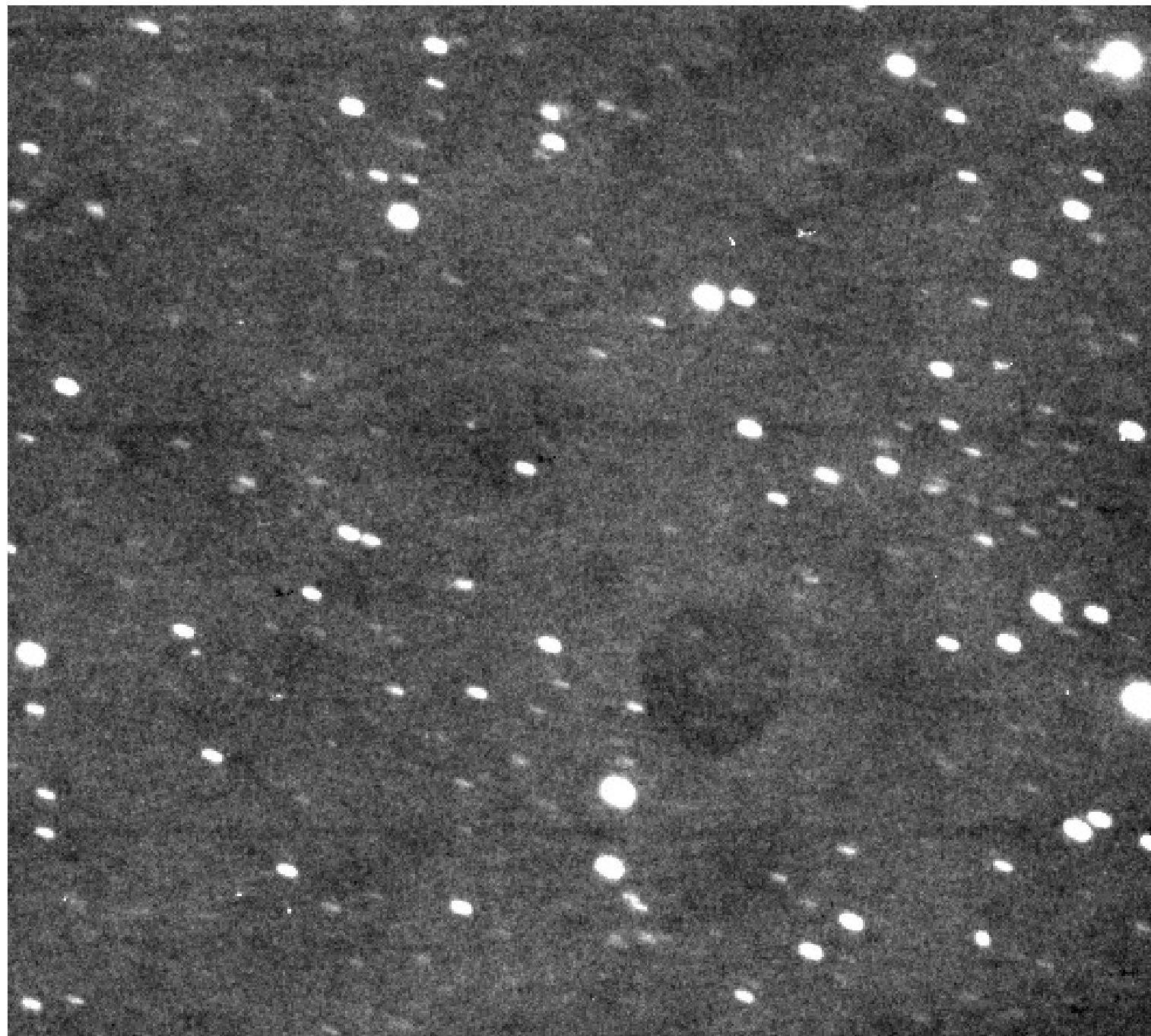
Date	TT	R. A. (2000)		Decl.	Elong.	V	Motion	
							"/hr	P.A.
2006 10 19.0		02 27 34	+14 58 18	166.0	21.9	30.72	256.6	
2006 10 20.0		02 26 44	+14 55 24	167.2	21.9	31.21	256.5	
2006 10 21.0		02 25 54	+14 52 30	168.4	21.8	31.65	256.4	
2006 10 22.0		02 25 02	+14 49 30	169.6	21.8	32.05	256.3	
2006 10 23.0		02 24 11	+14 46 24	170.8	21.8	32.41	256.1	
2006 10 24.0		02 23 18	+14 43 18	172.0	21.7	32.72	256.0	



Mag 20.1

Mag 19.6

Mag 17.7



- COD 947
 CON B. Christophe, 65 Bld de Courcelles , 75008 Paris, France
 CON [bchristo@club-internet.fr]
 OBS B.Christophe
 MEA B.Christophe
 TEL 0.60-m f/5.6 reflector + CCD
 NET UCAC2
 ACK recherche 133

BCH0359	C2006	09	20.92594	23	29	33.22	-03	09	25.4	20.1	R	947
BCH0359	C2006	09	20.94043	23	29	32.59	-03	09	33.7			947
BCH0359	C2006	09	20.95490	23	29	31.99	-03	09	42.6			947
BCH0360	C2006	09	20.92594	23	30	12.08	-02	53	42.7	20.7	R	947
BCH0360	C2006	09	20.94043	23	30	11.40	-02	53	45.8			947
BCH0360	C2006	09	20.95490	23	30	10.86	-02	53	50.3			947
BCH0361	C2006	09	20.94043	23	29	43.53	-03	08	21.7	20.9	R	947
BCH0361	C2006	09	20.95490	23	29	42.73	-03	08	26.5			947

END

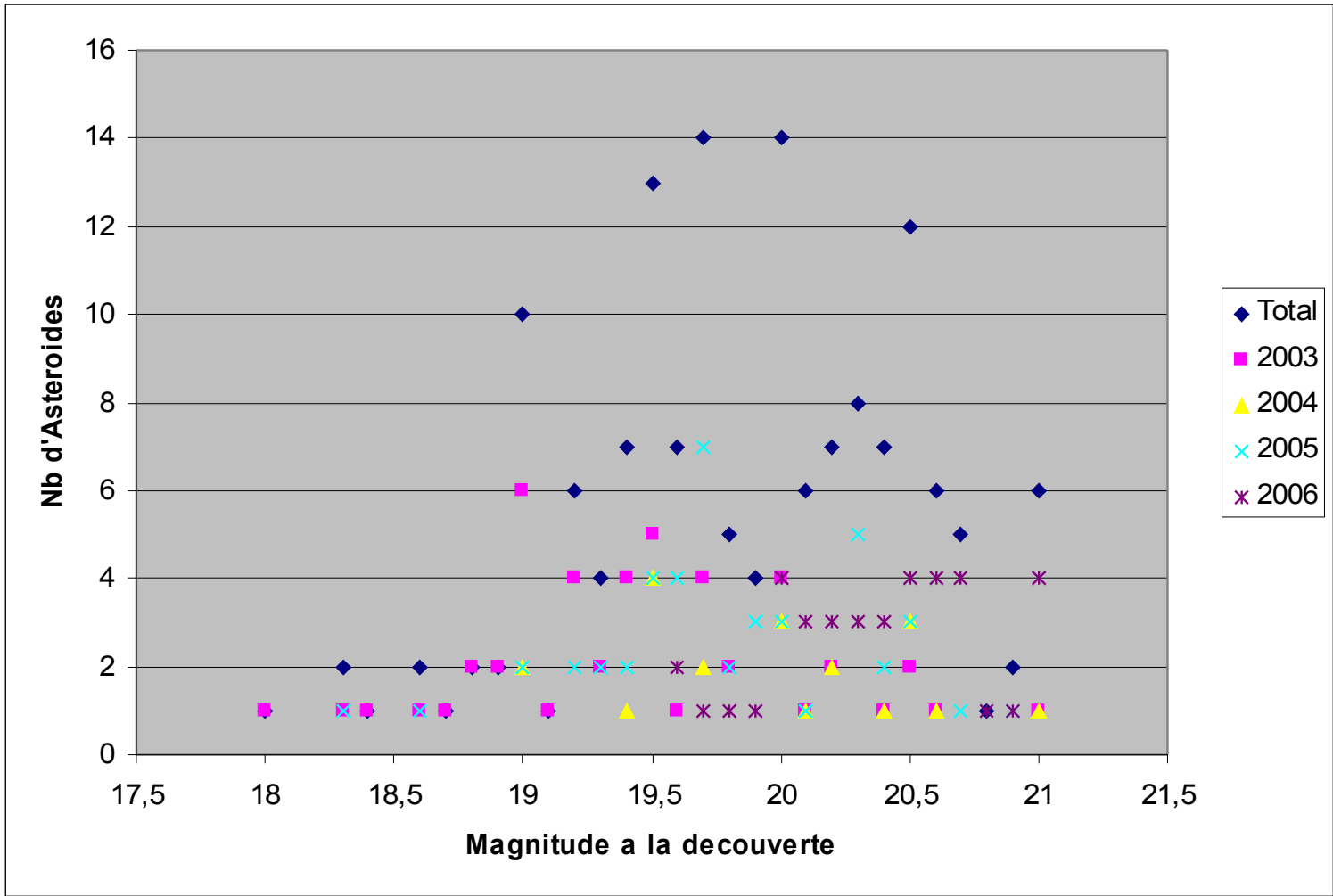
•	Year	Tot	<1"	<2"	<3"	<4"	>=4"	R.A.	Decl.
•	2006	250	220	29	1	0	0	+0.02 +/- 0.45	-0.14 +/- 0.47947
	2005	671	591	77	3	0	0	+0.05 +/- 0.43	-0.19 +/- 0.48947
	2004	229	176	39	14	0	0	+0.01 +/- 0.74	-0.01 +/- 0.66947
	2003	753	608	107	25	13	0	-0.01 +/- 0.72	+0.18 +/- 0.59947
	2002	274	271	3	0	0	0	-0.03 +/- 0.23	+0.24 +/- 0.22947
	2001	70	60	8	2	0	0	+0.09 +/- 0.48	+0.13 +/- 0.63947
	2000	70	67	2	1	0	0	-0.43 +/- 0.42	-0.26 +/- 0.34947
	1999	109	85	18	5	1	0	+0.14 +/- 0.73	+0.03 +/- 0.65947
	1998	166	131	29	5	1	0	+0.08 +/- 0.57	+0.00 +/- 0.76947
	1997	25	12	10	3	0	0	-0.09 +/- 1.02	+0.20 +/- 0.87

Précision de mes mesures

Minor Planet Ephemeris Service:

[Minor Planet & Comet Ephemeris Service.htm](#)

[Minor Planet Ephemeris Service Query Results.htm](#)



Période et durée d'observation :

	nb de jours	nb Heures	nb d'images
2003	54	190	4100
2004	38	159	2500
2005	46	208	3700
2006	27	100	1900

DESIGNATIONS

Status Report for Saint-Sulpice

Number of designations found = 129

Count	Designation	Principal	Orbit
1	: 2003 EN52	BCH0003: (114649) *N:	Numbered object
2	: 2003 FQ3	BCH0005:	: 16-day arc (MPO 48341)
3	: 2003 FW6	BCH0008: (120103) *N:	Numbered object
4	: 2003 FW102	BCH0009:	: 28-day arc (MPO104254)
5	: 2003 GO	BCH0011: 2003 GO	: 3 opps, 2001-2005 (MPO 97649)
6	: 2003 GP	BCH0012: 2005 TB73	: 5 opps, 1998-2005 (MPO 96006)
7	: 2003 GQ	BCH0013: 2003 GQ	: 2 opps, 1999-2003 (MPO 89461)
8	: 2003 MO9	BCH0017: 2002 CP267	: 2 opps, 2002-2003 (MPO 50008)
9	: 2003 OW30	BCH0018:	: 82-day arc (MPO 53740)
10	: 2003 PS4	BCH0020: 1998 SB111	: 2 opps, 1998-2003 (MPO 74587)
11	: 2003 PT4	BCH0021: 2003 PT4	: 4 opps, 2002-2006 (MPO102152)
12	: 2003 QE28	BCH0025:	: 10-day arc (MPO 50789)
13	: 2003 QG31	BCH0024:	: 35-day arc (MPO 57922)
14	: 2003 QH31	BCH0026: 2003 QH31	: 3 opps, 2003-2006 (E2006- R48)
15	: 2003 QJ31	BCH0030: 2003 QJ31	: 4 opps, 1992-2004 (MPO 72799)
16	: 2003 QK31	BCH0032:	: 53-day arc (MPO 53749)
17	: 2003 QF104	BCH0029:	: 11-day arc (MPO 50807)
18	: 2003 QG104	BCH0031:	: 31-day arc (MPO 57931)
19	: 2003 SQ170	BCH0039: 2003 SQ170	: 3 opps, 2003-2006 (MPO102169)
20	: 2003 SR170	BCH0041:	: 2-day arc (MPO 53807)
21	: 2003 SS170	BCH0042: (133404) *	: Numbered object
22	: 2003 SL228	BCH0047: 2003 SL228	: 2 opps, 2003-2005 (MPO 95095)
23	: 2003 SZ235	BCH00a1: (129905)	: Numbered object
24	: 2003 SO244	BCH00d0: 2003 SO244	: 6 opps, 1995-2006 (MPO102172)
25	: 2003 SP244	BCH00a4:	: 56-day arc (MPO 97679)
26	: 2003 UV17	BCH0071: 2003 UV17	: 3 opps, 2000-2005 (MPO 77723)
27	: 2003 UW17	BCH0069:	: 36-day arc (MPO 57988)
28	: 2003 UX17	BCH0067: 2003 UX17	: 4 opps, 2001-2006 (E2006- R48)
29	: 2003 UY17	BCH0066: (96467)	: Numbered object
30	: 2003 UZ17	BCH0062: 1998 OW3	: 6 opps, 1994-2006 (MPO101970)
31	: 2003 UA18	BCH0061:	: 67-day arc (MPO 57988)
32	: 2003 UC18	BCH0057:	: 57-day arc (MPO 57988)
33	: 2003 UD18	BCH0053: 2003 UD18	: 5 opps, 1992-2006 (MPO 97684)
34	: 2003 UT185	BCH0084: 2003 UT185	: 4 opps, 1995-2005 (E2006- R48)
35	: 2003 UH313	/03SO40:	: None
36	: 2003 XN15	BCH0095: 2003 XN15	: 2 opps, 2002-2003 (MPO 69598)
37	: 2003 XT15	BCH0090:	: 4-day arc (MPO 58083)
38	: 2003 XW21	BCH0089: 2003 XW21	: 3 opps, 2000-2005 (MPO 87600)

39 : 2004 DR25 BCH0106: : None
40 : 2004 DQ38 BCH0102: : None
41 : 2004 FD92 BCH0108: 2004 FD92 : 4 opps, 2000-2005 (MPO
90195)
42 : 2004 FE92 BCH0110: 2004 FE92 : 4 opps, 1998-2005 (MPO
86420)
43 : 2004 KJ1 AO02233: 2004 KJ1 : 2 opps, 2004-2006 (MPO
95225)
44 : 2004 KX7 BCH0117: 2004 KX7 : 3 opps, 2000-2005 (MPO
90203)
45 : 2004 LZ9 BCH0126: : None
46 : 2004 MH2 BCH0128: : None
47 : 2004 PQ100 BCH0129: : None
48 : 2004 PR100 BCH0130: 2005 WJ100 : 4 opps, 1999-2005
(MPO101137)
49 : 2004 RR288 BCH0133: 2005 YO211 : 3 opps, 2003-2006 (MPO
96853)
50 : 2004 RS288 BCH0138: : None
51 : 2004 RT288 BCH0136: : 6-day arc (MPO 70457)
52 : 2004 RU288 BCH0135: : 25-day arc (MPO 70457)
53 : 2004 RV288 BCH0139: 2005 YH13 : 3 opps, 2001-2006
(MPO102263)
54 : 2004 RW288 BCH0141: : None
55 : 2004 RX288 BCH0144: : 6-day arc (MPO 70457)
56 : 2004 RY288 BCH0146: : None
57 : 2004 RZ288 BCH0145: : None
58 : 2004 RA289 BCH0140: : 6-day arc (MPO 70457)
59 : 2004 TB244 BCH0152: : 6-day arc (MPO 74412)
60 : 2004 TC244 BCH0159: 2004 TC244 : 4 opps, 1997-2006
(MPO102221)
61 : 2005 EL222 BCH0171: : 37-day arc (MPO 77848)
62 : 2005 FP BCH0176: 2005 FP : 2 opps, 2003-2005 (MPO
77022)
63 : 2005 FQ BCH0175: : 58-day arc (MPO 77855)
64 : 2005 FR BCH0177: : 27-day arc (MPO 77855)
65 : 2005 FP2 BCH0174: 2005 FP2 : 2 opps, 1997-2005 (MPO
89649)
66 : 2005 GG111 BCH0193: : 6-day arc (MPO 77869)
67 : 2005 JT44 BCH0196: : 10-day arc (MPO 77886)
68 : 2005 JA46 BCH0201: 2005 JA46 : 2 opps, 2005-2006 (E2006-
T48)
69 : 2005 JE64 BCH0199: : None
70 : 2005 JG64 BCH0202: : None
71 : 2005 JH91 BCH0204: 2005 JH91 : 3 opps, 2001-2006 (E2006-
R39)
72 : 2005 KB10 BCH0208: : 72-day arc (MPO 87679)
73 : 2005 KC10 BCH0209: 2005 KC10 : 2 opps, 2003-2005 (MPO
86763)
74 : 2005 KJ11 BCH0210: : 29-day arc (MPO 87679)
75 : 2005 PG5 BCH0215: : 46-day arc (MPO 87716)
76 : 2005 PH5 BCH0214: 2002 CZ116 : 2 opps, 2002-2005 (MPO
85437)
77 : 2005 PJ5 BCH0216: 2005 PJ5 : 2 opps, 2001-2005 (MPO
86978)
78 : 2005 PS5 BCH0221: (129234) *N: Numbered object
79 : 2005 PT5 BCH0220: 2000 QN71 : 3 opps, 2000-2005 (MPO
90031)
80 : 2005 PU5 BCH0222: 2005 PU5 : 5 opps, 1995-2005 (MPO
95697)
81 : 2005 PV5 BCH0218: 2005 PV5 : 3 opps, 2000-2005
(MPO103711)
82 : 2005 PC6 BCH0228: : 23-day arc (MPO 87717)
83 : 2005 PD6 BCH0229: : 172-day arc (MPO 97788)
84 : 2005 PE6 BCH0231: 2005 PE6 : 3 opps, 2001-2005 (E2006-

R48)

85	:	2005	PF6	BCH0230:	:	32-day arc (MPO104338)
86	:	2005	PT16	BCH0234:	:	105-day arc (MPO 90221)
87	:	2005	PU16	BCH0235:	:	11-day arc (MPO 87718)
88	:	2005	PD17	BCH0225:	:	52-day arc (MPO104338)
89	:	2005	PE17	BCH0226:	:	7-day arc (MPO 87718)
90	:	2005	QR11	BCH0239:	:	5-day arc (MPO 87722)
91	:	2005	QS11	BCH0240:	:	None
92	:	2005	QH30	BCH0252:	:	5-day arc (MPO 87726)
93	:	2005	QJ30	BCH0253: 2001 SF307	:	3 opps, 2001-2005 (E2006-

R48)

94	:	2005	QK30	BCH0248:	:	40-day arc (MPO 87726)
95	:	2005	QL30	BCH0249: 2005 QL30	:	2 opps, 2003-2005 (MPO

89719)

96	:	2005	QM30	BCH0245:	:	5-day arc (MPO 87726)
97	:	2005	QN30	BCH0244: 2005 QN30	:	4 opps, 1994-2005 (MPO

89719)

98	:	2005	QO30	BCH0247:	:	33-day arc (MPO 97792)
99	:	2005	QP30	BCH0246:	:	94-day arc (MPO 97792)
100	:	2005	QD76	BCH0256:	:	None
101	:	2005	QE76	BCH0255:	:	28-day arc (MPO 90232)
102	:	2005	QF76	BCH0254:	:	24-day arc (MPO104341)
103	:	2005	QG76	BCH0257:	:	18-day arc (MPO 87737)
104	:	2005	QM143	BCH0259: 2004 FF35	:	2 opps, 2004-2005 (MPO

90194)

105	:	2005	QN143	BCH0263:	:	None
106	:	2005	QO143	BCH0262: 2005 QO143	:	2 opps, 2002-2005 (MPO

89756)

107	:	2006	BL98	BCH0306:	:	52-day arc (MPO 98111)
108	:	2006	BM98	BCH0305:	:	52-day arc (MPO 98111)
109	:	2006	BM146	BCH0309: 2001 XA34	:	2 opps, 2001-2006 (MPO

94327)

110	:	2006	BG271	/06BE6M:	:	None
111	:	2006	HM18	BCH0319:	:	13-day arc (MPO104373)
112	:	2006	HN18	BCH0317: 2006 HN18	:	3 opps, 2003-2006 (E2006-

R39)

113	:	2006	HO18	BCH0320:	:	44-day arc (MPO102321)
114	:	2006	HZ50	BCH0323:	:	None
115	:	2006	HA51	BCH0325:	:	29-day arc (MPO102326)
116	:	2006	HB51	BCH0324:	:	14-day arc (MPO102326)
117	:	2006	HJ56	BCH0329: 2002 RX89	:	4 opps, 2000-2006

(MPO100343)

118	:	2006	HK56	BCH0328: 2000 FH51	:	3 opps, 2000-2006 (MPO
-----	---	------	------	--------------------	---	------------------------

99945)

119	:	2006	HO57	BCH0331:	:	69-day arc (MPO102327)
120	:	2006	QV55	BCH0347:	:	None
121	:	2006	QW55	BCH0337:	:	5-day arc (MPO104405)
122	:	2006	QO137	BCH0351: 2006 QO137	:	2 opps, 2003-2006 (E2006-

T46)

123	:	2006	QP137	BCH0354: 2006 QP137	:	2 opps, 2003-2006 (E2006-
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T50)

124	:	2006	QQ137	BCH0355: 2006 QQ137	:	2 opps, 2001-2006 (E2006-
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T46)

125	:	2006	QR137	BCH0342: 1995 SM67	:	2 opps, 1995-2006 (E2006-
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S61)

126	:	2006	QP163	BCH0346:	:	None
127	:	2006	QT163	BCH0334: 2001 DD91	:	2 opps, 2001-2006 (E2006-

S01)

128	:	2006	QU163	BCH0338:	:	None
129	:	2006	QV163	BCH0344:	:	None

This site has discovered 4 numbered objects
 3 of the numbered objects have been named
 6 of the discoveries are identified with numbered minor planets

51 of the discoveries are involved in multiple-apparition orbits
35 of the discoveries are principal designations
23 of the one-opposition objects have \geq 30-day arc orbits
28 of the one-opposition objects have $<$ 30-day arc orbits
21 of the one-opposition objects have no orbit

-- End of report

NOTES ON INTERPRETING THIS REPORT

For each provisionally-designated object that you have discovered the following information is displayed:

- 1) a monotonically-increasing count that has no significance other than to indicate the order in this list.
- 2) the provisional designation followed by the observer-assigned temporary designation. Occasionally the temporary designation will begin with '/' (e.g., /95Y03R) indicating that the observations were originally reported as belonging to some known object (in the example, 1995 YR3).
- 3) the principal designation if the object is involved in a double designation or identification. When the principal designation is a numbered object, the designation is followed by an asterisk if you are credited with the discovery of that numbered object. The asterisk is followed by 'N' if the object has been named.
- 4) details on the latest orbit available for the object. Most references will be to the MPCs. References that begin with 'E' refer to MPECs.

This list is intended to be complete through the latest batch of MPCs, supplemented with any Daily Orbit Update MPECs.

--End of notes

Avenir des recherches amateurs de nouveaux astéroïdes

A terme (3 à 5 ans) les surveys US vont encore s'améliorer et atteindre des magnitudes de 23, 24 hors de portée du matériel amateur.

D'ici là on peut encore se faire plaisir.

Un matériel minimum est nécessaire :

Un bon télescope > 400mm

Un bon site (+1, à +2 mag.)

Une bonne camera un grand nombre de pixels, amincie si possible

La ST10xme semble un bon compromis

Une résolution autour de 1.5'' , 2''

Couvrir le champs le plus grand possible, une courte focale

Nécessité d'un correcteur de champs ? Télescope de Schmidt ?

Quelles améliorations pour mon matériel ?

Sur télescope : Goto ?

Aluminure ou mieux sur le miroir

Sur caméra : Aller vers le C-Mos, si plus grand, si aussi sensible

S'il permet une correction automatique du suivi sur une étoile du champs (toujours avec l'objectif de minimiser le diamètre des étoiles)