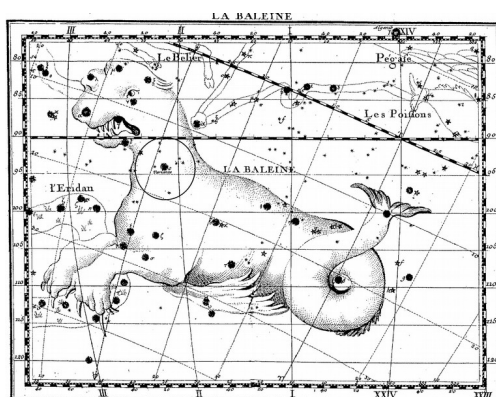
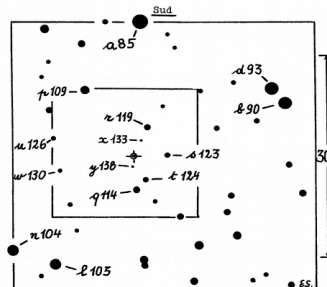


Bulletin de l'Association Française des Observateurs d'Etoiles Variables (AFOEV)



0749+22 U Geminorum (U Gem)

1900 : 07h 49m 10s +22° 15,9' précession annuelle
1950 : 07h 52m 08s +22° 08,3' +3,56s -0,153"
2000 : 07h 55m 06s +22° 00,6' éq. 1900
UGSS - mv 8,2 à 14,9 - per.moy. 105,2 j - sp. Pec(UG)+M4,5V

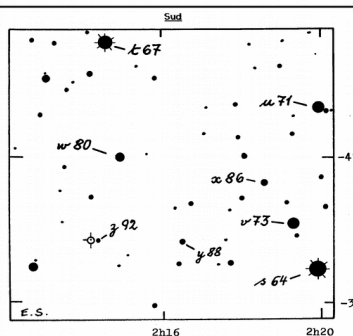


Carte et séquence AFOEV 1936
1991-IX

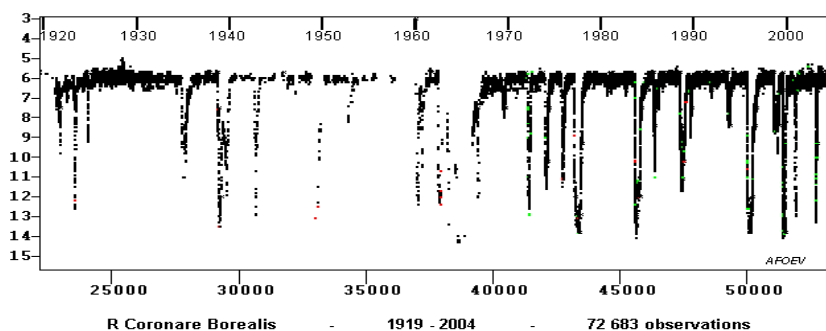


0214-03 Mira Ceti (omi Cet)

1900 : 02h 14m 18s -03° 26,1' précession annuelle
1950 : 02h 16m 49s -03° 12,2' +3,03s +0,278"
2000 : 02h 19m 21s -02° 58,3' éq. 1900
Mira - mv 2,0 à 10,1 - pér. : 331,96 j - sp. M5e-M9e



Carte et séquence AFOEV (1936)
1991-IV; éq 1900



R Coronae Borealis

1919 - 2004

72 683 observations

Bulletin
numéro 162
(2017-4)

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Le mot du Président

Une série de super Lunes !

Coup sur coup, surviennent 3 super Lunes : le 3 décembre 2017, puis les 1er et 31 janvier 2018. L'Institut de mécanique céleste et de calcul des éphémérides de l'Observatoire de Paris nous éclaire en chiffres sur les spécificités de ce phénomène plutôt rare. On dit d'un objet céleste qu'il est à son périhélie lorsqu'il atteint sur son orbite elliptique le point le plus proche du centre de son astre attracteur. La Lune évoluant sur une orbite excentrique implique que sa distance à la Terre varie chaque mois entre environ 356 000 km et 406 000 km.

Bien qu'il n'existe pas de définition officielle de la super Lune, on admet tacitement que la distance de l'astre à la Terre doit être inférieure à 356 600 km. Dimanche 3 décembre 2017, la Lune était à son périhélie, peu après sa phase de pleine lune, à une distance de **357 492 km**. A 1 500 km près, elle était donc très proche de la limite "356 600 km" pour mériter cette appellation de "super Lune".

En revanche, la pleine Lune du 1er janvier 2018 s'annonce comme une "vraie" super Lune, avec une distance de **356 564 km** à la Terre lorsqu'elle passera par son périhélie. Le 31 janvier 2018, la distance Terre-Lune sera de **358 995 km**.

Trois fois d'affilée, s'offrira le spectacle d'une Lune pleine, dans sa totalité éclairée, mais beaucoup plus grosse que d'habitude, ce qui permettra d'en distinguer plus facilement à l'œil nu les zones sombres et les contrastes. Au XXI^e siècle, il faudra attendre le 25 novembre 2034, pour voir la pleine Lune passer sous la limite des **356 500 km**. Et le 6 décembre 2052, surviendra la pleine Lune la plus proche de la Terre, à une distance de 356 425 km.

Il faut savoir qu'au cours des deux derniers millénaires, ne se sont produites que deux **Lunes ultimes** (sous la barre des 356 400 km), approchant d'une dizaine de kilomètres seulement cette fameuse distance minimale Terre-Lune : le 19 décembre 796 à **356 366 km** et le 4 janvier 1912 à **356 375 km**. Ces périhélie particuliers propres aux Lunes "ultimes" peuvent encore être appelés "proxigées". On constate une diminution du nombre de Lunes ultimes avec le temps, conséquence de la diminution de l'excentricité de l'orbite terrestre.

A l'avenir, il faudra être très patient pour assister à des super Lunes exceptionnelles. La prochaine Lune ultime est annoncée pour le... 1er janvier 2257, avec une distance de **356 371 km**.

Dominique Proust
(Observatoire de Paris-campus de Meudon)

U Geminorum, une étoile intéressante pour les longues soirées d'hiver

Pierre JACQUET

Avec l'arrivée progressive de l'hiver et ses belles constellations riches en merveilles, telles Orion, les Gémeaux, le Cancer, le Taureau Grand Chien et bien d'autres, je propose pour cette rubrique, une étoile variable très particulière de la constellation des Gémeaux et assez aisée pour le débutant, lors de ses maximum d'éclat : U Geminorum.

Découverte par l'astronome Hind en 1885, elle fut cataloguée sous la référence MN.16,56-1856 après sa découverte, et également référencée BD 22° 1807 et HD 64511. Rapidement étudiée par de nombreux observateurs professionnels et amateurs, une courbe de lumière presque complète fut établie depuis sa découverte. En temps normal, U Gem est une étoile très faible, puisqu'elle atteint la magnitude 14,0, avec des éclipses de 1,2 magnitude d'amplitude qui surviennent tous les 0,17690591 jour, soit à peu-près : 4 heures et 12 minutes !. Des oscillations lumineuses incessantes et très rapides, y sont décelées. Le caractère particulier de cette étoile, ce sont ses éruptions. Tous les 105 jours en moyenne, l'éclat visuel de l'étoile passe de m_v : 14.0 à 8.8, soit un accroissement de 5.2 magnitudes en quelques heures (l'étoile devient 100 fois plus lumineuse que pendant la normale.). L'accroissement d'éclat est très spectaculaire, quand il est observé juste à son démarrage, comme ce fut le cas par Michel Verdenet, en Mai 1993. Les maxima d'U Gem sont assez équilibrés en général, et assez symétriques, ils sont aussi d'une ressemblance troublante en durée et en éclat.

Michel Verdenet précise d'ailleurs à son sujet : « ...Il n'a guère pu être retrouvé chez U Gem, des différences de maxima comme ceux de SS Cyg : longs et courts, ou spéciaux. Au départ, on penchait vers des maxima longs de 10 à 20 jours et des courts de 5 à 8 jours (Brun,1952), mais on ne cherche plus vraiment de telles différences aujourd'hui. Il ne faut citer qu'une exception, qui est celle de 1985. La pseudo-période est, bien-sûr, très variable autour de sa moyenne de 105 jours. Les records enregistrés allant de 62 à 257 jours... ».

Concernant la crise anormale de 1985, c'est sans doute le plus long maximum enregistré de cette étoile, depuis 1855. Il a débuté le 5 Octobre et on a pu observer la montée de l'étoile qui fut normale, et s'en achevée le 20 Novembre, soit 46 jours après, alors que les crises longues oscillent autour de 12 jours ! Ce maxima ne causa aucune variation du rythme ni de l'éclat habituels.

• **Commentaire :**

Aujourd'hui, on sait que les éruptives sont des étoiles doubles serrées (ce que confirment les éclipses, quand il y en a...), les périodes allant de 0.05 à 0.5 jour en général. L'étoile principale du « couple » U Geminorum et une étoile géante rouge de type K ou M (ici M), et le compagnon, une naine blanche. Le spectre du système contient de larges raies d'émission, de l'hydrogène et de l'hélium. Au maximum, ces raies disparaissent ou deviennent des raies d'absorption faibles. A la limite de Roche (*) dont elles sont proches, de la matière s'échange entre les deux composantes : un jet de matière provenant de la géante vient entourer la secondaire et former un disque d'accrétion. La formation d'une tâche très chaude sur la naine est la cause des éruptions. Les éclipses sont d'ailleurs dues à cette tâche brillante.

On parle souvent de plusieurs types d'éruptives. U Gem et SS Cyg sont classées UGSS, car leurs maxima sont réguliers et comparables. D'autres sont classées UGSU, quand elles ont des maxima courts et des supermaxima, et d'autres UGZ, quand elles présentent des paliers dans leur courbe.

- - **Observer U Geminorum :**

« ...C'est une étoile qui est à conseiller aux observateurs non-variabilistes, car elle donne vraiment une idée de ce qu'est le travail d'étude des étoiles variables »..., selon Michel Verdenet. Les coordonnées de U Gem sont : AD : 07h55min05.2s et dec : +22°00'05" (2000.0), ce qui fait classer U Geminorium sous le numéro 0749+22 de Harvard.

La localisation de la variable peut en rebuter parfois quelques uns. On peut bien-sûr travailler aux cercles divisés, ou encore mieux, à l'aide d'un GOTO (pointage numérique), le pointage sera plus aisée; visuellement, le cheminement le plus simple est de partir de Bêta (β) Gem (Pollux), puis en ligne droite par kappa (κ) vers trois étoiles alignées, ce qui est assez aisé au chercheur. Un losange incomplet, quand U Gem est au repos, permet alors de finir le chemin (cartes jointes). Une étoile double de 9^{ème} magnitude trouvée, il suffit de la mettre en haut et à droite du champ de l'oculaire et de cheminer vers la gauche (Ouest) pour trouver le champ qui nous intéresse. Le champ intéressant qui occupe environ 10minutes d'arc est un alignement de 3 étoiles de mag 12, et une quatrième étoile décalée de 120°.

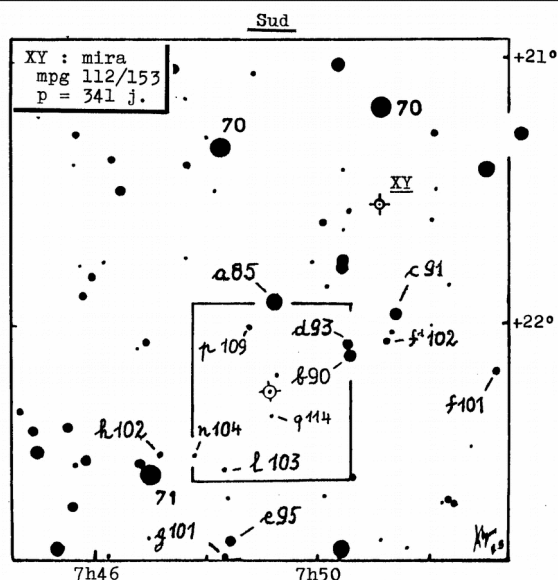
Selon l'instrument dont on dispose, la vision se limitera ici, où on pourra voir les étoiles de magnitude 13.3 et 13.8 qui encadrent U Gem ; si on voit l'étoile de magnitude 14.5 aussi, alors on verra en général cette petite étoile de magnitude 14.0, qui est U Geminorum au minimum d'éclat, hors des éclipses !

Lors de maximum en cours, l'observateur est un peu dérouté parce qu'il voit U Gem à magnitude 9.0 qui domine tout le champ. Il est alors bon de revenir à un instrument faisant voir la double de magnitudes 9.0 et 9.3, ainsi que l'étoile de magnitude 8.5, formant un triangle équilatéral avec U Gem pour faciliter l'estimation d'éclat de la variable, qui est de cet ordre.

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UGSS - mv 8,2 à 14,9 - per.moy. 105,2 j - sp. Pec(UG)+M4,5V



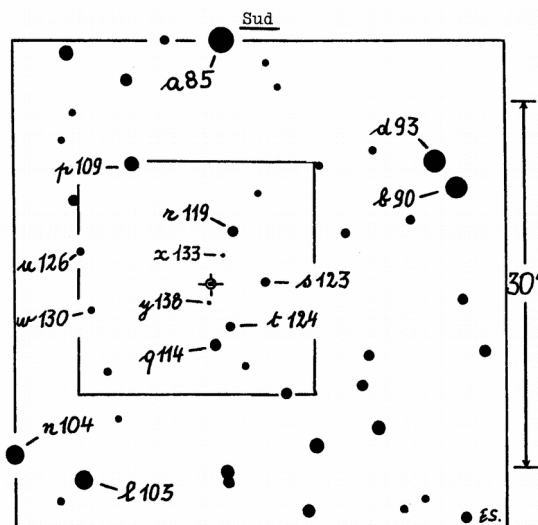
Carte et séquence AFOEV 1936-1975-1991
1991-IX ; Éq 1900

B

0749+22 U Geminorum (U Gem)

1900 : 07h 49m 10s +22° 15,9' précession annuelle
 1950 : 07h 52m 08s +22° 08,3' +3,56s -0,153'
 2000 : 07h 55m 06s +22° 00,6' éq. 1900

UGSS - mv 8,2 à 14,9 - per.moy. 105,2 j - sp. Pec(UG)+M4,5V



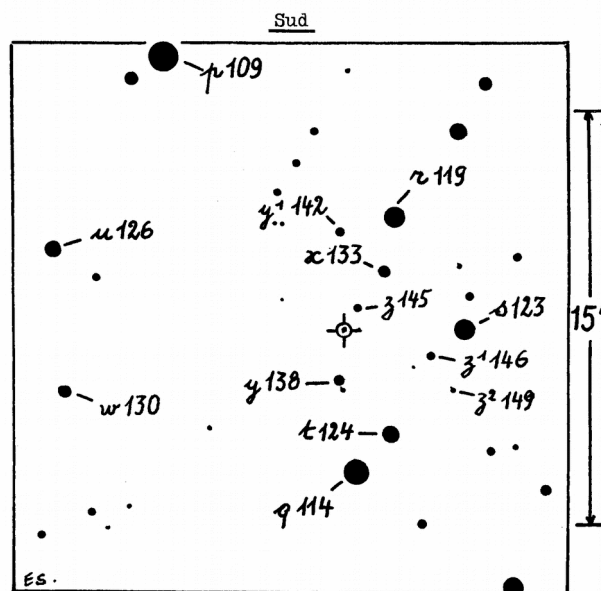
Carte et séquence AFOEV 1936
 1991-IX

C

0749+22 U Geminorum (U Gem)

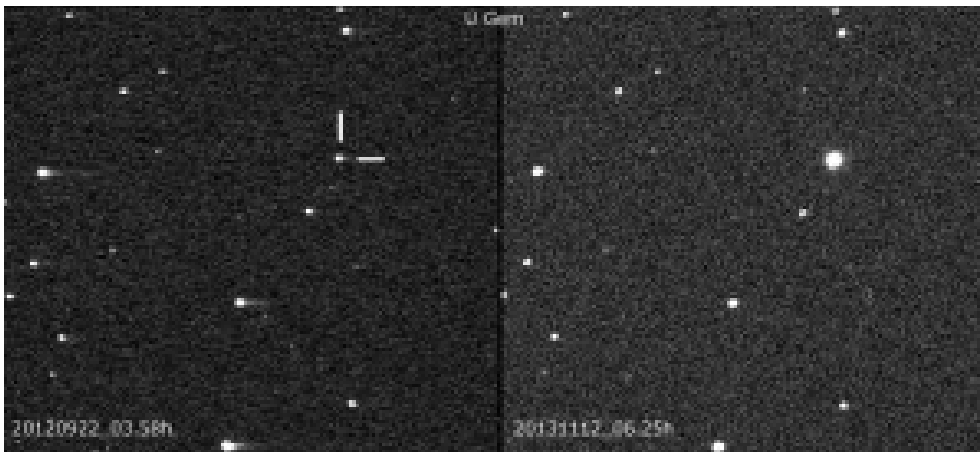
1900 : 07h 49m 10s +22° 15,9' précession annuelle
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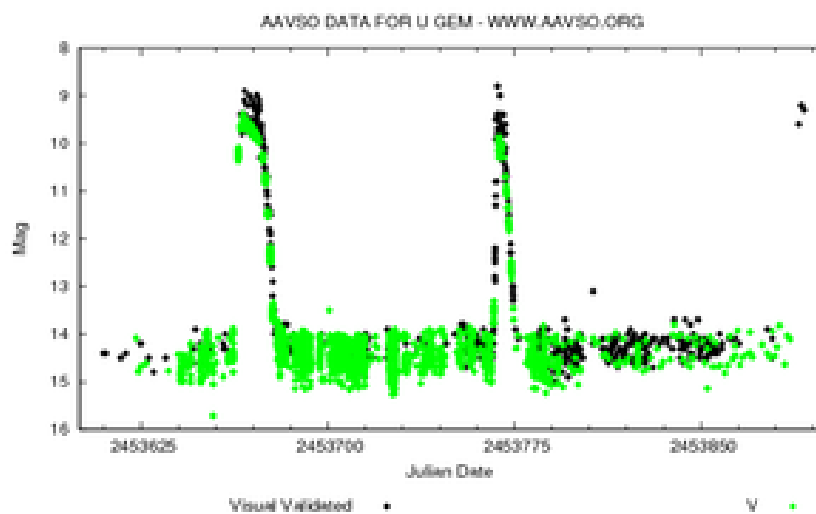
Carte et séquence AFOEV 1936
 1991-IX

D

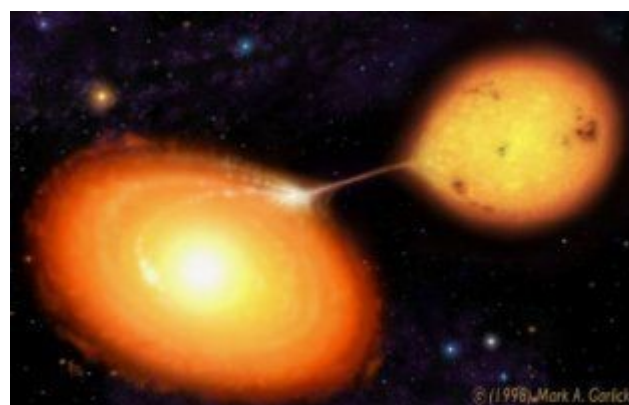


U Gem à magnitude 14.2, le 22/09/2012 à 03h58mn (TU) U Gem à magnitude 9.1, le 12/11/2013, à 06h25mn (TU)

Images prises durant une crise de U Gem, le 12 Novembre 2013, par Dave Storey.



Courbe de lumière de U Gem, approximativement entre JJ245625 et JJ2455850 (Document AAVSO).



Dessin d'artiste représentant le système U Geminorum qui se transforme en nova lorsque le disque d'accrétion composé d'hydrogène et aspiré par l'étoile naine blanche devient si chaud qu'il provoque une instabilité explosive à la surface de l'étoile dense. (Document AAVSO/Mark A. Garlick)

Miras 2018

Maximums et minimums des étoiles variables du type Mira Ceti
pour l'année 2018 et les mois de janvier et février 2019

Dominique Naillon

© A.F.O.E.V.

Les étoiles, avec leur numéro de Harvard et leur désignation dans le système d'Argelander, sont classées par ordre croissant des ascensions droites. Pour chaque étoile, on donne la valeur de l'éclat au maximum et au minimum. Ces valeurs sont extraites du *General Catalogue of Variable Stars* ; elles ont été corrigées à partir des observations enregistrées dans la base de données de l'A.F.O.E.V.

Sur le graphique, les dates prévues des maximums sont indiquées par la lettre 'M' et les minimums par la lettre 'm'. Les symboles '+', qui précèdent ou suivent la date prévue du maximum, indiquent la période approximative pendant laquelle l'étoile devrait être d'un éclat plus brillant que la magnitude 11,0 , et les symboles '-' celle où elle devrait être d'un éclat plus faible que la magnitude 13,5 .

Les dates des maxima et des minima ainsi que la représentation graphique des courbes de lumière ont été calculées à partir des éléments du *General Catalogue of Variable Stars* (4ème édition, Moscou, 1985-87) après ajustement d'après nos observations les plus récentes.

La période des étoiles R Aql, R Hya et Z Tau a été affinée en fonction de son évolution depuis l'édition du *G.C.V.S.*

Le tableau de prévisions doit servir pour chaque observateur à établir son programme personnel en tenant compte de ses possibilités instrumentales. Des estimations d'éclat faites en fin de nuit sont souhaitables, les courbes de lumière pouvant ainsi être complétées.

Il est rappelé qu'il est inutile d'observer visuellement une variable du type mira plusieurs nuits consécutives. Il est préférable de ne l'observer qu'une fois toutes les huit ou dix nuits et d'en profiter pour élargir le programme.

2018 - 2019			Janv.	Fév.	Mars	Avril	Mai	Juin	Juill.	Août	Sept.	Oct.	Nov.	Déc.	Janv.	Fév.
0004+51 SS Cas	7.0 - 13.4	+++	+++++M	+++++	+++	m	++++	++++M++	+++++	+	m	+	+++++	+M++++	+++++	m
0009+28 UW And	9.4 - 15.6	-----	---m-	-----	---m--	----	++++	+++++M	+++++	+++++	+++++	-----	-----	-----	m-----	----
0010+46 X And	8.0 - 15.4	+++++	+++	-----	----	m-----	----	+++++	+++++	+++++	+++++	+++++	+++++	-----	-----	-----
0017+25 T And	7.7 - 14.7	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0017+55 T Cas	6.9 - 13.0	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0018+38 R And	5.6 - 15.4	----	-----	m-----	----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0021+30 YZ And	9.0 - 16.0	-----m	-----	-----	+++M++	+++++	+++++	-----	-----m	-----	+	+++M++	+++++	+++++	-----	-----
0027+25 TU And	7.5 - 13.4	+++++	+++++	+	----	m	----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0031+62 TY Cas	10.5 - 17.2	-----	-----	-----	-----	----	+	+++M++	+	----	----	+	+++++	+++++	-----	-----
0031+79 Y Cep	8.1 - 16.2	+++M++	+++++	+++++	+++++	+++++	----	-----	m-----	-----	-----	+++++	+++M++	+++++	+++++	+++++
0040+47 U Cas	8.0 - 17.4	-	++++	+++M++	+++++	+	----	----	-----m	-----	-----	+	+++++	+++M++	+++++	+++++
0041+32 RW And	7.9 - 16.1	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0045+33 RR And	8.1 - 16.8	+++M++	+++++	+++	-----	-----	-----m	-----	-----	-----	-----	+	+++++	+++M++	+++++	+++++
0045+37 V And	8.9 - 15.3	-----m	-----	-----	++++	+++M++	+++++	+	-----	-----	-----m	-----	+++++	+++M++	+++++	+++++
0047+46 RV Cas	7.3 - 16.1	-----	---m--	-----	+	+++++	+++M++	+++++	+++++	+++++	+++++	-----	-----	-----	-----	-----
0049+58 W Cas	7.8 - 13.0	+++	-----	-----	m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0054+27 W Psc	9.6 - 15.0	++++	-----	---m	-----	-----	++++M	+++++	+++++	-----	-----m	-----	+	+++M++	+++++	+++++
0109+40 U And	8.9 - 15.0	+	+++++	+++M++	+++++	+++++	+++++	-----	-----	-----	m-----	-----	+++++	+++++	+++++	+++++
0110+41 UZ And	9.1 - 15.7	+++++	+++	-----	+++++	+++++	-----	m-----	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++
0110+55 VZ Cas	9.0 - 15.0	m----	-----	+++M++	+++++	+++++	-----m	-----	++++	+++M++	++	-----	-----	-----	+++++	+++++
0112+08 S Psc	8.2 - 15.3	-----	+++++	+++++	+++M++	+++++	+++++	+++++	++++	-----	-----	-----	-----	-----	+++++	+++++
0112+72 S Cas	7.9 - 16.5	-	-----	-----	-----	-----m	-----	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++
0117+12 U Psc	10.3 - 15.5	++	M++	-----	-----	-----m	-----	+	++++	+	-----m	-----	+++++	+++++	+++++	+++++
0120+30 RX Psc	8.8 - 17.6	---m--	-----	-----	++++	+++M++	+++++	+++++	-----	-----	-----m	-----	-----	-----	+++++	+++++
0123+50 RZ Per	7.7 - 14.0	+++++	+++++	M++++	+++++	+++++	+++++	++++	-----	-----m	-----	-----	+++++	+++++	+++++	+++++
0125+02 R Psc	7.1 - 14.8	-----	-----	---m--	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	-----	-----
0127+46 SX And	8.6 - 14.8	+++++	+++++	+++M++	+++++	+++++	+++++	++++	-----	-----	-----m	-----	+++++	+++++	+++++	+++++
0133+38 Y And	8.0 - 15.2	+++++	M++++	+++++	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0149+58 X Cas	9.3 - 13.2	+++	+++++	+++++	+++++	+++++	+++++	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0152+54 U Per	7.1 - 12.0	M++++	+++++	+++++	+++++	+++++	+++++	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0154+57 v666 Cas	10.8 - 13.9	++++	+++++	+++++	+++++	+++++	+++++	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0159+12 S Ari	9.8 - 15.8	++++	-----	-----	-----m	-----	-----	-----	-----	+++	+++M++	++	-----	-----	-----	-----
0210+24 R Ari	6.9 - 13.7	+++M++	+++++	+++	m-	+++++	+++++	+++++	+++++	+++++	+++++	m-	+++++	+++++	+++++	+++++
0211+43 W And	6.3 - 15.1	+++++	+++++	M++++	+++++	+++++	+++++	+++++	+++++	++++	-----m	-----	+++++	+++++	+++++	+++++
0212+81 Z Cep	10.1 - 15.8	-----	-----m	-----	-----	-----	++++	+++M++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0214-03 omi Cet	2.0 - 10.1	+++M++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0220-00 R Cet	7.0 - 14.2	-----	---m-	++++	+++M++	+++++	+++++	++++	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++
0221+32 S Tri	8.9 - 12.4	+++	+++++	+++M++	+++++	+++++	+++++	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0221+50 RR Per	8.1 - 15.1	-----	-----	+	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0229+80 RR Cep	9.0 - 16.1	+++++	+++M++	+++++	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0231+33 R Tri	5.0 - 12.6	m	+++M++	+++++	+++++	M++++	+++++	+++++	+++++	+++++	m	+	+++++	+++++	+++++	+++++
0305+14 U Ari	7.2 - 15.2	+++++	+++++	+++++	+++	-----	m-----	-----	-----	-----	-----	+++++	+++++	+++++	+++++	+++++
0311+70 v667 Cas	9.0 - 14.7	-----	-----	-----	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0314-01 X Cet	8.0 - 13.9	-m-	++	+++++	M++++	+++++	+++++	-----	m-	++++	+++++	+++++	+++++	+++++	-m-	-----
0320+43 Y Per	8.1 - 11.1	+++++	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0323+45 R Per	7.8 - 14.8	++++	+++++	+++++	++++	-----	-----m	-----	++++	+++++	+++++	+++++	+++++	+++++	-----	-----
0422+09 R Tau	7.6 - 14.8	+	+++++	+++++	M++++	+++++	+++++	+	-----	-----	-----m	-----	++++	+++++	+++++	+++++
0423+09 S Tau	9.2 - 16.0	+++	+++++	-----	-----	-----	-----m	-----	-----	-----	-----	+++M++	+++++	+++++	+++++	+++++
0430+65 T Cam	7.0 - 14.5	++++	+++M++	+++++	-----	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0432+74 X Cam	7.0 - 14.2	++++	+++M++	+++++	m-	++++	+++++	+++M++	+++++	m-	+	+++++	M++++	++++	-----	-----
0446+15 V Tau	8.0 - 14.6	-----	---m--	+++++	+++++	+++++	+++++	-----	-----	++++	+++M++	+++++	+++++	+++++	+++++	+++++
0452+56 TX Cam	8.8 - 15.1	+++M++	+++++	+++++	++++	+++++	+++++	m-----	-----	m-	-----	+	+++++	+++++	+++++	+++++
0453+07 R Ori	9.0 - 13.7	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0455-14 R Lep	5.5 - 11.7	+++++	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	m	+++	+++++	+++++	+++++	+++++	+++++
0500+03 V Ori	8.9 - 14.9	+++++	++	-----	m-----	-----	-----	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	-----	-----
0500-22 T Lep	7.2 - 14.3	+++++	+++M++	+++++	+++++	+++++	+++++	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++
0509+53 R Aur	6.7 - 13.9	+++++	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	-----	-----	---m-	-----	+++++	+++++	+++++
0520+36 W Aur	8.0 - 16.3	-----	+++++	+++++	+++++	+++++	+++++	-----	-----	-----	-----	+++++	+++M++	+++++	+++++	+++++
0524-04 S Ori	7.2 - 14.0	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0526+07 BK Ori	8.8 - 13.9	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0532-01 X Ori	8.9 - 14.5	-----	++	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0535+31 U Aur	7.5 - 15.5	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0535+38 SZ Aur	8.4 - 15.5	+++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0546+15 RU Tau	10.4 - 16.8	-----	-----	-----	-----	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0546+15 Z Tau	9.8 - 14.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++
0549+20 U Ori	4.8 - 13.0	+++	+++++	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	+++++	++++	+++++	+++++	+++++	+++++
0549+74 V Cam	7.4 - 16.0	+	+++++	+++++	-----	-----	-----	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++
0554+39 AZ Aur	8.7 - 14.0	-----	+++++	+++++	+++M++	+++++	+++++	+++++	+++++	-----	-----	-----	-----	-----	-----	-----
0604+43 RR Aur	8.7 - 15.3	-	+++++	+++++	+++M++	+++++	+++++	++++	-----	-----	m-----	-----	++++	+++++	+++++	+++++
0604+50 X Aur	7.0 - 13.8	+++M++	+++++	+	m	++++	+++++	+++++	+++++	++++	m-	++	+++++	+++++	+++++	+++++
0607+46 ST Aur	10.4 - 15.5	-----	+++++	+++M	++++	++++	+++++	+++++	++++	-----	-----	-----	-----	+++++	+++++	+++++
0612+75 W Cam	9.0 - 15.6	+++++	++	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0616+47 V Aur	8.5 - 13.0	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	m	+++++	+++++	+++++
0617+02 V Mon	6.0 - 13.9	m-	-----	+	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0630+26 BR Gem	10.6 - 16.2	-----	-----	-----	-----	M+	-----	-----	-----	-----	-----	M+	-----	-----	-----	-----
0631+59 U Lyn	8.8 - 15.0	++++	+++++	+++M++	+++++	+++++	+++++	++++	-----	-----	-----	-----	++++	+++++	+++++	+++++
0634+44 AA Aur	8.8 - 15.7	-----	++++	+++M++	+++++	+++++	+++++	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++
0635+58 S Lyn	8.5 - 15.1	-----	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++	++++	+++++	+++++	+++++	+++++
0640+30 X Gem	7.5 - 13.8	-m-	-----	+	+++++	+++++	+++++	+++++	+++++	+++++	+++++	++++	+++++	+++++	+++++	+++++
0651+11 Y Mon	8.6 - 14.9	-----	---m--	-----	++	+++M++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0653+55 R Lyn	7.2 - 14.9	-----	-----	-----	---m--	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0701+09 V Cmi	7.2 - 15.1	+++M++	+++++	+++++	+++++	+	+++++	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++
0701+22 R Gem	6.0 - 14.0	+++++	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	++++	-----	-----	++++	+++++	+++++	+++++
0702+05 RS Mon	8.0 - 14.0	++	+++++	+++M++	+++++	+++++	+++++	-----	-----	-----	++++	+++++	+++++	+++++	+++++	+++++
0703+10 R Cmi	7.0 - 11.6	+++++	+++++	+++++	+++M++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0706+07 WX Cmi	8.8 - 15.4	-----	-----	-----	-----	-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++
0707+14 VX Gem	8.0 - 13.6	-----	-----	m-	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0710+25 WZ Gem	8.0 - 16.3	-----	---m--	-----	-----	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0712+01 RR Mon	8.4 - 15.9	-----	-----	-----	-----	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0717+13 V Gem	7.8 - 15.0	+++++	++++	-----	-----	-----	-----	+	+++++	+++++	+++++	+++++	+++++	+++++	-----	-----
0719+33 XX Gem	9.4 - 14.7	+++++	+++M++	+++++	++++	++++	+++++	-----	-----	-----	-----	-----	++++	+++++	+++++	+++++
0721+41 VX Aur	8.0 - 13.5	-----	m	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	m	+++++
0727+08 S Cmi	6.6 - 13.3	+++++	+++++	+++M++	+++++	+++++	+++++	++++	+++++	m	-----	+++++	+++++	+++++	+++++	+++++
0728+11 T Cmi	9.2 - 15.4	-----	-----m	-----	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0732+34 ST Gem	8.5 - 14.8	++++	-----	-----	---m--	-----	++++	+++++	+++++	+++++	+++++	-----	-----	-----	-----	++++

0735+08 U Cmi	8.0 - 14.0				++	+++++	+++++	+++++	+++++	M+++++	+++++	+++++	++				-m-	--	
0737+23 S Gem	8.0 - 14.7		++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	----	m			++++	+++++	M+++++
0743+23 T Gem	8.0 - 15.3	--		+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	----	m	----		++++	+++++	+++++
0752+73 SW Cam	9.8 - 14.6			++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	----	m	----		++++	+++++	+++++
0753+20 BP Gem	9.5 - 15.8		+++++										++++	M+++++	++		+++++	M+++++	+++++
0805+23 RR Cnc	8.8 - 15.1	+++			-	----	-m----	--				+++++	M+++++	+++++	++			--	----
0808+37 RT Lyn	9.2 - 15.3	--m----	----				+++++	+++++	+++++	+++++	+++++	+++++	----				----	----	-m----
0810+40 W Lyn	7.5 - 16.5	--m----			+	+++++	+++++	+++++	+++++	+++++	+++++	----	----	m----			----	++	+++++
0811+12 R Cnc	6.0 - 12.4		m		+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	++++		m
0816+17 V Cnc	7.0 - 13.9	+++++	+++++	M++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0816+33 T Lyn	8.3 - 13.5				++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		m
0819+35 X Lyn	9.0 - 16.9	----	m	----	----	----	+++++	+++++	+++++	+++++	+++++	+++++	----	m			----	+	+++++
0830+13 UY Cnc	10.3 - 15.3	----		--m----	----	----	+++++	++				----	m	----			----	+	+++++
0830+19 U Cnc	8.5 - 17.1			----	----	----	-m----	----	----	----	+	+++++	M++++	+++++	+++++		----	+	----
0833+50 X Uma	8.1 - 16.1	+++++	+++++	M++++	+++++	+++++	----	----	----	----	+++++	+++++	+++++	+++++	+++++	+++++	++++		----
0848+03 S Hya	7.0 - 13.4	M++++	+++++	+++++	+++++		m				+++++	+++++	+++++	+++++	+++++	+++++	++++		m
0850-08 T Hya	6.7 - 13.5	+++++	+++++	++			m				+++++	+++++	+++++	+++++	+++++	+++++	+++++	+	
0904+25 W Cnc	7.0 - 15.3	+			----	----	-m----	-		+	+++++	+++++	+++++	M++++	+++++	+++++	+++++	+++++	+++++
0931+78 Y Dra	6.2 - 15.0	++++	+++++	+++++	+++++	M++++	+++++	+++++	+++++	+++++	+	----	----	m			+++++	+++++	+++++
0937+20 RS Leo	9.7 - 16.0	++			----	----	M++++	----	+	M++++	+	----	----	m			----	+	+++++
0939+34 R LMi	6.3 - 13.8		+	+++++	+++++	+++++	M++++	+++++	+++++	+++++	+++++	+++++	++++				m	----	+++++
0942+11 R Leo	4.4 - 11.5	+++++	+++++	+++++	M++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	++	m	+++++	+++++	+++++	+++++	M++++
0947+35 S LMi	7.5 - 14.6	M++++	+++++	+++++	++++		--m----	--		++++	+++++	+++++	+++++	+++++	+++++	+++++	++	-	++++
0954+21 V Leo	8.0 - 14.7	--	--m----	--		+	+++++	+++++	+++++	+++++	+++++	+++++	----	m			----	+	+++++
1037+69 R Uma	6.5 - 13.7		+	+++++	+++++	M++++	+++++	+++++	+++++	+++++	+++++			m		++	+++++	+++++	M++++
1048+14 W Leo	8.4 - 14.8	----	----	--m----	----		++++	+++++	+++++	M++++	+++++	+++++	+++++	++++				-	----
1105+06 S Leo	9.5 - 14.6			+++	M++++	++		--m----	--		++	+++++	++++				----	m	----
1136+39 RU Uma	8.0 - 15.6	----	m	----	++++	+++++	+++++	+++++	+++++	+++++	----	----	m	----		++	+++++	+++++	+++++
1159+19 R Com	7.1 - 15.4			----	----	--m----	----			++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1200+12 SU Vir	8.4 - 15.1	+++++	+++++	+++++	----	----	m	----		+++++	+++++	+++++	+++++	+++++	+++++	+++++	----	----	+++++
1214-08 R Crv	6.5 - 14.4	+++++	+++++	+++++			+	+++++	M++++	+++++	+++++	+++++	++			-m	----	+++++	+++++
1228-03 Y Vir	8.3 - 15.0			++++	+++++	+++++		----	-m	----	-	++++	+++++	++++					

1805+65 W Dra	8.9	- 15.9	--m---	-----	-----	++++	++M+++	++++++	-----	-	-----	--m---	-----	-----	+++	++M++
1806+66 X Dra	8.9	- 15.8	+++++	-----	---	-----	m-----	---	+	++++M+	++++++	++	-----	-----	--m---	-----
1810+31 TV Her	9.0	- 15.9	-----	-----	--m-	-----	-----	++++	++M+++	++++++	++	-----	-----	-----	--m---	-----
1811+03 RY Oph	7.0	- 13.8	++++++	++	m	++++	+++++	+++++	++	m	++++	+++++	+++++	+++++	m-	++++
1811+36 W Lyr	7.0	- 13.2	++	m	++	++++++	+++++	+++++	+++++	m	++++	+++++	+++++	+++++	+++++	++
1813+06 BC Oph	8.5	- 15.0	-----	-----	-m---	---	-----	+	++++++	++++++	+++++	-----	-----	-----	--m---	---
1815+02 v450 Oph	10.5	- 16.1	M++	-----	-----	-m---	-----	+	M++	-----	-----	-----	-----	-----	-----	---
1820+39 TW Lyr	9.4	- 15.1	-----	++	++++++	M+++++	++++++	+	-----	-----	-----	-----	-----	-----	-----	---
1821+72 RT Dra	9.0	- 15.1	++	-----	-----	m-----	-----	++	++++M+	++++++	+++++	-----	-----	-----	-m---	-----
1822+24 SV Her	9.0	- 15.6	--m---	-----	-----	+++++	M+++++	++	-----	-----	-----	-----	-----	-----	++++M+	++++++
1823+06 T Ser	9.0	- 15.5	++++++	+++++	-----	-----	-----	m-----	-----	-----	-----	-----	-----	-----	+++++	+++++
1831+49 SV Dra	9.1	- 15.4	++	+++++	-----	-m---	-----	-----	++++	++M+++	+++++	-----	-----	-----	-----	-----
1833+08 X Oph	5.9	- 9.3	++++++	++++++	++M+++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	M+++++
1839+22 AE Her	8.8	- 15.4	++++++	++	-----	-----	-m---	---	+	++++M+	++++++	+++++	-----	-----	-m---	-----
1841+34 RY Lyr	9.0	- 15.6	-----	-----	-----	-----	-m---	-----	+	++++M+	++++++	+++++	-----	-----	-m---	-----
1850+32 RX Lyr	10.9	- 17.3	-----	-----	-m---	-----	-----	M	-----	-----	-----	-----	-----	-----	-	M
1853+16 EU Aql	11.1	- 15.1	-----	-----	-m---	-----	-----	M	-----	-----	-----	-----	-----	-----	-----	-----
1856+34 Z Lyr	9.0	- 15.4	-----	++	++++++	M+++++	+++++	-----	-----	m-----	-----	-----	-----	-----	+++++	+++++
1857+37 RT Lyr	9.0	- 15.5	-----	-----	-m---	-----	++++	++M+++	+++++	-----	-----	-----	-----	-----	+++++	+++++
1859+47 WZ Lyr	9.3	- 15.6	++++++	+++++	-----	-----	-----	-----	m-----	-----	-----	-----	-----	-----	+++++	+++++
1901+08 R Aql	5.5	- 12.0	++++++	++++++	++++++	m	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+	m
1905+29 V Lyr	8.2	- 15.7	-----	---	-----	+++++	-m---	---	-----	+++++	+++++	+++++	+++++	+++++	+++++	+
1905+29 VZ Lyr	10.4	- 15.6	-----	---	-----	+++++	-m---	---	-----	+++++	+++++	+++++	+++++	+++++	+++++	+
1909+25 S Lyr	9.7	- 16.5	-----	++	++++M+	++++++	+++	-----	-----	-----	-----	-----	-----	-----	-----	---
1909+33 RS Lyr	9.2	- 15.8	-----	---	-----	-m---	-----	---	-----	+++++	+++++	+++++	+++++	+++++	-----	---
1909+41 RU Lyr	9.5	- 15.9	-----	-----	-----	-m---	-----	---	-----	+++++	+++++	+++++	+++++	+++++	-----	---
1909+67 U Dra	9.0	- 14.6	++++++	+++++	-----	-----	-m---	---	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1910+46 SS Lyr	8.4	- 15.2	++++++	++++++	+	-----	-----	-m---	---	-----	+++++	+++++	+++++	+++++	+++++	+++++
1910-07 W Aql	7.3	- 14.3	++++++	+	-----	-----	-m---	---	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1910-17 T Sgr	7.6	- 12.9	++++++	++++++	++++M+	++++++	++++++	++++++	+++++	+++++	m	+++++	+++++	+++++	+++++	+++++
1910-19 R Sgr	6.7	- 13.3	++++++	++++++	++++++	+	m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	m
1915+17 W Sge	8.8	- 15.6	-----	---	-----	-m---	---	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	---
1916+37 U Lyr	8.3	- 13.5	-----	m	-----	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+
1918+31 AN Lyr	9.1	- 15.7	-----	-----	+++++	+++++	++	-----	-----	m-----	-----	-----	-----	-----	+++++	+
1927+34 DD Cyg	9.0	- 14.0	-----	++	++M+++	++++	m---	++	++M+++	++++	-----	-----	-----	-----	+++++	---
1929+28 TY Cyg	9.0	- 15.3	++++	-----	-----	-m---	-----	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	---
1932+27 EH Cyg	10.4	- 13.5	+	-----	-----	m-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	m	-----
1933+11 RT Aql	7.1	- 14.8	+	-----	-----	m-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	-----	m
1934+11 SV Aql	10.2	- 15.0	+++++	-----	-m---	-----	-----	++	++M+++	+	-----	-----	-----	-----	-----	---
1934+28 BG Cyg	9.0	- 12.9	+++++	+++++	+++++	+++++	++++	+++++	+++++	m	+++++	+++++	+++++	+++++	+++++	+++++
1934+49 R Cyg	6.0	- 14.8	-----	-m---	---	+	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	---
1935+09 RV Aql	8.0	- 15.0	+++++	++	-----	-m---	---	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	---
1939+27 YZ Vul	9.0	- 16.4	+++++	+++++	+++++	+++++	+	-----	-----	-m---	-----	-----	-----	-----	+++++	+++++
1939+54 v369 Cyg	9.0	- 14.9	+++++	++++	-m---	+++	M+++	-m---	---	+++++	+	-m---	++++	++++	-m---	+
1940+48 RT Cyg	6.0	- 13.1	+++++	+++++	+++++	m	++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1943+48 TU Cyg	8.4	- 15.5	+++++	+++++	+++++	+++++	-----	-m---	-----	++++	+++++	+++++	+++++	+++++	-m---	---
1946+04 X Aql	8.2	- 15.6	+++	-----	-----	m-----	-----	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	---
1946+32 chi Cyg	3.0	- 14.2	+++++	+++++	+++++	++++	-----	-m---	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1950+55 CU Cyg	9.5	- 14.3	+++	-----	-m---	-----	-----	++++	+++++	++++	-----	-----	-----	-----	++++	+++++
1952-02 RR Aql	7.8	- 14.5	++++	-----	-----	-----	-m---	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1953-08 RS Aql	8.7	- 15.4	---	+	+++++	+++++	+	-----	-m---	---	+++++	+++++	+++++	+++++	---	-m---
1955+51 CM Cyg	9.1	- 14.9	+++++	-----	-----	-m---	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	-m---	---
1958+49 Z Cyg	7.1	- 15.1	-----	-m---	-----	+++++	+++++	+++++	+++++	+++++	+	-----	-m---	---	++++	+++++
2002+09 HI Aql	9.8	- 17.1	-----	-----	-m---	-----	-----	+++++	+++++	-----	-----	-----	-----	-----	-----	---
2002+12 SY Aql	8.3	- 15.4	-----	-----	m-----	---	+	+++++	+++++	+++++	+++++	++++	-----	-----	-----	-m---
2002+50 BU Cyg	9.6	- 15.9	-----	-m---	-----	+	+++++	-----	-m---	-----	++++	++++	-----	-----	-----	+++++
2003+59 S Cyg	9.3	- 16.8	-----	-----	-m---	-----	-----	---	+	+++++	+++++	++++	-----	-----	-----	-m---
2007+06 TV Aql	9.4	- 14.8	+++++	+++++	+++++	++++	-----	-m---	---	+++++	+++++	+++++	+++++	+++++	-----	-m---
2007+20 ST Sge	10.0	- 15.2	++	M+++++	-----	-----	-m---	-----	++++	+++++	++++	+++++	+++++	+++++	-----	+++++
2008+12 RU Aql	8.7	- 15.1	M+++++	+++++	+	-----	-m---	-----	---	+++++	+++++	+++++	+++++	+++++	+	+++++
2009-06 Z Aql	8.2	- 15.0	+++	-m---	---	+++++	+++++	---	m---	++++	M+++++	+	-m---	++	+++++	++
2010+08 R Del	7.5	- 13.8	++++	-----	m-	---	+	+++++	+++++	M+++++	+++++	+++++	+++++	+++++	-m---	+++++
2011+30 SX Cyg	8.0	- 15.2	+++++	+++	-----	-----	-----	m-----	-----	---	++++	+++++	+++++	+++++	+++++	+++++
2014+34 AU Cyg	8.2	- 15.3	-----	-----	-----	-----	-----	m-----	-----	---	++	+++++	+++++	+++++	+++++	+++++
2014+37 WX Cyg	8.8	- 13.6	+++++	+++++	-----	-----	-----	m-	-----	-----	++++	+++++	+++++	+++++	+++++	+++++
2015+59 CN Cyg	7.3	- 15.0	M+++++	+++++	-----	-m---	---	++++	+++++	+++++	++++	-----	-m---	-----	+++++	+++++
2016+47 U Cyg	5.9	- 12.1	+++++	+++++	+++++	+++++	+++++	+++++	m	+	+++++	+++++	+++++	+++++	+++++	+++++
2025+12 RX Del	10.1	- 15.8	-----	-m---	-----	+	M+++++	-----	-m---	-----	-----	++++	+++++	+++++	-----	-m---
2026+11 RZ Del	11.1	- 16.2	-----	-----	-----	-----	M	-----	-----	-----	-----	-----	-----	-----	-----	-----
2028+17 Z Del	8.0	- 15.7	-----	++++	+++++	+++++	+++++	++	-----	-----	-m---	-----	-----	-----	++++	+++++
2029+18 AG Del	10.8	- 16.6	M+	-----	-----	-----	-----	m-----	-----	-----	M+	-----	-----	-----	-----	-----
2029+54 ST Cyg	9.4	- 14.5	---	-----	-----	+++++	+++++	+++++	++++	-----	-----	-m---	-----	-----	-----	-----
2029+62 BF Cep	9.0	- 15.2	-----	-----	-m---	-----	---	-----	++	+++++	+++++	+++++	+++++	+++++	+	-----
2030+53 BV Cyg	11.2	- 17.1	-----	-----	M	-----	---	-----	-----	-----	-----	-----	-----	-----	M	-----
2035+13 SS Del	11.1	- 15.9	-----	-----	-m---	-----	M	-----	-----	-----	-----	-----	-----	-----	M	-----
2035+37 FF Cyg	7.1	- 14.6	+++++	+++++	+++++	+++++	+++++	+++++	++++	-----	-----	++++	+++++	+++++	+++++	+++++
2036+11 Y Del	8.8	- 16.6	+++++	+++++	+++++	+++++	+++++	+++++	++++	-----	-----	-----	-----	-----	-----	-----
2038+16 S Del	8.0	- 12.9	+++++	+++++	+++++	+++++	+++++	+++++	m	-----	-----	++++	+++++	+++++	M+++++	+++++
2038+47 V Cyg	7.7	- 13.9	+++++	++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	-m---	+++++
2039+18 ES Del	8.9	- 15.6	+++++	++++	-----	-----	-----	-----	-m---	-----	-----	+	+++++	+++++	+++++	+++++
2039+37 DR Cyg	8.0	- 15.1	-m---	---	+	+++++	+++++	+++++	+++++	+++++	-----	-----	-m---	-----	+++++	+++++
2039-05 Y Aqr	8.4	- 15.0	-----	-----	-----	-m---	-----	---	-----	++++	+++++	+++++	+++++	+++++	+	+++++
2040+16 T Del	8.5	- 15.2	++	+++++	+++++	+++++	+++++	+++++	-----	-----	-----	-----	-----	-----	++	+++++
2041+04 BR Del	10.1	- 15.4	M+++++	++	-----	-----	-----	-----	-m---	-----	-----	-----	++	+++++	++	+++++
2041-04 W Aqr	8.0	- 14.9	+++++	+++++	+++++	+++++	+++++	+++++	-----	-m---	-----	-----	++++	+++++	+++++	+++++
2042+31 GP Cyg	10.9	- 15.7	+	-----	-----	-----	-----	-m---	-----	-----	-----	-----	-----	-----	++++	+++++
2043+18 V Del	8.1	- 16.2	m-----	-----	-----	-----	-----	+++++	+++++	+++++	+++++	+++++	+++++	+++++	++++	+++++
2044+31 AM Cyg	10.4	- 14.8	M+++++	+	-----	-----	-----	-----	-----	-m---	-----	-----	-----	-----	++	+++++
2044-05 T Aqr	7.0	- 14.2	+++++	++	-m---	---	++++	+++++	+++++	+++++	+++++	-----	-m---	+++++	+++++	+++++
2050+17 X Del	8.0	- 15.2	-----	++	+++++	+++++	+++++	+++++	-----	-m---	-----	-----	++++	+++++	+++++	+++++
2050+30 UX Cyg	9.0	- 17.1	+++++	+++++	+++++	++++	-----	---	-----	-----	-----	-----	-----	-----	-----	-----
2059+23 R Vul	7.0	- 14.3	+++++	+++++	+++	-m---	++	+++++	+++++	+	-m---	++++	+++++	+++++	-m---	++
2101+29 TW Cyg	8.9	- 15.0	+++++	++++	-----	-----	-m---	-----	-----	++++	+++++	+++++	+++++	+++++	+++++	+++++
2103+82 X Cep	8.0	- 16.8	-----	-m---	-----	-----	---	++	+++++	+++++	M+++++	+++++	+++++	+++++	+++++	+++++
2104+05 RR Equ	9.0	- 15.8	+	-----	-----	-----	-m---	---	++++	+++++	+++++	+	-----	-----	-----	-----
2105+87 X UMi	11.6	- 17.5	-----	-----	-m---	-----	-----	M	-----	+++++	+++++	-----	-----	-----	-----	m-----
2105-04 RS Aqr	9.5	- 14.4	-----	---	-m---	---	-----	+++++	+++++	+	-----	-----	-----	-----	+++++	+++++
2106+12 AN Peg	9.6	- 15.3	-----	-m---	-----	+++	M+++++	+++++	+++++	-----	-----	-----	-----	-----	++++	+++++
2108+12 R Equ	8.6	- 15.0	+++	-----	-----	-m---	---	-----	+++++	+++++	+++++	+	-----	-----	m-----	-----
2108+18 AS Peg	9.0	- 16.1	+++++	+++++	+++++	++	-----	---	-----	-----	-----	-----	-----	-----	++++	+++++
2108+68 T Cep	5.0	- 11.3	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
2109-03 RR Aqr	9.0	- 14.9	-----	++	+++++	++++	-----	---	++++	+++++	++++	++++	-----	-----		

2136+78	S Cep	7.0	- 12.9	+++++	+++++	+++++	+++++	++++M	+++++	+++++	+++++	+++++	+++++			m	
2138+31	v1760 Cyg	9.4	- 15.2		-	-----	---m-	----	+++	+M+++	++++++	+			--	-----	--m---
2139+24	RR Peg	8.0	- 15.2	--m--	--	++	++++++	+M++++	+++++	++	-----	-m---	-	+++		+++++M	++++++
2140+12	TU Peg	8.0	- 14.6		----	-m---		+	++++++	M+++++	++++++	+++++				-----m	----
2140+46	BN Cyg	10.2	- 17.2	-----	m-----	--	+M++	-----	-----m-	-----	-	M+++	-	-----	--m-	-----	-----
2144+43	WY Cyg	8.3	- 15.7	m-----	----		+++++	+++M++	++++++	+++++		----	m-----	----			++++++
2144+64	RT Cep	9.4	- 17.4	m-----	-----			-		++	-----	+M++++	++++++	+++++			
2156+05	V Peg	7.0	- 15.2	++++	++++++	+++M++	++++++	++++++	++	+++++	m-----	-	+++	++++++	+++M++	++++++	
2159+34	RT Peg	9.0	- 15.4	-----	-m----	--	+++	+M++++	+++++		----	-m---	--	++	+++M++	+++++	
2201+33	RZ Peg	7.6	- 13.5				+++++	+++++	+++++	+++M++	++++++	+++++	+++++	+++++	+		m
2203+37	W Lac	9.3	- 14.9	++++M+	++++++	+++++	+++++	----	----	-----	-m----	----		++++	+M+++	++++++	+++
2204+12	T Peg	8.0	- 15.4		+	++++++	+++++	M+++++	++++++	+++++		-	-----	--m--	-----		
2206+13	Y Peg	8.9	- 16.0	+++	+++M++	++++		----	m-----	----	++++	+M++++	+++	----	-----	-	
2207+14	RS Peg	8.2	- 14.9	++++++	++		-----	----m-	-----	-----		++++	++++++	+++++M	++++++	++++++	
2221+29	RV Peg	8.7	- 16.3	+++++			----	-----	-----m-	-----	----	----	++++	+++++M	++++++	++++++	
2224+39	S Lac	7.6	- 13.9	m-	+	++++++	++++M+	++++++	+		m-		+	++++++	+++++M	++++++	++++++
2229+24	SS Peg	8.0	- 14.7	++++++	++++++	+++++	++++		-		-m----	----		++++	++++++	+++++M	
2238+41	R Lac	8.0	- 15.1	+++++	++++		----m-	-----		++++	+++++M	++++++	++++++	++++			--
2245+17	SX Peg	8.0	- 13.4	++++++	++++++		m		+++	++++	+++++M	++++++	++++++	++++++	+		
2255+42	SZ And	9.5	- 16.3	-----	-m----	-----	-	+	+++M+	++++		-		-----	-----m-		
2259+14	RW Peg	8.6	- 15.2	----	+	+++++M	++++++	++	----	----	+	+++++M	++++++	++		--m----	
2301+10	R Peg	6.9	- 13.8		++++	+++++	+++++	+++M++	++++++	+++++	+++++	++++			m--		+
2307+59	V Cas	6.7	- 13.5	+++++	+++++	++	m		+++++	+++++	+M++++	++++++	+++++		m	++	+++++
2314+25	W Peg	7.3	- 13.0	m		++++	+++++	+++++M	+++++	+++++	+++++	+++++			m		++
2315+08	S Peg	6.9	- 13.8		M--		++	+++++	+++++	+++++	+++++	+++++			m--		
2318+39	BU And	8.6	- 14.5	+++++	M+++++	++++++	++++++	+		----	---m-	----		++	++++++	+++M++	
2321+09	FF Peg	9.0	- 15.3		-	-----	-m---	--	+++	+++M++	++++++	+	-----	--m-	----	----	+
2321+44	AL And	9.9	- 17.7	m-----	-----	-	++M	+++++		----	-----	---m-					+++M++
2333+35	ST And	7.7	- 11.8	+++++	+++++	m		+++++	+++++	+++++	+++++M	++++++	++++++	++++++	++++++	++++++	m
2338-15	R Aqr	5.0	- 12.4	m	+++	+++++	+++++	+++++	+++M+	+++++	+++++	+++++	+++++	+++++	+++++		
2339+56	Z Cas	8.5	- 16.3	-----	-----		+	+++++	+++++M	+++++	+++++	+++++	+			-----	-----
2350+53	RR Cas	9.5	- 15.1		+++	++++M+	+++++	+		----	---m-	-----			++++	+++M++	++++++
2352+55	WY Cas	7.8	- 15.5	++++	++++++	++++M+	+++++	+++++	+++++	+++++		-----	-----		--m-	-----	
2353+50	R Cas	4.6	- 13.5	m		++	+++++	+++++	+++++	+++++M	+++++	+++++	+++++	+++++	+++++	+++++	
2355+25	Z Peg	7.3	- 13.9	+++++	+++++M	+++++	+++++	+++++	+		-m--			+++++	+++++	+++++	M+++++
2357-15	W Cet	7.1	- 15.0	+++++		M++++	+++++	+++++	+++++	++++		----	-m-	-----	++++	+++++	+++M++
2358+55	Y Cas	8.7	- 15.3		+	++++++	+++++M	+++++	+++++	+++++		----	----	-----m-	-----	----	
2359+39	SV And	7.7	- 15.0	--m--	--	+	+++++	+++M++	+++++	+++++	++++		-	-----	m----		++++



La Lune roule sur l'Observatoire de La Silla (document : Ivo Saviane)

Liste des observateurs pour le 2ème trimestre 2017

Ce tableau rappelle la totalité des observations reçues au titre du second trimestre 2017, ce qui ne veut pas dire que toutes ces observations ont été effectuées au cours de cette période. Il est fréquent que des retardataires envoient des observations bien antérieures qu'il est évidemment impossible d'inclure dans les listes déjà parues. Le classement est par ordre alphabétique des sigles.

Ne sont publiées dans le bulletin que les observations des adhérents de l'AFOEV relatives aux étoiles du programme de l'AFOEV.

Mis à part un nombre relativement restreint d'observations éliminées (observations « inférieures à » redondantes et observations manifestement erronées), les observations reçues sont intégrées à la base de données du CDS où l'ordre chronologique est évidemment respecté.

S ANC ALLEN Chris	62	B MUY MUYLLAERT Eddy	1588
ANM AUDEJEAN Maurice	387	J MYY MORIYAMA M.	1233
S BEN BENGTSOON Hans	25	J NAJ NAKAI Kenji	24
B BMM BIESMANS Marc	189	J NGA NAGAI Kanade	46
N BMU BOUMA Reinder J.	2	J NTS NAKATANI M.	1219
BRU BRUNO Alain	1529	J NYH NISHIYAMA Hiroki	3
N BVE VAN BALLEGOY Erwin	1	J ODR ONODERA N.	81
CAS CASTELLANI Jean-Jacques	134	J OGA OGANE Yojiro	2
E DAM DARRIBA-MARTINEZ Adolfo	242	J OIT ONISHI Takuichiro	365
T DPV DUBOVSKY Pavol A.	592	PDJ PERRARD Jean-Luc	34
DUM DUMONT Michel	249	PGT PEGUET Claude	387
N GGU GILEIN Guus	126	K POY POYNER Garry	2199
GNG GUZMAN Gilles	35	PRO PROUST Dominique	8
GRP GROCAUT Patrick	281	D RCR RAETZ Kerstin (Mme)	134
# HGG HOLMBERG Gustav	627	E RIP RIPERO-OSORIO Jose	439
J HOT HORIE Tsuneo	2800	J SMH SOMEYA Hiroyuki	252
J HRM HIRAGA M.	1633	J SOW SOWA T.	33
H HRO HEVESI Robert	6	N SRO SCHIPPERS Robert	237
J HRT HORIO Tuneo	40	J STM SATO M.	489
J IOH ITOH H.	86	Z STU STUBBINGS Rod	439
S JOM JOHANSSON Martin	6	J SUZ SUZUKI H.	575
JPS SCIOLLA Jean-Pierre	149	* SYI SERGEY Ivan	813
JTP JACQUET Pierre	121	S URJ JOHANSSON Ulf R	7
# KAI KAILA Kari	1	VED VEDRENNE Paul	1578
# KAR KARLSSON Bjorn	15	N VUG VAN UDEN Glynis	33
J KIS KIYOTA S.	183	J WNM WATANABE Makoto	583
J KIT KANAI K.	175	J WNY WATANABE Yakosuka (Yasunon)	41
J KNK KANATSU K.	2	S WRT WIKANDER Tomas	95
S KTS KARLSSON Thomas	328	N WUB WUBBENA E.K.	70
J MDY MAEDA Yutaka	106	J YIK YOSHIMOTO Katsumi	9
J MHH MAEHARA Hiroyuki	1170	J YMO YAMAMOTO M.	82
J MOY MORIYA M.	9		

=====	PGT 57852.3 10.1	JTP 57865.6 : 4.1	PGT 57872.3 10.7	PGT 57847.4 10.2	=====
0004+51 SSCAS	PGT 57857.3 9.8	=====	PGT 57879.3 10.8	PGT 57852.4 10.3	DUM 57758.44 6.36
=====	PGT 57867.3 10.3	0320+43 YPER	PGT 57890.4 10.8	PGT 57859.3 10.1	DUM 57768.45 6.4
ANM 57897.528 N 9.43	ANM 57923.501 N 10.46	=====	=====	=====	DUM 57770.45 6.51
ANM 57897.529 N 9.36	ANM 57930.48 N 10.38	PGT 57848.4 9.7	0520+34 SAUR	0602+22 SSGEM	DUM 57773.48 6.43
ANM 57923.457 N 11.72	=====	PGT 57851.3 9.4	=====	=====	DUM 57774.46 6.4
ANM 57930.436 N 12.21	0152+54 UPER	PGT 57856.3 9.5	PGT 57855.4 8.9	PGT 57851.4 8.9	DUM 57777.45 6.39
=====	=====	JPS 57865.35 9.0	PGT 57865.4 9.0	GRP 57852.32 8.8	DUM 57788.44 6.7
0010+46 XAND	PGT 57848.3 8.4	=====	PGT 57872.4 9.1	PGT 57856.4 9.3	DUM 57801.45 6.9
=====	PGT 57852.4 8.5	0323+39 RUPER	=====	PGT 57862.3 9.5	DUM 57802.45 6.9
ANM 57923.482 N 9.38	PGT 57857.4 8.6	=====	0524-04 SORI	CAS 57865.34 9.6	DUM 57803.52 6.8
ANM 57930.463 N 9.21	PGT 57867.4 9.0	PGT 57848.4 11.3	=====	PGT 57873.3 8.9	DUM 57809.37 6.4
ANM 57930.463 N 9.18	ANM 57923.52 N 11.07	PGT 57856.3 11.5	JPS 57865.33 9.5	GRP 57873.34 8.6	DUM 57810.46 6.5
=====	=====	=====	=====	=====	DUM 57812.49 6.4
0017+55 TCAS	0203+56 KKPER	0400+53 XXCAM	0529+24 TUTAU	0604+26 TUGEM	DUM 57813.49 6.4
=====	=====	=====	=====	=====	DUM 57823.42 6.7
PGT 57848.3 8.4	PGT 57848.3 7.7	PGT 57847.3 7.4	GRP 57849.3 8.6	GRP 57852.32 7.7	DUM 57828.43 6.43
PGT 57852.3 8.3	PGT 57852.4 7.7	=====	=====	=====	DUM 57834.44 6.41
PGT 57857.3 8.4	PGT 57857.4 7.9	0409+50 SYPER	0530+68 SCAM	0604+43 RRAUR	DUM 57837.42 6.41
PGT 57867.3 8.5	JTP 57857.6 : 8.0	=====	=====	=====	DUM 57838.36 6.41
ANM 57897.519 N 9.22	PGT 57867.4 7.7	PGT 57851.3 10.2	ANM 57864.368 N 9.41	PGT 57852.4 <12.9	DUM 57840.4 6.41
ANM 57923.452 N 9.43	JTP 57894.6 : 8.1	PGT 57856.3 10.5	ANM 57864.368 N 9.39	PGT 57859.3 <12.9	GRP 57852.31 6.4
ANM 57930.435 N 9.36	JTP 57922.6 : 8.1	=====	ANM 57897.383 N 9.86	PGT 57872.4 <12.0	CAS 57865.34 6.3
=====	=====	0416+19 TTAU	ANM 57897.383 N 9.85	PGT 57890.4 :10.3	GRP 57873.33 6.7
0018+38 RAND	0203+56 UVPER	=====	=====	PGT 57897.4 10.2	=====
=====	=====	PGT 57847.3 10.5	0532+68 LRCAM	=====	0611+15 CZORI
ANM 57923.517 N 6.75	PGT 57848.3513 <12.7	PGT 57851.3 10.4	=====	0604+50 XAUR	=====
=====	PGT 57852.3618 <12.7	=====	ANM 57864.368 N 10.82	=====	PGT 57851.3354 <12.2
0031+79 YCEP	PGT 57857.3604 <12.7	0422+09 RTAU	ANM 57864.368 N 10.76	PGT 57847.4 10.3	PGT 57862.3381 12.0
=====	=====	=====	ANM 57897.383 N 10.71	PGT 57852.4 10.8	GNG 57865.347 11.9
PGT 57855.3 10.9	0204+48 RVAND	PGT 57851.3 <12.0	ANM 57897.383 N 10.7	ANM 57864.362 N 12.12	=====
=====	=====	=====	=====	PGT 57865.3 <11.4	0614-05 KSMON
0040+47 UCAS	ANM 57930.537 N 10.21	0422+15 WTAU	0535+31 UAUR	PGT 57872.3 <11.4	=====
=====	=====	=====	=====	=====	GRP 57851.33 9.0
ANM 57923.499 N 9.45	0213+56 ADPER	PGT 57847.3 10.1	PGT 57848.4 8.7	0605+21 TVGEM	=====
ANM 57923.499 N 9.44	=====	PGT 57851.3 10.1	PGT 57855.4 8.9	=====	0616+47 VAUR
ANM 57930.479 N 9.48	PGT 57848.3 7.9	=====	ANM 57864.36 N 9.6	DUM 57758.44 6.3	=====
=====	PGT 57852.4 7.8	0432+74 XCAM	=====	DUM 57768.45 6.4	PGT 57847.4 11.2
0047+46 IZCAS	PGT 57857.4 7.8	=====	0539+09 FUORI	DUM 57770.45 6.4	PGT 57852.4 10.9
=====	PGT 57867.3 7.9	ANM 57864.369 N 9.16	=====	DUM 57774.46 6.4	ANM 57864.362 N 10.53
ANM 57930.486 N 10.5	=====	ANM 57864.37 N 9.2	PGT 57847.3 9.9	DUM 57777.45 6.4	PGT 57865.4 10.9
ANM 57930.527 N 10.45	0214+57 PRPER	=====	PGT 57851.3 9.8	DUM 57788.44 6.9	PGT 57897.4 9.8
=====	=====	0440+25 RVTAU	PGT 57862.3 9.9	DUM 57801.45 6.7	=====
0047+46 RVCAS	PGT 57848.3 8.3	=====	0539+20 YTAU	DUM 57802.45 6.7	0617-02 VMON
=====	PGT 57852.4 8.2	PGT 57847.3 9.1	=====	DUM 57809.37 6.9	=====
ANM 57923.506 N 10.35	PGT 57857.4 8.3	GRP 57849.3 9.2	GRP 57849.31 7.2	DUM 57812.49 7.0	GRP 57851.34 10.8
ANM 57930.486 N 9.98	PGT 57867.4 8.3	PGT 57851.3 9.4	PGT 57851.3 7.2	DUM 57823.43 7.0	=====
ANM 57930.527 N 10.03	=====	=====	PGT 57828.44 6.9	DUM 57828.44 6.9	0619+14 BLORI
=====	0215+56 SUPER	0453+07 RORI	PGT 57862.3 7.0	DUM 57834.44 6.9	=====
0048+58 WCAS	=====	=====	=====	DUM 57837.42 6.9	GRP 57849.31 6.4
=====	PGT 57848.3 7.7	JPS 57861.31 11.5	0543+19 SUTAU	DUM 57838.36 6.9	=====
PGT 57848.3 10.2	PGT 57852.4 7.7	=====	=====	DUM 57840.4 6.8	0619+25 VVGEM
PGT 57852.3 9.8	PGT 57857.4 7.7	0500+01 WORI	PGT 57851.4 <12.8	DUM 57841.41 6.9	=====
PGT 57857.3 9.8	PGT 57867.3 7.7	=====	PGT 57862.3 <12.8	GRP 57852.31 6.7	PGT 57851.4 <12.9
PGT 57867.3 9.8	=====	DUM 57758.44 6.7	GNG 57862.354 <14.7	GRP 57873.33 7.1	=====
ANM 57897.527 N 9.39	0215+58 SPER	DUM 57768.45 6.8	GNG 57865.345 <14.7	=====	0621+05 SWMON
ANM 57923.459 N 9.2	=====	DUM 57770.42 6.9	=====	0605+23 WYGEM	=====
ANM 57930.437 N 9.26	PGT 57848.3 10.5	DUM 57774.43 6.8	0546+15 ZTAU	=====	GRP 57851.32 9.4
=====	PGT 57852.4 10.5	DUM 57777.44 6.8	=====	DUM 57768.48 7.6	=====
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0653+26 SWGEM	=====	=====	=====	=====	=====
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GRP 57873.35 8.9	=====	BRU 57850.306 N 12.6	0808+37 RTLYN	BRU 57851.332 N:17.35	GRP 57883.38 8.9
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GRP 57883.34 8.8	=====	PGT 57851.4 <12.7	BRU 57850.322 N 11.25	0832+21 UVCNC	PGT 57890.4 8.9
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GRP 57873.35 10.1	=====	0743+23 TGEM	BRU 57851.322 N 9.8	=====	DUM 57772.44 8.3
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GRP 57883.34 10.4	=====	GRP 57852.35 <11.4	CAS 57857.33 9.5	=====	DUM 57777.45 8.2
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GRP 57851.3 <11.4	DUM 57772.47 5.4	=====	GRP 57893.34 8.7	BRU 57850.343 N 10.5	DUM 57813.45 8.23
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DUM 57828.44 6.74	=====	0947+35 SLMI	GRP 57898.38 11.8	1122+45 STUMA	BRU 57851.47 N 13.47
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DUM 57840.41 6.69	BRU 57851.374 N 12.82	JPS 57861.38 8.2	BRU 57850.417 N 14.35	JTP 57864.7 : 6.7	BRU 57898.358 N 12.57
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PGT 57878.5 10.7	PGT 57860.6 6.9	=====	=====	=====	=====
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BRU 57850.504 N 16.57	1255+28 XCOM	GRP 57915.41 7.6	DUM 57813.47 8.39	GRP 57923.43 8.6	GRP 57923.45 10.9
BRU 57851.5 N:17.49	=====	GRP 57923.39 7.3	DUM 57838.49 8.37	=====	=====
BRU 57867.466 N 16.83	BRU 57850.517 N 16.47	=====	DUM 57839.43 8.37	1439+22 UZBOO	1514+32 UCRR
BRU 57898.383 N 16.34	BRU 57851.512 N 16.31	1332+73 TUMI	DUM 57840.43 8.35	=====	=====
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=====	BRU 57883.434 N 16.71	PDJ 57847.4792 Y 11.28	GRP 57893.47 8.4	BRU 57851.562 N<18.42	BRU 57851.584 N 7.89
1234+59 RSUMA	BRU 57898.393 N 16.58	PDJ 57867.4194 Y 11.19	GRP 57923.44 8.4	NGG 57863.403 <14.7	BRU 57867.551 N 7.85
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BRU 57850.506 N 13.88	1257+05 RTVIR	=====	=====	BRU 57898.444 N<18.65	BRU 57899.464 N 7.78
BRU 57851.502 N 13.89	=====	GRP 57893.42 8.4	PDJ 57867.5799 Y 11.34	BRU 57899.441 N<18.59	=====
PGT 57857.6 <13.2	BRU 57850.519 N 8.67	GRP 57923.41 8.4	=====	=====	1516+14 SSER
BRU 57867.468 N 13.79	BRU 57851.514 N 8.7	=====	1418+26 UVBOO	1441+15 EKBOO	=====
PGT 57894.6 <13.2	BRU 57867.48 N 8.43	1344-01 CEVIR	=====	=====	BRU 57850.592 N 12.71
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1239+37 TXCVN	GRP 57893.41 8.8	BRU 57851.54 N 8.53	=====	=====	BRU 57883.512 N 12.07
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PGT 57848.6 10.0	=====	BRU 57898.422 N 9.52	GRP 57923.43 8.1	BRU 57883.487 N 11.02	BRU 57850.59 N 11.2

BRU 57851.585 N 11.2 ANM 57864.422 N 11.37 BRU 57867.552 N 10.95 BRU 57883.511 N 10.53 JPS 57887.4 10.3 GRP 57893.5 10.8 ANM 57897.431 N 10.7 BRU 57898.467 N 10.31 PGT 57899.4 10.2 CAS 57899.43 10.4 BRU 57899.465 N 10.24 =====	BRU 57899.483 N 7.72 PDJ 57900.4389 Y 7.54 =====	BRU 57898.496 N 14.85 BRU 57899.494 N 14.9 =====	BRU 57899.503 N 10.52 =====	JTP 57894.6 5.3 JTP 57897.6 5.3 JTP 57922.6 : 5.7 =====	=====
1518-22 RSLIB =====	1544+28 TTCRB =====	1555+26 TCRB =====	1608+25 VVHER =====	1626+23 DOHER =====	1640+12 UVHER =====
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1521+08 QWSER =====	1545+36 XCRB =====	1556+33 VWCRB =====	1611-22 SSCO =====	1628-15 TOPH =====	1640+25 AHHER =====
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1527+03 WWSER =====	1546+15 RSER =====	1559+47 XHER =====	1611-22 TSCO =====	1628+07 SSHER =====	1643-19 RROPH =====
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1531+15 TAU4SER =====	1546+39 VCRB =====	1601+18 RHHER =====	1611+38 WCRB =====	1631+37 WHHER =====	1647+05 RXOPH =====
JTP 57922.6 : 7.0 =====	BRU 57850.61 N 9.46 BRU 57851.605 N 9.46 CAS 57863.48 9.7 ANM 57864.42 N 9.52 ANM 57864.421 N 9.5 JPS 57865.44 9.0 BRU 57867.572 N 9.67 BRU 57883.533 N 9.7 GRP 57893.52 10.5 ANM 57897.433 N 9.71 BRU 57898.487 N 9.83 PGT 57899.4 10.1 CAS 57899.44 11.0 BRU 57899.486 N 9.79 =====	BRU 57850.623 N 10.08 BRU 57851.618 N 10.12 ANM 57864.414 N 10.89 BRU 57867.585 N 10.92 CAS 57871.47 11.0 BRU 57883.547 N 11.7 BRU 57898.5 N 12.38 CAS 57899.45 13.3 BRU 57899.499 N 12.38 PRO 57921.4 14.4 =====	BRU 57850.629 N 8.85 BRU 57851.624 N 8.86 JPS 57865.43 8.8 BRU 57867.591 N 9.51 BRU 57883.553 N 10.39 GRP 57893.52 11.0 BRU 57898.506 N 11.12 PGT 57899.4 11.2 CAS 57899.44 11.1 BRU 57899.505 N 11.13 ANM 57923.421 N 12.35 =====	BRU 57850.639 N 11.46 BRU 57851.634 N 11.41 BRU 57867.602 N 10.92 CAS 57871.5 10.7 BRU 57883.564 N 10.56 ANM 57897.434 N 9.63 JPS 57898.39 9.2 BRU 57898.516 N 9.47 CAS 57899.49 9.5 BRU 57899.515 N 9.35 JPS 57915.38 8.6 ANM 57923.422 N 8.85 =====	JPS 57866.49 9.7 JPS 57872.56 9.7 JPS 57894.49 10.5 JPS 57921.43 10.5 =====
1533+19 LXSER =====	1547+31 VVCRB =====	1601+67 AGDRA =====	1613+26 NPHER =====	1631+72 RUMI =====	1647+15 SHER =====
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1533+78 SUMI =====	1552+21 QZSER =====	1602+10 USER =====	1613+26 NPHER =====	1632+07 YHER =====	1649+07 V9700PH =====
PDJ 57867.3944 Y 9.35 JPS 57898.41 8.5 =====	BRU 57899.486 N 9.79 =====	BRU 57850.626 N 12.73 BRU 57851.621 N 12.72 BRU 57867.588 N 13.25 BRU 57883.551 N 13.24 BRU 57898.504 N 12.85 BRU 57899.502 N 12.75 =====	BRU 57850.63 N 9.66 BRU 57851.625 N 9.63 CAS 57865.48 9.5 BRU 57867.592 N 9.62 JPS 57872.57 11.5 BRU 57883.555 N 9.57 BRU 57898.507 N 9.78 CAS 57899.47 10.3 BRU 57899.506 N 9.75 =====	BRU 57850.64 N 7.38 BRU 57851.635 N 7.36 BRU 57867.603 N 7.34 BRU 57883.566 N 7.24 BRU 57898.517 N 7.35 BRU 57899.516 N 7.28 =====	JPS 57866.49 14.5 JPS 57899.46 14.5 =====
1537+38 RRCRB =====	1552+29 ZCRB =====	1603+25 SXHER =====	1619+31 RYCRB =====	1632+66 RDRA =====	1650-30 RRSCO =====
CAS 57863.47 7.7 GRP 57893.51 7.7 CAS 57899.44 8.4 =====	BRU 57850.613 N 10.54 BRU 57851.608 N 10.56 BRU 57867.575 N 11.25 BRU 57883.537 N 12.15 GRP 57893.49 11.8 BRU 57898.49 N 12.81 CAS 57899.42 13.3 BRU 57899.489 N 12.81 =====	JPS 57865.45 8.4 CAS 57865.47 8.9 JPS 57898.45 8.4 CAS 57899.46 8.8 =====	GRP 57893.5 9.5 =====	ANM 57864.446 N 8.1 ANM 57864.447 N 8.1 ANM 57897.454 N 8.89 ANM 57923.418 N 10.27 =====	JPS 57922.39 9.0 =====
1537+39 SWCRB =====	1554+20 AHSER =====	1606+25 RUHER =====	1620-10 SWSER =====	1633+08 V544HER =====	1652-02 SSOPH =====
CAS 57863.47 7.7 =====	BRU 57850.617 N 15.23 BRU 57851.611 N 15.35 BRU 57867.578 N 15.15 BRU 57883.54 N 14.94 BRU 57898.494 N 14.59 BRU 57899.492 N 14.55 =====	BRU 57850.625 N 11.66 BRU 57851.619 N 11.59 ANM 57864.416 N 11.68 JPS 57865.45 11.7 BRU 57867.586 N 11.23 CAS 57871.47 11.8 BRU 57883.549 N 10.97 ANM 57897.424 N 11.48 ANM 57897.425 N 11.42 JPS 57898.45 11.0 BRU 57898.502 N 10.95 CAS 57899.46 11.2 BRU 57899.5 N 10.92 JPS 57922.49 11.2 =====	BRU 57850.672 N 11.93 BRU 57851.669 N 12.01 BRU 57867.635 N 12.58 BRU 57883.601 N 13.08 BRU 57898.55 N 13.37 BRU 57899.549 N 13.44 =====	BRU 57850.641 N:18.59 BRU 57851.636 N:18.88 BRU 57867.604 N<19.54 BRU 57883.567 N<18.5 BRU 57898.518 N<19.16 BRU 57899.517 N:19.16 =====	BRU 57850.655 N 9.44 BRU 57851.65 N 9.47 BRU 57867.617 N 10.46 BRU 57883.581 N 11.38 BRU 57898.532 N 12.12 JPS 57899.49 12.5 BRU 57899.531 N 12.17 =====
1543+38 YCRB =====	1554+36 RSCRB =====	1607+10 DNHER =====	1621-12 VOPH =====	1634+14 ASHER =====	1654+35 HZHER =====
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1544+28 RCRB =====	1555+02 BCSEER =====	1625+42 GHER =====	1621+19 UHER =====	1639+08 V548HER =====	1656+31 RVHER =====
DUM 57812.49 7.7 DUM 57813.49 7.7 DUM 57829.47 7.7 DUM 57838.48 7.4 DUM 57840.42 7.7 DUM 57841.43 7.7 BRU 57850.608 N 7.9 BRU 57851.603 N 7.88 CAS 57863.46 7.1 BRU 57867.569 N 7.71 PDJ 57873.4306 Y 7.64 PRO 57883.4 7.4 BRU 57883.531 N 7.68 GRP 57893.49 7.3 PGT 57894.6 7.5 BRU 57898.485 N 7.78 PGT 57899.4 7.5 CAS 57899.42 7.2	BRU 57850.619 N 13.49 BRU 57851.614 N 13.5 BRU 57867.581 N 14.19 BRU 57883.543 N 14.64 =====	BRU 57850.628 N 12.15 BRU 57851.623 N 12.1 BRU 57867.59 N 11.61 CAS 57871.5 11.8 BRU 57883.552 N 10.86 JPS 57887.42 11.0 BRU 57898.505 N 10.59 =====	ANM 57923.426 N 7.77 =====	BRU 57850.648 N 15.53 BRU 57851.643 N 15.5 BRU 57867.61 N 15.91 BRU 57883.574 N 15.67 BRU 57898.525 N 14.39 BRU 57899.524 N 14.29 =====	ANM 57923.424 N 10.11 =====

JPS 57866.51 9.7	=====	PDJ 57924.4729 Y 10.53	=====	ANM 57930.45 N 9.99	=====
JPS 57872.54 9.7	1755+19 RYHER	ANM 57930.395 N 11.03	1832+25 RZHER	=====	1921+21 WWVUL
JPS 57894.5 11.0	=====	ANM 57930.396 N 11.08	=====	1903+17 SVSGE	=====
JPS 57921.42 13.5	ANM 57864.47 N 10.76	=====	JPS 57872.58 13.0	=====	BRU 57898.638 N 10.71
=====	ANM 57864.471 N 10.75	1813+06 BCOPH	JPS 57899.5 11.8	BRU 57883.669 N 10.68	BRU 57899.637 N 10.68
1702-15 ROPH	CAS 57871.52 11.4	=====	JPS 57921.46 9.2	BRU 57898.616 N 10.75	=====
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ANM 57897.516 N 10.28	JPS 57899.49 13.2	BRU 57851.699 N 14.2	=====	=====	=====
PRO 57921.4 8.5	JPS 57921.46 13.7	BRU 57867.656 N 14.09	1832+27 CELYR	1905+29 VLYR	JPS 57872.6 10.2
ANM 57923.466 N 8.92	=====	BRU 57883.624 N 13.79	=====	=====	=====
ANM 57923.466 N 8.91	1755+54 UWDRA	BRU 57898.572 N 13.37	BRU 57867.676 N 13.54	BRU 57883.67 N<14.41	1927+45 AFCYG
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1702+17 VYHER	ANM 57864.443 N 7.54	1813+49 AMHER	BRU 57898.592 N 13.47	BRU 57899.616 N 13.95	DUM 57803.54 7.8
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BRU 57850.657 N 10.37	ANM 57897.45 N 7.54	=====	=====	1905+29 VZLYR	DUM 57829.47 7.9
BRU 57851.653 N 10.29	ANM 57923.414 N 7.53	PDJ 57883.4146 Y 15.37	1839-09 FHSCCT	=====	DUM 57838.49 7.7
BRU 57867.62 N 9.88	ANM 57923.415 N 7.45	PDJ 57890.4056 Y 15.32	=====	BRU 57883.67 N<14.6	=====
BRU 57883.584 N 9.87	ANM 57930.412 N 7.61	PDJ 57924.441 Y 15.36	BRU 57867.684 N 12.12	BRU 57898.618 N 13.84	=====
JPS 57887.41 9.5	=====	=====	BRU 57883.652 N 12.18	BRU 57899.617 N 13.79	1929+14 KXAQL
BRU 57898.535 N 10.36	1756+19 BLHER	1814+06 AYOPH	BRU 57898.6 N 12.11	=====	=====
BRU 57899.534 N 10.36	=====	=====	BRU 57899.599 N 12.11	1906+04 V1343AQL	BRU 57898.644 N<16.66
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1706+27 RThER	ANM 57864.471 N 10.22	=====	1839+22 AEHER	BRU 57898.625 N 14.53	=====
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ANM 57864.417 N 9.98	ANM 57897.421 N 10.52	=====	BRU 57867.681 N 10.28	=====	=====
ANM 57864.418 N 9.91	=====	BRU 57850.703 N 11.0	BRU 57883.649 N 10.4	1906+27 UVLYR	BRU 57898.651 N 13.95
JPS 57865.47 9.4	1756+54 VDRA	BRU 57851.7 N 11.04	BRU 57898.598 N 10.97	=====	DUM 57841.43 7.6
CAS 57871.51 9.1	=====	BRU 57867.658 N 12.22	BRU 57899.596 N 11.0	BRU 57898.623 N 12.28	=====
JPS 57887.41 9.0	ANM 57864.443 N 10.02	BRU 57883.625 N 13.58	=====	BRU 57899.622 N 12.29	1930+23 V336VUL
JPS 57921.45 10.0	ANM 57864.443 N 10.0	BRU 57898.574 N 14.59	1841+37 AYLyr	=====	=====
ANM 57923.424 N 10.43	ANM 57897.449 N 10.92	BRU 57899.572 N 14.58	=====	1907+28 UWLYR	ANM 57897.541 N 9.14
ANM 57930.446 N 10.72	ANM 57897.45 N 10.93	=====	BRU 57867.679 N:17.1	=====	ANM 57930.517 N 8.96
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1707+40 V939HER	ANM 57930.412 N 12.26	PGT 57900.4 10.0	BRU 57899.594 N:18.55	=====	=====
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DUM 57813.48 8.2	1757+18 WZHER	1820+39 IRLYR	1844-08 SSCT	=====	BRU 57899.646 N<16.27
DUM 57838.49 8.4	=====	=====	=====	BRU 57898.619 N 13.46	=====
DUM 57839.43 8.1	BRU 57850.688 N 13.78	BRU 57850.706 N 15.54	ANM 57923.468 N 7.35	BRU 57899.618 N 13.51	1932+27 EHCYG
DUM 57841.43 8.4	BRU 57851.685 N 13.84	BRU 57851.703 N 15.57	=====	=====	=====
=====	BRU 57867.646 N 14.52	BRU 57867.661 N 15.64	1845-07 V457SCT	1909+33 RSLYR	BRU 57898.652 N 13.93
1714+01 ZOPH	CAS 57871.52 <13.4	BRU 57883.629 N 14.93	=====	=====	BRU 57899.65 N 13.82
=====	JPS 57872.58 <14.0	BRU 57898.577 N 14.96	ANM 57923.468 N 8.54	PDJ 57923.5368 Y 15.81	=====
ANM 57897.475 N 11.79	BRU 57883.613 N 15.39	BRU 57899.575 N 14.95	=====	=====	1933+11 RTAQL
ANM 57897.476 N 11.8	BRU 57898.561 N 15.77	=====	1848+26 CYLYR	1910-17 TSGR	=====
PGT 57899.5 12.2	BRU 57899.56 N 15.82	1820+39 TWLYR	=====	=====	BRU 57898.649 N 12.86
ANM 57923.429 N 10.77	=====	=====	BRU 57867.689 N:14.59	ANM 57930.53 N 10.7	BRU 57899.648 N 12.68
ANM 57930.451 N 10.45	1802+20 DEHER	BRU 57850.705 N 10.44	BRU 57883.657 N 13.78	=====	=====
=====	=====	BRU 57851.702 N 10.42	BRU 57898.605 N 14.12	1910+46 SSLYR	1933+12 LSAQL
1717-12 RYSER	ANM 57864.481 N 10.95	BRU 57867.66 N 10.56	BRU 57899.604 N 14.91	=====	=====
=====	ANM 57864.482 N 10.96	BRU 57883.627 N 11.06	=====	BRU 57898.62 N 13.33	ANM 57923.513 N 11.0
BRU 57850.664 N 15.44	=====	BRU 57898.576 N 11.5	1851+32 FFLYR	BRU 57899.619 N 13.22	=====
BRU 57851.659 N 15.64	1804+38 PRHER	BRU 57899.574 N 11.5	=====	=====	1934+08 EZAQL
BRU 57867.626 N 15.61	=====	=====	BRU 57883.659 N<16.94	1911-00 FOAQL	=====
BRU 57883.591 N 15.99	BRU 57850.694 N<17.83	1822+24 SVHER	BRU 57898.607 N 16.47	=====	BRU 57898.649 N 13.35
BRU 57898.541 N 15.32	BRU 57851.691 N<18.02	=====	BRU 57899.605 N 16.38	BRU 57898.634 N 15.16	BRU 57899.647 N 13.46
BRU 57899.54 N 15.32	BRU 57867.649 N<18.45	BRU 57850.708 N 13.34	=====	BRU 57899.633 N 15.2	=====
=====	BRU 57883.616 N<18.06	BRU 57851.705 N 13.45	1853+16 EUAQL	=====	1934+11 SVAQL
1717+07 UZOPH	BRU 57898.565 N<18.44	BRU 57867.663 N 14.13	=====	1914+27 EPLYR	=====
=====	BRU 57899.563 N<18.64	JPS 57872.59 <14.0	BRU 57867.687 N:15.1	=====	BRU 57898.649 N:14.95
PGT 57899.5 10.9	=====	BRU 57883.63 N 15.23	BRU 57883.655 N 14.87	BRU 57898.631 N 10.21	BRU 57899.648 N:14.62
=====	1805+18 XZHER	BRU 57898.579 N 14.97	BRU 57898.603 N 14.83	BRU 57899.629 N 10.18	=====
1717+23 RSHER	=====	BRU 57899.577 N 14.76	BRU 57899.602 N 14.79	=====	1934+28 BGCYG
=====	BRU 57850.698 N 12.2	=====	=====	1915+17 WSGE	=====
CAS 57871.51 7.9	BRU 57851.695 N 12.11	1828+03 AGSER	1854+30 DMLYR	=====	BRU 57898.654 N 9.23
ANM 57897.422 N 8.59	BRU 57867.653 N 10.96	=====	=====	BRU 57898.635 N 13.31	BRU 57899.653 N 9.17
ANM 57923.425 N 9.95	BRU 57883.62 N 10.83	BRU 57850.712 N:15.19	BRU 57883.66 N<17.11	BRU 57899.634 N 13.32	=====
ANM 57930.447 N 10.32	BRU 57898.568 N 11.08	BRU 57851.709 N:15.14	BRU 57898.608 N 17.85	=====	1934+30 EMCYG
=====	BRU 57899.567 N 11.07	BRU 57867.666 N 13.73	BRU 57899.607 N 17.78	1916+29 AVCYG	=====
1722+04 VVOPH	=====	BRU 57883.634 N 12.88	=====	=====	BRU 57898.654 N 13.46
=====	1805+31 THER	BRU 57898.583 N 12.72	1856+34 ZLYR	ANM 57930.516 N 10.64	BRU 57899.652 N 13.51
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JPS 57921.44 13.0	BRU 57850.697 N 9.05	=====	JPS 57894.53 12.0	1916+37 ULYR	1934+49 RCYG
=====	BRU 57851.694 N 9.08	1828+36 TLYR	ANM 57897.437 N 11.93	=====	=====
1725+17 UZHER	ANM 57864.456 N 10.08	=====	PGT 57900.4 11.6	ANM 57864.474 N 10.57	ANM 57864.442 N 8.81
=====	BRU 57867.651 N 10.12	PDJ 57865.5278 Y 8.48	PGS 57915.41 11.0	ANM 57897.437 N 10.23	ANM 57897.446 N 9.22
BRU 57850.68 N 11.78	BRU 57883.619 N 11.15	PDJ 57895.4854 Y 8.44	ANM 57923.401 N 10.73	JPS 57915.41 9.5	ANM 57923.411 N 9.79
BRU 57851.676 N 11.82	BRU 57898.567 N 11.88	PGT 57900.4 8.8	ANM 57930.399 N 10.65	ANM 57923.402 N 9.77	ANM 57930.408 N 9.99
BRU 57867.642 N 12.39	BRU 57899.565 N 11.9	PDJ 57902.4542 Y 8.46	=====	ANM 57930.4 N 9.73	=====
BRU 57883.609 N 13.12	ANM 57930.397 N 11.34	PDJ 57924.4618 Y 8.38	1857+37 RTLYR	=====	1935+09 RVAQL
BRU 57898.558 N 13.6	=====	=====	=====	1916+41 HOLYR	=====
BRU 57899.556 N 13.65	1810+20 YYHER	1830+24 CHHER	PDJ 57923.5062 Y 15.6	=====	ANM 57923.434 N 10.94
=====	=====	=====	=====	BRU 57898.632 N 13.17	ANM 57930.42 N 11.44
1728+09 RUOPH	BRU 57850.699 N 13.2	BRU 57867.673 N:17.65	1858+42 V493LYR	BRU 57899.631 N 13.07	=====
=====	BRU 57851.696 N 13.18	BRU 57883.64 N 15.58	=====	=====	1937+21 FVUL
JPS 57866.51 11.7	BRU 57867.654 N 13.09	BRU 57898.589 N:17.84	BRU 57883.663 N<16.54	1917+17 TSGE	=====
JPS 57899.48 13.5	BRU 57883.621 N 13.04	BRU 57899.587 N:17.97	BRU 57898.61 N 17.79	=====	BRU 57898.655 N<15.09
JPS 57921.43 13.3	BRU 57898.569 N 12.91	=====	BRU 57899.609 N 17.53	ANM 57897.54 N 9.07	BRU 57899.654 N:14.71
=====	BRU 57899.568 N 12.87	1831+38 LLLYR	=====	=====	=====
1744+22 SUHER	=====	=====	1859+47 WZLYR	1917+37 UZLYR	1937+32 TT CYG
=====	1811+36 WL YR	BRU 57867.677 N<17.26	=====	=====	=====
CAS 57871.52 12.6	=====	BRU 57883.645 N:18.33	BRU 57883.664 N 13.7	ANM 57864.474 N 10.22	ANM 57897.496 N 7.77
JPS 57922.45 11.0	ANM 57864.439 N 8.18	BRU 57898.594 N 17.65	BRU 57898.612 N 14.12	ANM 57897.437 N 10.32	ANM 57930.515 N 7.66
=====	ANM 57864.44 N 8.1	BRU 57899.592 N 17.44	BRU 57899.611 N 14.11	ANM 57930.4 N 10.24	=====
1751+11 RTOPH	JPS 57866.53 7.3	=====	=====	=====	1939+27 YZVUL
=====	JPS 57894.52 8.1	1831+49 SVDRA	1901+08 RAQL	1918+31 ANLYR	=====
JPS 57872.55 <14.0	ANM 57897.418 N 8.74	=====	=====	=====	BRU 57898.656 N:14.49
JPS 57899.48 <14.0	ANM 57923.397 N 10.58	ANM 57897.447 N 11.47	ANM 57923.433 N 9.92	BRU 57898.633 N 14.77	BRU 57899.655 N 13.87
JPS 57921.44 13.9	ANM 57923.398 N 10.6	ANM 57897.448 N 11.46	ANM 57923.434 N 9.94	BRU 57899.632 N 14.57	=====

1939+54 V369CYG	=====	PGT 57855.3 8.0	JTP 57922.6 7.2	PGT 57857.3 11.7	=====
=====	2029+54 STCYG	ANM 57897.47 N 7.8	ANM 57923.489 N 7.63	=====	BRU 57850.4 N:17.87
JPS 57899.46 10.3	=====	ANM 57897.47 N 7.67	=====	2339+61 PZCAS	BRU 57851.397 N:17.46
=====	ANM 57864.46 N 11.31	ANM 57930.442 N 8.01	2241+54 TXLAC	=====	BRU 57867.362 N:18.08
1940+48 RTCYG	ANM 57897.443 N 10.48	=====	=====	ANM 57923.492 N 9.84	=====
=====	JPS 57899.52 9.7	2137+53 RUCYG	ANM 57897.523 N 10.44	ANM 57930.473 N 9.95	XXXXXXX AICRB
JPS 57872.6 8.0	ANM 57923.408 N 10.14	=====	ANM 57923.487 N 10.41	=====	=====
ANM 57897.446 N 8.19	ANM 57930.405 N 10.18	ANM 57897.466 N 8.24	ANM 57930.469 N 10.41	2347+60 TZCAS	ANM 57923.42 N 9.36
ANM 57923.409 N 8.29	=====	ANM 57897.467 N 8.28	=====	=====	=====
ANM 57923.411 N 8.24	2029+62 BFCEP	ANM 57923.455 N 8.53	2243+54 ULAC	ANM 57923.493 N 9.54	XXXXXXX AKLEO
ANM 57930.406 N 8.5	PDJ 57923.4556 Y 12.13	ANM 57930.44 N 8.53	=====	ANM 57930.474 N 9.59	=====
=====	=====	ANM 57930.441 N 8.55	ANM 57897.523 N 9.32	=====	GRP 57883.42 9.2
1943+48 TUCYG	2034+22 RUVUL	2138+43 SSCYG	ANM 57923.487 N 9.31	2349+56 RHOCAS	GRP 57889.34 8.9
=====	=====	=====	ANM 57930.469 N 9.32	=====	GRP 57893.36 9.1
ANM 57923.409 N 10.41	=====	PDJ 57865.55 Y 11.62	=====	JTP 57845.5 4.7	GRP 57898.37 9.3
ANM 57930.407 N 10.24	ANM 57897.493 N 9.41	PDJ 57867.5597 Y 11.76	2246+17 AFPEG	JTP 57850.5 : 4.5	GRP 57913.37 8.5
=====	ANM 57930.512 N 9.31	PDJ 57878.509 Y 8.56	=====	JTP 57857.5 4.7	GRP 57915.38 8.3
1946+32 CHICYG	=====	PDJ 57895.4736 Y 11.91	ANM 57930.506 N 9.29	JTP 57863.5 4.5	GRP 57922.38 8.3
=====	2037+08 ERDEL	PDJ 57902.4257 Y 11.46	=====	JTP 57865.6 4.7	=====
JPS 57899.51 12.4	=====	=====	2250+19 GOPEG	JTP 57897.6 4.5	XXXXXXX ALVIR
=====	ANM 57930.456 N 10.57	2140+58 MU_CEP	=====	JTP 57902.6 : 4.5	=====
1950+55 CUCYG	=====	=====	ANM 57923.526 N 7.41	JTP 57914.7 : 4.5	BRU 57850.553 N 9.9
=====	2038+16 SDEL	=====	ANM 57930.507 N 7.4	JTP 57916.6 4.5	BRU 57851.549 N 9.94
JPS 57899.52 11.0	=====	JTP 57845.5 3.9	=====	JTP 57922.5 4.7	ANM 57864.468 N 9.45
=====	JPS 57921.48 8.7	JTP 57857.6 : 3.9	2251+34 SXLAC	=====	BRU 57867.515 N 9.42
1952-09 PXAQL	ANM 57930.424 N 8.89	JTP 57863.5 3.9	=====	2350+53 RRCAS	BRU 57883.472 N 10.02
=====	=====	JTP 57865.6 3.8	ANM 57923.496 N 8.32	=====	BRU 57898.43 N 9.37
ANM 57930.493 N 11.07	2038+47 VCYG	JTP 57894.6 : 3.9	ANM 57930.476 N 8.2	ANM 57897.512 N 10.18	BRU 57899.428 N 9.55
=====	=====	JTP 57897.6 : 4.0	=====	ANM 57923.45 N 10.82	=====
1952+77 ABDRA	ANM 57897.441 N 9.21	JTP 57914.5 3.9	2255+56 V509CAS	ANM 57930.434 N 11.12	XXXXXXX AODEL
=====	ANM 57930.404 N 9.49	JTP 57922.6 3.9	=====	=====	=====
PDJ 57873.3826 Y 13.96	=====	2146+12 AGPEG	JTP 57922.6 : 5.3	2353+50 RCAS	ANM 57923.474 N 11.38
PDJ 57890.4648 Y 14.1	2039+37 DRCYG	=====	=====	=====	=====
=====	=====	ANM 57923.524 N 8.72	2257+59 ASCEP	ANM 57930.433 N 7.57	XXXXXXX APLIB
2005-14 RCAP	JPS 57899.53 11.0	ANM 57930.504 N 8.81	=====	=====	=====
=====	2040+16 TDEL	ANM 57930.505 N 8.84	ANM 57897.525 N 9.94	2356+59 WZCAS	BRU 57850.585 N 14.84
ANM 57930.519 N 10.87	=====	=====	ANM 57923.489 N 10.03	=====	BRU 57851.579 N 14.32
2005+25 WVUL	ANM 57897.5 N 9.72	2154+22 RXPEG	2258+59 UVCAS	PGT 57848.3 6.7	BRU 57867.546 N 15.31
=====	ANM 57923.44 N 10.72	=====	=====	PGT 57852.3 6.6	BRU 57883.504 N 15.22
ANM 57897.493 N 9.22	=====	ANM 57923.527 N 8.59	PGT 57848.3 10.9	PGT 57857.3 6.7	BRU 57898.461 N 15.66
ANM 57930.513 N 9.54	2044-05 TAQR	ANM 57930.509 N 8.66	PGT 57852.3 10.6	2358+55 YCAS	BRU 57899.459 N 16.26
=====	=====	=====	PGT 57857.3 10.4	=====	=====
2007+15 SAQL	ANM 57923.51 N 8.05	2156+05 VPEG	PGT 57867.3 10.4	PGT 57848.3 11.3	XXXXXXX AQDEL
=====	ANM 57930.491 N 8.37	=====	ANM 57897.525 N 10.89	PGT 57852.3 11.2	=====
ANM 57897.483 N 10.78	2045+45 VI661CYG	ANM 57923.515 N 9.91	ANM 57923.489 N 10.8	PGT 57857.3 11.3	ANM 57897.498 N 11.06
ANM 57923.437 N 10.34	=====	ANM 57930.495 N 10.11	=====	=====	ANM 57923.474 N 10.56
ANM 57930.422 N 9.87	JTP 57894.6 4.9	2201+33 RZPEG	2306+52 RTAND	2359+39 SVAND	=====
=====	JTP 57922.6 : 5.0	=====	=====	=====	XXXXXXX ARCAS
2007+20 STSGE	2048+46 RCZYG	ANM 57923.444 N 8.41	ANM 57923.486 N 9.18	ANM 57930.478 N 10.38	JTP 57922.6 : 4.5
=====	=====	ANM 57930.428 N 8.53	ANM 57930.467 N 9.22	XXXXXXX VHER	=====
JPS 57922.49 12.0	=====	ANM 57930.429 N 8.58	ANM 57930.468 N 9.17	=====	XXXXXXX AUCVN
=====	ANM 57897.442 N 10.96	2201+34 SVPEG	2307+52 SSAND	BRU 57850.653 N 11.09	=====
2008+12 RUAQL	ANM 57923.407 N 11.24	=====	=====	BRU 57851.648 N 11.1	BRU 57850.523 N:18.47
=====	ANM 57930.404 N 11.45	ANM 57897.502 N 9.11	ANM 57897.522 N 9.58	BRU 57867.616 N 11.13	BRU 57851.518 N:17.5
ANM 57897.487 N 10.66	=====	ANM 57923.446 N 8.98	ANM 57923.486 N 9.88	BRU 57883.58 N 11.06	BRU 57867.484 N:18.59
2009+38 RSCYG	2050+17 XDEL	=====	ANM 57930.467 N 9.97	BRU 57898.531 N 11.07	BRU 57883.44 N<18.11
=====	=====	2202+34 SZPEG	2307+59 VCAS	BRU 57899.529 N 11.05	BRU 57898.399 N:18.62
ANM 57897.438 N 8.09	ANM 57897.508 N 8.19	=====	=====	=====	BRU 57899.397 N<18.71
ANM 57897.439 N 8.02	JPS 57921.48 8.4	ANM 57897.502 N 9.7	=====	XXXXXXX VLMI	=====
ANM 57923.403 N 8.31	ANM 57930.425 N 9.53	ANM 57923.446 N 9.68	PGT 57848.3 8.9	=====	XXXXXXX AULEO
ANM 57923.404 N 8.29	=====	=====	PGT 57852.3 8.6	BRU 57850.408 N 12.13	=====
ANM 57930.401 N 8.37	2059+23 RVUL	2208+43 RSLAC	PGT 57857.3 8.3	BRU 57851.405 N 12.04	BRU 57850.443 N 17.15
ANM 57930.401 N 8.31	=====	=====	PGT 57867.3 8.1	BRU 57867.37 N 11.3	BRU 57851.44 N 16.64
2012+47 V1488CYG	ANM 57897.491 N 8.41	ANM 57930.43 N 11.56	ANM 57897.468 N 7.74	=====	BRU 57867.406 N 16.72
=====	ANM 57923.443 N 10.88	=====	ANM 57923.453 N 8.94	XXXXXXX XVIR	BRU 57883.367 N 17.1
JTP 57894.6 4.1	2059+23 DYVUL	2208+43 RYLAC	ANM 57930.439 N 9.27	=====	=====
JTP 57922.6 4.1	=====	=====	2314+25 WPEG	BRU 57850.472 N 11.44	XXXXXXX AULIB
=====	ANM 57923.443 N 7.25	ANM 57923.447 N 10.99	=====	BRU 57851.469 N 11.44	=====
2014+37 PCYG	ANM 57930.427 N 7.34	ANM 57930.43 N 10.99	ANM 57923.507 N 10.03	BRU 57867.436 N 11.42	BRU 57850.585 N 12.93
=====	ANM 57930.51 N 7.38	2209+12 RUPEG	2333+35 STAND	BRU 57883.397 N 11.43	BRU 57851.579 N 12.98
JTP 57864.6 : 5.1	2105+87 XUMI	=====	=====	BRU 57898.357 N 11.41	BRU 57867.546 N 13.46
JTP 57894.5 : 5.1	=====	ANM 57923.525 N 11.11	ANM 57923.494 N 9.81	=====	BRU 57883.504 N 14.58
JTP 57897.6 5.2	JPS 57922.49 14.0	2219+55 RWCEP	ANM 57930.475 N 9.81	XXXXXXX ZHER	BRU 57898.461 N 13.65
JTP 57914.5 : 4.9	=====	=====	ANM 57930.475 N 9.75	=====	BRU 57899.459 N 14.46
JTP 57916.6 : 4.9	2108+68 TCEP	JTP 57914.5 : 7.2	2334+51 SVCAS	BRU 57850.685 N 7.42	=====
JTP 57922.6 : 4.7	=====	=====	=====	BRU 57851.683 N 7.53	XXXXXXX AVLIB
2014+37 WXCYG	ANM 57864.476 N 6.7	2225+57 DELTACEP	ANM 57897.521 N 9.05	BRU 57867.643 N 7.4	=====
=====	ANM 57864.477 N 6.75	=====	ANM 57930.466 N 8.19	BRU 57883.61 N 7.42	BRU 57850.586 N 14.29
ANM 57897.44 N 11.0	2116+14 XPEG	JTP 57845.5 : 3.7	=====	BRU 57898.559 N 7.37	BRU 57851.58 N 14.88
ANM 57923.405 N 10.73	=====	JTP 57857.6 : 3.9	2336+47 WYAND	BRU 57899.557 N 7.47	BRU 57867.547 N 14.64
ANM 57930.402 N 10.7	ANM 57897.531 N 9.42	JTP 57863.5 4.0	=====	=====	BRU 57883.505 N 14.98
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2015+59 CNCYG	ANM 57930.454 N 9.81	JTP 57894.6 : 3.4	ANM 57930.466 N 9.05	=====	BRU 57899.46 N 15.49
=====	2132+44 WCYG	JTP 57897.6 4.1	2338+60 PYCAS	BRU 57850.479 N 14.15	XXXXXXX AYVIR
JPS 57899.54 9.5	=====	JTP 57914.5 4.0	=====	BRU 57851.476 N 14.05	=====
2016+47 UCYG	JTP 57864.7 6.5	JTP 57916.6 4.0	ANM 57897.526 N 10.79	BRU 57867.442 N 13.96	GRP 57889.41 9.5
=====	JTP 57894.6 6.5	JTP 57922.6 : 3.9	ANM 57923.49 N 10.86	BRU 57883.403 N 13.93	GRP 57893.39 9.5
ANM 57923.406 N 10.13	JTP 57897.6 6.5	2232+57 WCEP	ANM 57923.491 N 10.92	BRU 57898.361 N 14.3	GRP 57898.39 9.4
ANM 57930.403 N 10.07	JTP 57914.5 : 6.3	=====	=====	BRU 57899.358 N 14.39	GRP 57915.42 9.1
=====	JTP 57922.6 : 6.0	JTP 57845.5 : 6.8	2339+56 ZCAS	XXXXXXX ABGEM	GRP 57923.39 9.4
2028+17 ZDEL	2136+78 SCEP	JTP 57864.5 : 7.3	=====	=====	=====
=====	=====	JTP 57894.6 : 7.5	PGT 57848.3 11.2	GRP 57852.31 9.9	XXXXXXX BDUMA
ANM 57923.438 N 9.29	=====	JTP 57914.5 7.2	PGT 57852.3 11.5	GRP 57873.33 10.2	=====
ANM 57930.423 N 9.44	=====	=====	=====	GRP 57883.35 9.7	BRU 57850.466 N 13.69
				=====	BRU 57851.464 N 13.21
				XXXXXXX ACLMI	BRU 57867.43 N 13.63
					BRU 57883.391 N 12.94

=====	BRU 57850.452 N 13.54	=====	=====	=====	BRU 57898.376 N 16.9
XXXXXXX BEUMA	BRU 57851.449 N 13.54	XXXXXXX CYBOO	XXXXXXX FHVIR	GRP 57851.34 8.6	BRU 57899.373 N:17.62
=====	BRU 57867.415 N 13.54	=====	=====	=====	=====
BRU 57850.467 N 14.57	BRU 57883.376 N 13.56	JTP 57864.5 : 6.0	BRU 57850.525 N 7.23	XXXXXXX GLSER	XXXXXXX IULEO
BRU 57851.465 N 15.38	=====	=====	BRU 57851.52 N 7.26	=====	=====
BRU 57867.431 N 15.48	XXXXXXX CNVIR	XXXXXXX CYCNC	BRU 57867.486 N 6.95	BRU 57850.7 N<16.21	BRU 57850.419 N 14.25
BRU 57883.392 N 15.32	=====	=====	BRU 57883.442 N 7.21	BRU 57851.697 N<16.31	BRU 57851.416 N 14.57
=====	GRP 57889.38 8.8	JTP 57857.6 : 8.5	BRU 57898.401 N 7.22	BRU 57867.655 N<17.68	BRU 57867.381 N 15.25
XXXXXXX BKCVN	GRP 57893.4 8.9	JTP 57864.5 : 8.1	BRU 57899.398 N 7.22	BRU 57883.622 N<17.46	BRU 57883.343 N<17.01
=====	GRP 57898.4 9.0	=====	=====	BRU 57898.571 N<17.67	=====
JTP 57922.6 5.1	GRP 57915.39 8.8	XXXXXXX DEBOO	XXXXXXX FIUMA	BRU 57899.569 N<17.84	XXXXXXX IVMON
=====	GRP 57923.37 8.9	=====	=====	=====	=====
XXXXXXX BMCRB	=====	JTP 57864.7 : 6.0	JTP 57922.6 : 6.8	XXXXXXX GMSER	ANM 57864.351 N 10.68
=====	XXXXXXX COBOO	=====	=====	=====	=====
BRU 57850.604 N 15.95	=====	XXXXXXX DHSER	XXXXXXX FLLYN	BRU 57850.7 N<16.23	XXXXXXX KKCNC
BRU 57851.598 N 16.42	BRU 57850.565 N 16.47	=====	=====	BRU 57851.697 N<16.44	=====
BRU 57867.565 N 16.74	BRU 57851.56 N 16.43	BRU 57867.668 N 16.86	BRU 57850.329 N<18.55	BRU 57867.655 N 16.32	BRU 57850.317 N<17.27
BRU 57883.526 N 17.23	BRU 57867.526 N 15.94	BRU 57883.636 N 15.67	BRU 57851.327 N<18.5	BRU 57883.622 N 16.21	BRU 57851.315 N<17.21
BRU 57898.48 N 16.61	BRU 57883.483 N 14.84	BRU 57898.584 N 14.46	=====	BRU 57898.571 N 15.69	=====
BRU 57899.479 N 16.63	BRU 57898.442 N 13.61	BRU 57899.582 N 14.43	XXXXXXX FSBOO	BRU 57899.569 N 15.87	XXXXXXX KODEL
=====	BRU 57899.439 N 13.44	=====	=====	=====	=====
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=====	XXXXXXX COVIR	=====	BRU 57851.571 N<18.41	=====	ANM 57930.425 N 11.75
BRU 57850.709 N<16.64	=====	ANM 57897.505 N 10.71	BRU 57867.538 N<18.7	BRU 57850.7 N:15.84	=====
BRU 57851.706 N<16.05	GRP 57889.39 8.6	ANM 57897.505 N 10.69	BRU 57883.495 N<17.9	BRU 57851.697 N:16.4	XXXXXXX KQAUH
BRU 57867.664 N:17.48	GRP 57893.4 8.7	ANM 57930.435 N 10.96	BRU 57898.453 N<18.58	BRU 57867.655 N:17.06	=====
BRU 57883.632 N<16.45	GRP 57898.4 8.8	=====	BRU 57899.45 N<18.62	BRU 57883.622 N:16.66	ANM 57864.363 N 10.15
BRU 57898.58 N 17.29	GRP 57915.4 8.8	XXXXXXX DIMON	=====	BRU 57898.571 N:17.38	=====
BRU 57899.578 N:18.23	GRP 57923.37 9.2	=====	XXXXXXX FTBOO	BRU 57899.569 N:17.64	XXXXXXX KVBOO
=====	=====	GRP 57851.32 10.0	=====	=====	=====
XXXXXXX BNCNC	XXXXXXX CPBOO	=====	BRU 57850.556 N 14.02	XXXXXXX GOGEM	ANM 57864.427 N 11.42
=====	=====	XXXXXXX DKCNC	BRU 57851.551 N 14.07	=====	=====
JTP 57857.6 : 7.6	JTP 57922.6 6.1	=====	BRU 57867.518 N 14.15	GRP 57852.34 10.1	XXXXXXX KWLVR
JTP 57864.5 : 7.7	=====	GRP 57852.36 10.7	BRU 57883.474 N 13.85	GRP 57883.35 10.2	=====
=====	XXXXXXX CPLEO	GRP 57883.37 11.2	BRU 57898.433 N 13.69	=====	BRU 57867.674 N 14.23
XXXXXXX BQCNC	=====	GRP 57890.35 10.8	BRU 57899.43 N 13.24	XXXXXXX GQCOM	BRU 57883.642 N 14.29
=====	BRU 57850.443 N 12.76	=====	=====	=====	BRU 57898.59 N 14.32
JTP 57857.6 : 8.3	BRU 57851.44 N 12.72	XXXXXXX DOCOM	XXXXXXX FUCOM	BRU 57850.475 N 16.2	BRU 57899.589 N 14.3
JTP 57864.5 : 7.4	BRU 57867.406 N 12.9	=====	=====	BRU 57851.472 N 16.14	=====
=====	BRU 57883.367 N 12.89	BRU 57850.502 N 11.64	BRU 57850.49 N 18.41	BRU 57867.438 N 16.24	XXXXXXX KWUMA
XXXXXXX BRCNC	=====	BRU 57851.498 N 11.63	BRU 57851.487 N 17.8	BRU 57883.4 N 16.38	=====
=====	XXXXXXX CQLEO	BRU 57867.465 N 11.86	BRU 57867.453 N:18.83	=====	JTP 57922.6 6.4
JTP 57857.6 : 8.0	=====	BRU 57883.424 N 12.34	BRU 57883.414 N:17.95	XXXXXXX GZCNC	=====
=====	BRU 57850.453 N 14.0	=====	BRU 57898.371 N<18.2	=====	XXXXXXX KYPEG
XXXXXXX BVCNC	BRU 57851.45 N 13.95	XXXXXXX DRUMA	BRU 57899.369 N<18.1	BRU 57850.363 N:16.85	=====
=====	BRU 57867.416 N 13.96	=====	=====	BRU 57851.36 N 16.58	ANM 57930.504 N 9.83
JTP 57857.6 : 8.6	BRU 57883.377 N 13.87	BRU 57850.548 N<19.28	XXXXXXX FVBOO	=====	ANM 57930.505 N 9.96
JTP 57864.5 : 9.3	=====	BRU 57851.543 N<18.95	=====	XXXXXXX HHCNC	=====
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BRU 57898.358 N 14.45	=====	BRU 57898.653 N<15.41	XXXXXXX FWBOO	=====	ANM 57930.425 N 7.82
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=====	BRU 57867.42 N 12.69	XXXXXXX EPCNC	BRU 57851.592 N 12.87	GRP 57893.43 10.0	=====
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=====	JTP 57922.6 : 5.8	=====	BRU 57899.472 N 12.5	=====	BRU 57899.586 N 7.61
JTP 57857.6 : 7.9	=====	XXXXXXX EPVUL	=====	BRU 57850.385 N:16.65	=====
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XXXXXXX BVVIR	=====	=====	=====	BRU 57867.347 N 17.15	=====
=====	BRU 57850.459 N 13.7	XXXXXXX EQLYN	BRU 57850.605 N 13.13	=====	BRU 57850.365 N<18.0
BRU 57850.52 N 10.67	BRU 57851.456 N 13.66	=====	BRU 57851.6 N 13.13	XXXXXXX IBAQL	BRU 57851.362 N:18.4
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BRU 57883.437 N 12.03	=====	XXXXXXX EVLYN	BRU 57898.482 N 12.78	BRU 57851.579 N 13.79	=====
BRU 57898.396 N 12.33	XXXXXXX CTVIR	=====	BRU 57899.48 N 12.79	BRU 57867.546 N 13.59	BRU 57850.446 N 15.66
BRU 57899.393 N 12.31	=====	BRU 57850.312 N:17.12	XXXXXXX FYCOM	BRU 57883.504 N 13.64	BRU 57851.443 N 15.52
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=====	XXXXXXX CULEO	XXXXXXX EXLYR	BRU 57851.503 N<18.74	=====	=====
BRU 57850.534 N 18.21	=====	=====	BRU 57867.469 N<19.46	XXXXXXX IKLEO	XXXXXXX MTLVR
BRU 57851.529 N:18.75	BRU 57850.46 N 13.38	ANM 57923.4 N 12.3	BRU 57883.425 N<18.39	=====	=====
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BRU 57883.452 N:18.68	BRU 57867.423 N 13.38	=====	BRU 57899.382 N:18.63	BRU 57851.404 N<17.86	BRU 57899.628 N 14.5
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XXXXXXX CDBOO	XXXXXXX CVLEO	=====	=====	XXXXXXX ILLEO	=====
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=====	BRU 57851.384 N 16.24	BRU 57851.318 N:17.2	XXXXXXX GLMON	BRU 57883.418 N:17.92	BRU 57867.492 N 15.61

BRU 57883.448 N 14.87	GRP 57851.33 10.2	BRU 57867.629 N 14.09		XXXXXXX YYVIR	
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BRU 57899.404 N 13.17	XXXXXXX QYAND	BRU 57898.544 N 12.75	BRU 57851.376 N 8.01	BRU 57850.522 N 10.73	
		BRU 57899.543 N 12.93	BRU 57867.342 N 7.96	BRU 57851.517 N 10.74	JTP 57894.6 6.2
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		XXXXXXX STSER	XXXXXXX TWLEO	BRU 57883.439 N 10.73	
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BRU 57898.448 N 16.8	BRU 57867.561 N<17.96	BRU 57883.597 N 12.72			BRU 57867.462 N 17.84
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	BRU 57898.477 N<18.02	BRU 57899.545 N 13.69		BRU 57851.425 N 14.17	BRU 57898.38 N 17.36
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GRP 57898.41 9.0	GRP 57851.35 10.1	BRU 57851.666 N 12.1	BRU 57850.432 N 10.07		BRU 57850.678 N 13.84
GRP 57915.4 9.0		BRU 57867.632 N 11.91	BRU 57851.43 N 10.06	JTP 57894.5 : 5.1	BRU 57851.674 N 13.94
GRP 57923.38 8.7	XXXXXXX RULEO	BRU 57883.598 N 11.97	BRU 57867.395 N 9.98		BRU 57867.641 N 14.36
		BRU 57898.548 N 12.39	BRU 57883.356 N 10.94	XXXXXXX CPBOO	BRU 57883.608 N 14.46
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	BRU 57851.413 N 11.2		XXXXXXX UYLEO	JTP 57894.6 : 6.1	BRU 57899.555 N 13.73
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BRU 57850.687 N 13.07		XXXXXXX SVLEO			
BRU 57851.684 N 13.11	BRU 57850.659 N 12.62		XXXXXXX VXLEO	XXXXXXX RHOCAS	XXXXXXX V418SER
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	XXXXXXX RWHER	BRU 57850.671 N 14.12	XXXXXXX VYCRV	BRU 57899.648 N<16.02	BRU 57899.455 N<18.71
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BRU 57867.508 N 16.23	BRU 57851.688 N 13.02	BRU 57883.6 N 13.8	BRU 57851.468 N 15.15		
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	BRU 57899.561 N 12.94	XXXXXXX SWCOM			XXXXXXX V436CEP
XXXXXXX OUVIR			XXXXXXX VYVIR	BRU 57850.541 N<17.65	
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BRU 57899.437 N:18.25	XXXXXXX RWSER	XXXXXXX SXSER	BRU 57899.4 N 12.83	XXXXXXX V362AQL	DUM 57759.26 7.6
					DUM 57770.43 7.53
XXXXXXX OVBOO	BRU 57850.662 N 15.03	BRU 57850.674 N 14.35	XXXXXXX VZLMI	BRU 57898.636 N 12.59	DUM 57771.43 7.52
	BRU 57851.658 N 15.24	BRU 57851.67 N 14.31		BRU 57899.635 N 12.62	DUM 57772.43 7.53
BRU 57850.572 N 14.51	BRU 57867.625 N 15.57	BRU 57867.636 N 14.75	BRU 57850.376 N 16.03		DUM 57773.49 7.55
BRU 57851.567 N 14.92	BRU 57883.602 N 16.52	BRU 57883.602 N 14.94	BRU 57851.372 N 16.04	XXXXXXX V362HER	DUM 57774.44 7.64
BRU 57867.534 N 16.24	BRU 57898.539 N 16.28	BRU 57898.551 N 15.16	BRU 57867.338 N 16.71		DUM 57775.45 7.63
BRU 57883.491 N 16.84	BRU 57899.538 N 16.29	BRU 57899.55 N 15.29		BRU 57850.638 N 14.57	DUM 57777.43 7.59
BRU 57898.449 N 16.59			XXXXXXX WXBOO	BRU 57851.633 N 13.71	DUM 57788.42 7.39
BRU 57899.447 N 17.88	XXXXXXX RXCOM	XXXXXXX SXSEX		BRU 57867.6 N 14.18	DUM 57801.44 7.42
			GRP 57893.48 11.8	BRU 57883.563 N 14.48	DUM 57803.5 7.37
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	BRU 57851.509 N 12.52	BRU 57851.399 N 15.55		BRU 57899.514 N 14.54	DUM 57810.46 7.36
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BRU 57851.572 N:18.9	BRU 57883.43 N 13.2			XXXXXXX V371SGE	DUM 57813.44 7.46
BRU 57867.539 N:19.24	BRU 57898.39 N 14.02	XXXXXXX SYPEG	BRU 57850.464 N 8.15		DUM 57828.45 7.57
BRU 57883.496 N:18.3	BRU 57899.387 N 14.08		BRU 57851.461 N 8.18	ANM 57897.499 N 11.89	DUM 57829.37 7.55
BRU 57898.454 N:18.93		ANM 57897.502 N 9.71	BRU 57867.427 N 8.14	ANM 57923.475 N 11.78	DUM 57834.45 7.54
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		ANM 57930.429 N 9.72		XXXXXXX V381AQL	DUM 57838.35 7.57
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	BRU 57851.583 N 11.61	XXXXXXX SYSER		BRU 57898.64 N 11.54	DUM 57840.39 7.56
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BRU 57883.617 N<18.27	BRU 57899.463 N 11.52	BRU 57867.637 N 13.5	BRU 57883.362 N 12.53		
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BRU 57899.564 N 16.5	XXXXXXX RXSER	BRU 57898.552 N 13.16	XXXXXXX XXCRT	ANM 57930.513 N 10.57	BRU 57883.638 N 14.77
		BRU 57899.551 N 13.23			BRU 57898.586 N 14.06
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	BRU 57851.659 N 16.52	XXXXXXX SZSEX	BRU 57851.437 N 11.37		
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BRU 57851.35 N<18.26	BRU 57883.591 N 15.38	BRU 57850.404 N 15.39	BRU 57883.363 N 11.29	BRU 57851.673 N 16.17	
	BRU 57898.541 N 13.51	BRU 57851.401 N 15.25		BRU 57867.639 N 16.19	BRU 57850.645 N 13.78
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				BRU 57898.555 N 16.12	BRU 57867.607 N 13.8
ANM 57897.468 N 10.12	XXXXXXX RZSER	XXXXXXX TTLFO	BRU 57850.44 N 11.6	BRU 57899.553 N 16.03	BRU 57883.571 N 13.33
			BRU 57851.438 N 11.64		BRU 57898.522 N 13.01
XXXXXXX PWVIR	BRU 57850.665 N 15.06	BRU 57850.432 N 10.71	BRU 57867.403 N 12.24	XXXXXXX V396HER	BRU 57899.521 N 13.6
	BRU 57851.661 N 14.99	BRU 57851.429 N 10.7	BRU 57883.364 N 12.61		
BRU 57850.521 N 14.33	BRU 57867.628 N 13.62	BRU 57867.394 N 10.73		BRU 57850.677 N 17.0	XXXXXXX V493SER
BRU 57851.516 N 14.3	BRU 57883.593 N 12.86	BRU 57883.355 N 10.79	XXXXXXX YYLEO	BRU 57850.677 N<19.02	
BRU 57867.482 N 13.56	BRU 57898.543 N 13.04	GRP 57883.43 10.8		BRU 57851.673 N 16.85	BRU 57850.618 N:17.71
BRU 57883.438 N 12.51	BRU 57899.541 N 13.08	GRP 57889.35 10.9	GRP 57883.41 9.8	BRU 57851.673 N<18.89	BRU 57851.613 N<17.78
BRU 57898.397 N 11.5		GRP 57893.38 11.0	GRP 57889.33 9.7	BRU 57867.639 N 17.1	BRU 57867.58 N:17.95
BRU 57899.394 N 11.44	XXXXXXX SSSER	GRP 57915.37 10.7	GRP 57893.37 9.7	BRU 57867.639 N<19.01	BRU 57883.542 N:16.91
		GRP 57922.39 11.4	GRP 57898.606 N 17.32	BRU 57883.606 N 17.32	BRU 57898.495 N:17.23
XXXXXXX QRMON	BRU 57850.667 N 12.81		GRP 57922.37 9.4	BRU 57898.555 N 16.64	BRU 57899.493 N:17.55
	BRU 57851.662 N 12.9	XXXXXXX TULMI		BRU 57899.553 N 16.85	

XXXXXXX V495HYA	XXXXXXX V567HER	XXXXXXX V807CAS	=====	BRU 57899.62 N 16.17	ANM 57923.455 N 11.87
=====	=====	=====	ANM 57864.47 N 6.44	=====	ANM 57923.455 N 11.82
BRU 57850.341 N<17.67	BRU 57850.693 N 13.72	ANM 57897.468 N 11.0	ANM 57897.421 N 6.5	XXXXXXX V1233AQL	ANM 57930.44 N 11.77
BRU 57851.339 N:17.47	BRU 57851.69 N 13.76	ANM 57897.468 N 10.97	=====	=====	=====
=====	BRU 57867.648 N 14.68	ANM 57923.453 N 10.85	XXXXXXX V987HER	BRU 57898.639 N<17.34	XXXXXXX V2552OPH
XXXXXXX V496SCT	BRU 57883.615 N 15.21	ANM 57930.439 N 11.03	=====	BRU 57899.638 N<17.33	=====
=====	BRU 57898.563 N 15.57	=====	ANM 57923.397 N 10.13	=====	BRU 57850.668 N 11.11
BRU 57867.683 N<15.42	BRU 57899.562 N 15.59	XXXXXXX V819CAS	ANM 57923.398 N 10.11	XXXXXXX V1357AQL	BRU 57851.664 N 11.33
=====	=====	=====	ANM 57930.395 N 10.15	=====	BRU 57867.63 N 11.27
BRU 57898.599 N<16.85	XXXXXXX V581HER	ANM 57923.493 N 7.09	ANM 57930.396 N 10.14	ANM 57897.483 N 7.87	BRU 57883.596 N 11.14
BRU 57899.598 N<17.06	=====	=====	=====	ANM 57923.437 N 7.78	BRU 57898.545 N 11.18
=====	BRU 57867.685 N:15.97	XXXXXXX V821CAS	XXXXXXX V994HER	ANM 57930.422 N 7.89	BRU 57899.544 N 11.23
XXXXXXX V498HYA	BRU 57883.654 N 15.04	=====	=====	=====	=====
=====	BRU 57898.602 N 15.17	ANM 57897.512 N 8.26	ANM 57864.472 N 6.96	XXXXXXX V1770CYG	XXXXXXX V465CAS
BRU 57850.342 N<17.72	BRU 57899.6 N 15.2	ANM 57923.45 N 8.29	=====	=====	=====
BRU 57851.34 N<17.71	=====	ANM 57930.434 N 8.46	XXXXXXX N1306AQL	JTP 57894.6 : 4.2	JTP 57894.6 : 6.8
=====	XXXXXXX V649AQL	=====	=====	ANM 57930.401 N 7.34	=====
XXXXXXX V519MON	=====	XXXXXXX V823HER	BRU 57898.626 N<17.41	=====	XXXXXXX V5584SGR
=====	ANM 57923.513 N 11.47	=====	BRU 57899.625 N<17.44	XXXXXXX V1773OPH	=====
GRP 57851.33 9.7	=====	ANM 57864.436 N 6.5	=====	=====	BRU 57850.711 N<15.72
=====	XXXXXXX V725PER	ANM 57864.437 N 6.5	XXXXXXX N1310AQL	BRU 57850.66 N 16.19	BRU 57851.708 N<14.57
XXXXXXX V520CYG	=====	ANM 57897.478 N 6.44	=====	BRU 57851.656 N 16.65	BRU 57867.665 N<15.78
=====	ANM 57930.537 N 9.65	=====	BRU 57883.666 N:15.78	BRU 57867.623 N:17.22	BRU 57883.633 N<16.45
ANM 57930.404 N 11.33	=====	XXXXXXX V861AQL	BRU 57898.614 N:18.57	BRU 57883.588 N:17.38	BRU 57898.581 N<16.85
=====	XXXXXXX V776CYG	=====	BRU 57899.613 N<18.64	BRU 57898.538 N 16.59	BRU 57899.58 N<16.69
XXXXXXX V539LYR	=====	BRU 57898.641 N 13.85	=====	BRU 57899.536 N 16.51	=====
=====	ANM 57930.405 N 12.18	BRU 57899.64 N 13.89	XXXXXXX NSV20287	=====	XXXXXXX NSVS19054836
JTP 57922.6 : 7.3	=====	=====	=====	XXXXXXX V1922CYG	=====
=====	XXXXXXX V777CAS	XXXXXXX V870AQL	BRU 57850.585 N 10.42	=====	BRU 57850.583 N 14.46
XXXXXXX V558VIR	=====	=====	BRU 57851.579 N 10.47	ANM 57923.405 N 10.97	BRU 57851.578 N 14.32
=====	ANM 57923.501 N 7.1	BRU 57898.645 N 13.46	BRU 57867.546 N 10.42	ANM 57930.402 N 10.99	BRU 57867.544 N 14.33
BRU 57850.559 N<18.28	ANM 57930.48 N 7.17	BRU 57899.644 N 13.5	BRU 57883.504 N 10.86	=====	BRU 57883.502 N 14.73
BRU 57851.554 N<18.19	=====	=====	BRU 57898.461 N 10.95	XXXXXXX V2240CYG	BRU 57898.46 N 15.2
BRU 57867.52 N 15.49	XXXXXXX V778CAS	XXXXXXX V876MON	BRU 57899.459 N 11.38	=====	BRU 57899.457 N 16.2
BRU 57883.477 N:16.9	=====	=====	=====	ANM 57930.402 N 11.95	=====
BRU 57898.436 N<18.66	ANM 57923.501 N 8.63	GRP 57851.34 10.3	XXXXXXX V1102CYG	=====	=====
BRU 57899.433 N<18.51	ANM 57930.48 N 8.56	=====	=====	XXXXXXX V2258CYG	=====
=====	=====	XXXXXXX V974HER	BRU 57898.621 N 16.26	=====	=====