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 \* V A R I A B I L I A \*  
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 \* nummer 29 november 1990 \*  
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 \* Redactie: \*  
 \* H. Feijth \*  
 \* Oer de Feart 7 \*  
 \* 9084 BP Goutum \*  
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**WAARNEMINGSRESULTATEN**  
**JUNI-SEPTEMBER 1990**

In de afgelopen drie maanden zijn in totaal  
 2145 waarnemingen gedaan door 12 waarnemers.

De waarnemingen zijn als volgt over genoemde vier maanden verdeeld:

|                    |     | JUNI       | JULI       | AUG        | SEP        | instrument(en)  |
|--------------------|-----|------------|------------|------------|------------|-----------------|
| R.J. Bouma         | BMU |            | 34         | 37         |            | JB254, N156     |
| H.J. Bril          | BHN |            | 41         |            |            | N140            |
| G. Comello         | CMG |            |            | 17         | 304        | SC280 en SC200  |
| M. van Denneheuvel | DEN | 6          | 16         |            |            | SC200           |
| H. Feijth          | FJH | 251        | 261        | 542        | 394        | N310, JB310     |
| H. v.d. Hil        | HIL |            | 4          | 2          |            | N110            |
| C.F. Johannink     | JCH |            |            | 45         | 10         | N110            |
| P.C.A. Kerkvliet   | KKP | 7          | 10         | 10         |            | R75             |
| W. Nobel           | NWL |            | 16         |            |            | R75             |
| A. Scholten        | SAQ | 3          |            | 6          | 9          | B15x80          |
| P. Serné           | SEN | 18         | 4          | 17         | 29         | R60, R100, R160 |
| A.J.M. Toonen      | TOO |            | 42         | 10         |            | SC200           |
| <b>Totaal</b>      |     | <b>285</b> | <b>428</b> | <b>686</b> | <b>746</b> |                 |

De andere afkortingen hebben betrekking op de volgende: N Newton, R refractor, B prismakijker en JB Jones-Bird. Het getal dat daarachter vermeld is betreft de opening in millimeters. De volgende "inner sanctum" waarnemingen ( positieve schattingen zwakker dan 13.7 en negatieve zwakker dan 140 ) zijn verricht door de volgende waarnemers: Bouma 1, Comello 63, Feijth 397 en Toonen 1.

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**OBSERVARIA** Nu de herfstbladeren van de bomen vallen is het een goede gelegenheid stil te staan bij opmerkelijk gedrag van enkele sterren die wij waargenomen hebben. Wat betreft de U Gem en Z Cam sterren valt op dat RX Andromedae al enige tijd in een stilstand verkeert, terwijl Z Camelopardalis juist nu zich normaal gedraagt. R CrB is steeds nog maximaal in helderheid, terwijl SV Sagittae nog steeds iets zwakker is dan normaal en V482 Cygni weer is afgedaald tot de veertiende grootte. Ook

was sprake van abnormaal gedrag van Mira sterren. X Aquilae beleefde een veel zwakker maximum ( ongeveer 11.1 ) dan normaal (8.9 ). Het tot dusver zwakste waargenomen maximum van X Aql was 10.3 ! T Cassiopeiae werd in het laatste maximum niet helderder dan 8.8. RV Dra had een maximum dat even helder was ( 9.3 ) dan het tot dusver waargenomen helderste maximum. RS Herculis doorliep zojuist een recordholder minimum ( 11.9; het vorige record stond op 12.1 ).

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 DE AAVSO BIJEENKOMST  
 TE BRUSSEL

Van 23 t/m 28 juli 1990 werd te Brussel in een gebouw van de Vrije Universiteit te Brussel de eerste Europese AAVSO bijeenkomst georganiseerd.

Dit congres werd door de volgende leden van de WVS bijgewoond: Van den Bosch, Comello, Feijth, Hoogeveen, Jurriens, Nobel en Serné. Het ligt niet in de bedoeling hier volledig verslag te doen van deze bijeenkomst, maar zich te beperken tot enige indrukken. Algemeen is men het over eens dat dit congres een groot succes was en dat Europese AAVSO bijeenkomsten regelmatig terugkerend ( in de periode van vijf jaar ) moeten zijn. Het informele karakter werd terecht niet verwaarloosd; enige mensen die wij al lang van naam kenden konden wij eindelijk in levende lijve ontmoeten. En wel waarnemers uit diverse landen. Ook dankzij de perestrojka waarnemers uit Hongarije, de voormalige DDR en Tsjechoslowakije. Wat betreft de lezingen moet opgemerkt worden dat deze m.i. te veel waren afgestemd op de interesse van de astronomen die zich beroepsmatig bezighouden met variabelen. Wie dit congres bezocht met de bedoeling frisse ideeën op te doen die betrekking heeft op de praktijk van het waarnemen ( vergelijkingsterrenreeksen, standhoekeffect ) kwam bedrogen uit. Dat neemt niet weg dat de bijeenkomst als zodanig de moeite waard was.

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 Geert Hoogeveen:

Het waarnemen van bedekkingsveranderlijken.  
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Hoewel het waarnemen van bedekkingsveranderlijken vrijwel op dezelfde wijze gedaan wordt als bij langperiodieke veranderlijken, zijn er enkele belangrijke verschillen op te merken.

Deze verschillen zijn zichtbaar in de (administratieve) voorbereiding van de waarnemingen alsook in de waarnemingstechniek zelf.

a) voorbereiding.

Voor de meeste Mirasterren zijn goede duidelijke kaarten met veel vergelijkingsterren beschikbaar. Daar het waarnemen van bedekkingsveranderlijken onder amateurs een wat minder lange traditie kent, zijn er van bedekkingsveranderlijken vaak minder goede en duidelijke kaarten beschikbaar. Vaak ontbreken magnituden van vergelijkingsterren, of zijn de kaarten slecht getekend. Zelfs verkeerde identificaties op kaarten komen voor. Daarom is het van belang de volgende vuistregels voor het voorbereiden van de waarnemingen aan te houden :

- verken het veld van de veranderlijke op een heldere nacht waarin deze geen minimum heeft
- beoordeel de vergelijkingsterren op hun bruikbaarheid (kleur, magnitudeverschillen, positie ten opzichte van de

veranderlijke e.d.)

- zoek zonnig nieuwe vergelijkingssterren en hanteer deze voor alle waarnemingen daarna als vaste vergelijkingssterren
- houdt de verschillen in magnitude van de vergelijkingssterren altijd in de gaten, want er zitten wel eens (langzame) veranderlijken tussen deze vergelijkingssterren

Daarnaast is het vanzelfsprekend van belang om van te voren te weten of de desbetreffende veranderlijke een waarneembaar minimum heeft. Hiervoor kunnen speciale almanakken worden gebruikt (zoals van de Berliner Arbeitsgemeinschaft fuer Veraenderliche) maar het zelf berekenen van de tijdstippen van minimum is echter erg eenvoudig. Sommige organisaties van veranderlijke sterren waarnemers (zoals de genoemde BAV) geven in hun publikaties regelmatig informatie over waargenomen afwijkingen ten opzichte van de voorspelde tijden van minimum. Deze afwijkingen kunnen oplopen tot enkele uren. Vandaar dat het zinvol kan zijn deze gegevens bij je zelf te berekenen voorspellingen te betrekken.

#### b) het schatten van de veranderlijke

Bij het schatten van bedekkingsveranderlijken spelen dezelfde foutenbronnen een rol als bij langperiodieke veranderlijken, namelijk het Purkinje-effect, standhoek-effect en suggestie-effect. Deze spelen echter wel een enigszins andere rol dan bij Mirasterren.

Daar bedekkingsveranderlijken meestal bestaan uit een grote koele (lees: rode) ster en een kleine hete (blauwe) ster, is het licht van beide sterren gezamenlijk buiten een eclips vaak wit van kleur. Bij een eclips verdwijnt de hete ster achter de koele waardoor de veranderlijke sterk van kleur kan veranderen. Daar de helderheid eveneens nogal afneemt is dit echter alleen een probleem bij bedekkingsveranderlijken die in het minimum nog enkele magnituden boven de grensmagnitude van de telescoop blijven (bv. Algol met een verrekijker). In dit geval dient extrafocaal te worden waargenomen. Bovendien is dit alleen van invloed op de diepte van de eclips en niet op de vorm zodat het tijdstip van minimum er niet door wordt beïnvloed.

Het standhoek-effect kan bij Mirasterren erg lastig zijn omdat een veranderlijke meestal in ongeveer dezelfde stand wordt waargenomen in loop van een maand. Daar echter een bedekkingsveranderlijke in de loop van een nacht wordt waargenomen, kan de stand van de veranderlijke ten opzichte van de vergelijkingssterren sterk veranderen, met name bij veranderlijken die in de buurt van de poolster staan. Proberen iedere waarneming in ongeveer dezelfde positie te doen leidt bij bedekkingsveranderlijken tot vermoeiende acrobatische capriolen die alleen maar een negatieve invloed op de kwaliteit van de waarnemingen zullen hebben. Realistischer lijkt het om vast te stellen dat elke waarneming een bepaalde waarnemingsfout zal hebben en dat het standhoek-effect een van de foutenbronnen zal zijn. Als er in de loop van de nacht bv. 10 waarnemingen zijn gedaan, zijn deze bovendien alle met een ander deel van het netvlies gedaan, zodat je kunt verwachten dat afwijkingen in de gevoeligheid van het netvlies elkaar zullen uitmiddelen.

Het suggestie-effect is het meest bekende en beruchte van alle waarnemingsfouten die een rol spelen bij bedekkingsveranderlijken. Het is af en toe verbazingwekkend hoe de wetenschap dat er een minimum van een bepaalde veranderlijke plaats zal hebben, leidt tot een de waarneming van een minimum zonder dat er een feitelijk plaatsheeft. (N.B. Dit heeft niets te maken met "fouten" van het oog of de hersenen of iets dergelijks. In de dagelijkse visuele waarneming speelt vooraf-kennis van waar

te nemen objecten een essentiële rol in het waarnemingsproces. Zonder deze voorafkennis zou waarneming vrijwel onmogelijk zijn. Bij het waarnemen van veranderlijken is dit echter een eerder storende faktor). Dit alles is echter nog reden tot wanhopen: er kan een heleboel gedaan worden om het suggestie-effect te vermijden. Hiertoe kun je de volgende vuistregels hanteren:

- neem altijd meer dan één bedekkingsveranderlijke waar in een waarnemingsnacht
- wissel altijd af tussen veranderlijken tijdens de nacht. Ga nooit zitten "wachten" na een waarneming tot je weer een waarneming aan dezelfde ster kunt doen, maar neem intussen andere (bedekkings)veranderlijken waar
- wees jezelf er goed van bewust dat de waarneming die je net gedaan hebt, onjuist kan zijn. de volgende waarneming die je doet kan dus in "tegenspraak" met de eerdere zijn. (Je hebt bv. waargenomen dat de helderheid afneemt maar opeens stijgt de veranderlijke weer iets in helderheid.)
- reken het tijdstip van minimum niet uit tot op de seconde nauwkeurig (dat heeft sowieso weinig zin omdat het er juist om gaat om de afwijking in het minimum waar te nemen) maar rondt deze af op bv. het hele of halve uur
- neem geen bedekkingsveranderlijken waar met kleine amplitude's als je nog weinig waarnemingservaring hebt. Een visuele amplitude van minstens één magnitude is een goede ondergrens.

Als je deze vuistregels in acht neemt, kun je met plezier en succes minima van bedekkingsveranderlijken waarnemen, ook al lijken er nogal wat hindernissen op je weg te liggen. Gezien de honderden minima die ieder jaar door enthousiaste amateurs worden waargenomen kun je concluderen dat het met deze hindernissen wel meevalt.

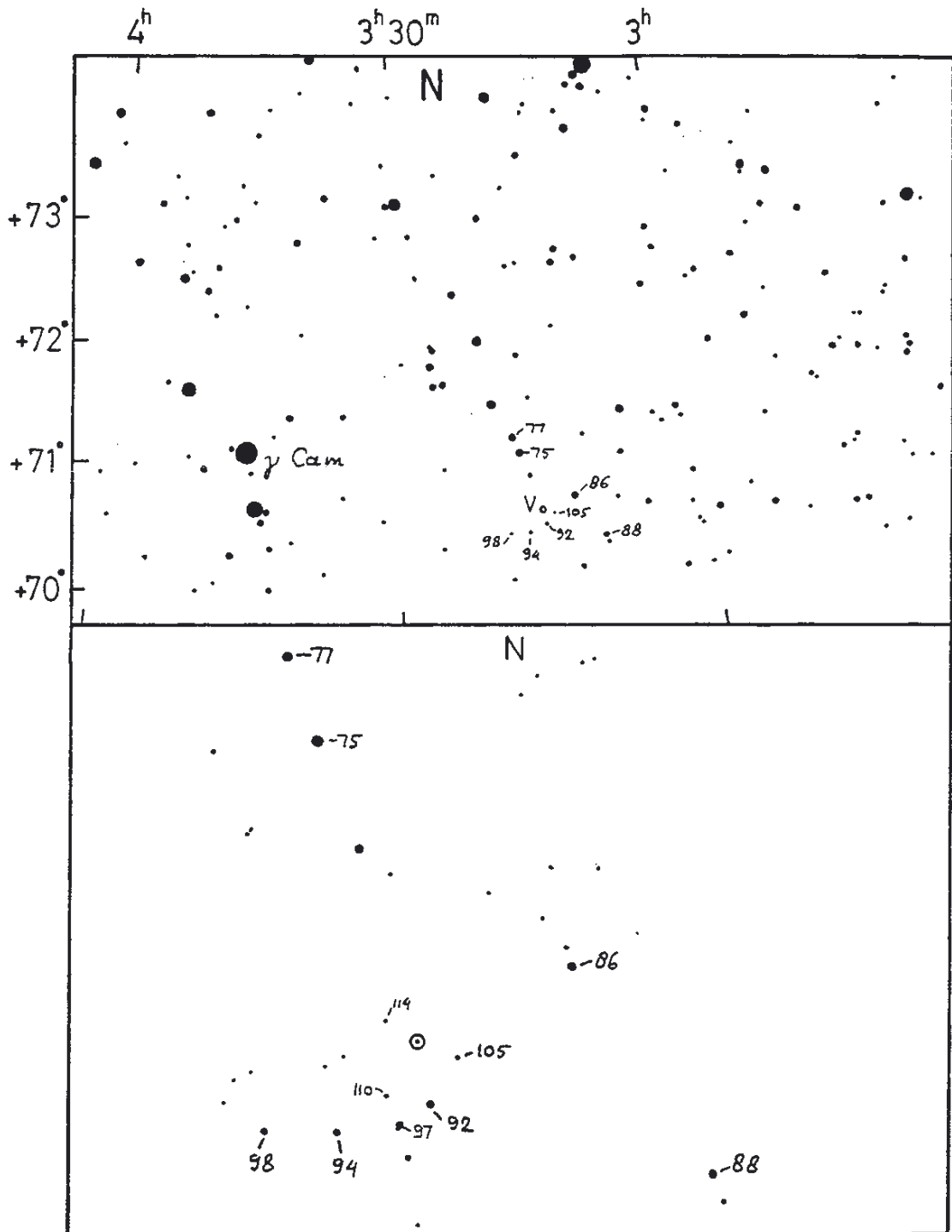
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G.Comello:

NSV 01098

Deze heldere veranderlijke werd door Dietmar T. H. Böhme op Sonneberger platen als Mira ster geïdentificeerd op platen uit de jaren 1968-1988. amplitude bedraagt 8.7-13.0; de periode 347 dagen. De Duitse astronoom Morgenroth vermeldde reeds in 1936 in Astronomische Nachrichten dat de ster BD +70°0236 ( RA 3 uur 15 min 57 sec, decl +70 gr 35.8 min (1950) ) veranderlijk zou kunnen zijn. Het eerstvoldende maximum zal midden februari 1991 plaatsvinden. De ster komt merkwaardigerwijs niet voor op de Atlas Borealis, de Falkauer Sternatlas en de Atlas Stellarum, maar kon op de Palomar Sky Survey ondubbelzinnig worden geïdentificeerd. Het is een betrekkelijk heldere Mira ster die ook in kleinere kijkers goed te volgen is. Een voordeel is de hoge declinatie die NSV 01098 circumpolair doet zijn. Wij willen deze veranderlijke onder de aandacht van de waarnemers brengen. Men bedenke dat het komende maximum het tweede waargenomen maximum zal zijn, wat de waarneming extra waarde verleent. Bijgaand kaartje geeft de omgeving van Gamma Cam - bekend bij de waarnemers van V en X Cam - en voorlopige helderheden van vergelijkingssterren van de AFOEV en mijzelf aan. Een check op 1 november jl. gaf de indruk dat één en ander er bruikbaar uitziet. De veranderlijke toonde bij een geschatte helderheid van 10.4 een levendig rode kleur. Het kaartje is zeer onvolledig en provisorisch. Maar het moet toch mogelijk zijn de variabele te localiseren. Wanneer definitief de helderheden van vergelijkingssterren beschikbaar komen wordt U op de hoogte gebracht.

Bron: Sterne und Weltraum 1,11 (1990)

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NSV 01098

000451 SS Cas  
type Mira HIP

081.5 101 FJH  
106.4 108 FJH  
127.5 125 FJH  
139.4 130 FJH  
145.5 131 CMG  
145.5 131 FJH  
152.5 134 FJH  
161.4 134 FJH

000928 UW And  
type Mira

066.5 117 FJH  
081.5 128 FJH  
104.5 138 FJH  
110.5 139 FJH  
122.4 144 FJH  
145.4 155 FJH  
148.5 122 CMG

001046 X And  
type Mira

058.5 139 FJH  
076.5 143 FJH  
085.5 145 FJH  
102.5 :150 FJH  
122.5 149 FJH  
145.4 143 FJH  
148.5 148 CMG  
152.5 143 FJH  
161.4 141 FJH

001726 T And  
type Mira

059.5 95 FJH  
076.5 97 BMU  
081.5 99 FJH  
105.5 116 FJH  
122.6 123 FJH  
139.4 130 FJH  
145.4 130 FJH  
148.5 132 CMG  
160.5 136 FJH

001755 T Cas  
type Mira HIP

081.5 89 FJH  
095.5 84 BHN  
106.4 87 FJH  
122.5 83 JCH  
128.4 91 FJH  
145.5 81 CMG  
146.4 89 FJH

001838 R And  
type Mira HIP

059.5 96 FJH  
091.6 : 86 TOO  
096.4 89 SAQ  
102.5 : 88 TOO  
107.4 88 FJH  
122.5 93 JCH  
122.5 : 90 TOO  
127.5 96 FJH  
146.3 102 FJH  
148.5 101 CMG  
160.4 107 FJH  
161.6 98 SAQ

0019-09 S Cet  
type Mira

129.5 114 BMU

002230 YZ And  
type Mira

148.5 135 CMG

002725A TU And  
type Mira HIP

105.5 125 FJH  
110.5 125 FJH  
122.6 129 FJH  
145.5 132 FJH  
148.5 132 CMG  
154.5 129 FJH

003162 TY Cas  
type Mira

051.5 116 FJH  
066.5 127 FJH  
081.5 126 FJH  
106.5 130 FJH  
111.5 131 FJH  
127.5 136 FJH  
149.4 138 FJH

003179 Y Cep  
type Mira

083.5 111 FJH  
106.4 101 FJH  
127.6 99 FJH  
139.4 99 FJH

004047 U Cas  
type Mira

068.5 150 FJH  
086.5 :152 FJH  
102.5 147 FJH  
110.4 136 FJH  
117.4 129 FJH  
117.4 131 CMG  
122.5 125 TOO  
139.4 109 FJH  
145.5 111 CMG

147.6 :109 SEN  
148.4 108 FJH  
156.6 107 SEN  
163.5 100 SEN

004132 RW And  
type Mira

122.5 155 FJH  
145.4 153 FJH  
148.5 143 CMG  
161.4 143 FJH

004435 V And  
type Mira

071.5 141 FJH  
085.5 145 FJH  
102.5 140 FJH  
110.5 140 FJH  
122.4 134 FJH  
131.4 124 FJH  
145.5 112 FJH  
148.5 107 CMG

004533 RR And  
type Mira

071.5 119 FJH  
081.5 121 FJH  
105.5 137 FJH  
122.4 143 FJH  
145.4 148 FJH  
148.5 153 CMG  
161.4 152 FJH

004746A RV Cas  
type Mira

059.5 116 FJH  
071.6 :123 SEN  
081.5 126 FJH  
095.5 130 BHN  
102.5 136 FJH  
110.4 140 FJH  
117.4 141 CMG  
117.4 143 FJH  
127.5 144 FJH  
145.5 153 CMG  
147.4 153 FJH  
161.4 156 FJH

004776B IZ Cas  
type SR

071.6 106 SEN  
122.5 107 SEN  
147.6 108 SEN  
163.5 107 SEN

004958 W Cas  
type Mira HIP

051.5 119 FJH

066.5 122 FJH  
071.5 117 SEN  
079.4 122 FJH  
091.6 117 TOO  
095.5 116 BHN  
099.6 115 TOO  
102.5 119 FJH  
111.5 117 FJH  
122.5 108 JCH  
122.5 108 SEN  
122.5 108 TOO  
128.4 112 FJH  
145.5 101 CMG  
145.5 106 FJH  
147.6 103 SEN  
163.5 101 SEN

005840 RX And  
type UGZ

081.48 107 FJH  
083.47 110 FJH  
085.54 123 FJH  
086.51 126 FJH  
092.61 135 TOO  
095.57 135 TOO  
099.53 137 TOO  
102.54 135 FJH  
104.48 124 FJH  
104.58 121 TOO  
105.48 117 FJH  
106.46 115 FJH  
107.46 112 FJH  
109.40 110 FJH  
110.45 114 FJH  
111.47 125 FJH  
114.45 137 FJH  
117.39 129 FJH  
117.40 128 CMG  
118.43 124 FJH  
122.48 117 TOO  
122.56 122 FJH  
124.47 111 FJH  
127.51 114 FJH  
128.48 112 FJH  
129.44 115 BMU  
130.41 115 FJH  
131.45 115 FJH  
132.43 114 FJH  
133.43 115 BMU  
134.42 115 FJH  
136.46 114 FJH  
139.46 114 FJH  
145.45 114 FJH  
147.44 115 FJH  
148.45 116 FJH  
148.45 113 CMG  
149.48 115 FJH  
152.46 115 FJH  
154.46 116 FJH  
160.43 116 FJH  
163.42 115 FJH

type Mira

160.6 96 CMG

010621A X Psc  
type Mira

106.5 134 FJH  
122.5 137 FJH  
127.5 139 FJH  
145.5 146 FJH  
148.5 146 CMG  
161.4 147 FJH

010937 FO And  
type UG

122.46 145 FJH  
124.47 151 FJH  
147.41 149 FJH  
160.46:151 FJH  
161.39<160 FJH

010940 U And  
type Mira

085.5 136 FJH  
102.5 133 FJH  
110.5 131 FJH  
122.6 124 FJH  
131.5 122 FJH  
145.5 111 FJH  
148.5 114 CMG  
154.5 108 FJH

011041A UZ And  
type Mira

059.5 118 FJH  
071.5 121 FJH  
081.5 125 FJH  
102.5 127 FJH  
109.5 131 FJH  
122.5 137 FJH  
131.5 138 FJH  
145.4 141 FJH  
148.5 141 CMG  
154.5 143 FJH

011055A VZ Cas  
type Mira

066.5 105 FJH  
079.4 102 FJH  
107.4 112 FJH  
111.5 116 FJH  
127.5 126 FJH  
145.5 131 CMG  
145.5 136 FJH  
152.5 136 FJH

0101-02 Z Cet

|   |  |  |  |  |
|---|--|--|--|--|
| 011208 S Psc<br>type Mira   | 071.51 126 FJH<br>102.57 120 FJH<br>104.49 125 FJH   | 147.6 91 SEN<br>148.5 88 CMG<br>163.5 86 SEN   | 021024 R Ari<br>type Mira HIP  | 109.42 132 FJH<br>110.42 137 FJH<br>111.47 141 FJH   |
| 110.5 98 FJH<br>127.5 104 FJH<br>145.5 114 FJH<br>148.5 113 CMG<br>163.4 117 FJH                                    | 105.49 128 FJH<br>106.46 135 FJH<br>107.53 141 FJH<br>122.47 149 FJH<br>127.47:155 FJH<br>139.37 120 FJH<br>140.35 119 FJH<br>142.42 120 FJH<br>145.38 133 FJH   | 015457 V? Cas<br>type Mira   | 085.6 85 FJH<br>107.6 97 FJH<br>122.5 105 TOO<br>122.5 108 FJH<br>122.5 111 JCH<br>139.5 120 FJH<br>148.5 128 CMG<br>152.5 128 FJH   | 118.43 129 FJH<br>120.43 144 FJH<br>122.47 151 FJH<br>124.47 151 FJH<br>127.38 128 FJH<br>130.46 144 FJH<br>139.37 136 FJH<br>142.43 144 FJH<br>145.38 144 FJH |
| 011272 S Cas<br>type Mira   | 147.41 141 FJH<br>148.43 151 FJH<br>149.41 151 FJH<br>152.49 151 FJH<br>161.41 151 FJH   | 015912 S Ari<br>type Mira  | 021143A W And<br>type Mira HIP   | 147.41 127 FJH<br>148.43 126 FJH<br>149.39 128 FJH<br>152.45 144 FJH<br>160.46 133 FJH<br>161.42 136 FJH   |
| 107.4 104 FJH<br>128.4 103 FJH<br>139.4 104 FJH   | 247.41 141 FJH<br>248.43 151 FJH<br>249.41 151 FJH<br>252.49 151 FJH<br>261.41 151 FJH   | 110.5 141 FJH<br>122.5 136 FJH<br>139.5 115 FJH  | 083.5 139 FJH<br>102.5 142 FJH<br>110.5 141 FJH<br>122.5 138 FJH<br>131.4 133 FJH<br>147.4 130 FJH<br>148.5 126 CMG  | 152.45 144 FJH<br>160.46 133 FJH<br>161.42 136 FJH   |
| 011712 U Psc<br>type Mira   | 013338 Y And<br>type Mira  | 020114 TT Ari<br>type UGZ  | 110.5 141 FJH<br>122.5 136 FJH<br>139.5 115 FJH  | 152.45 144 FJH<br>160.46 133 FJH<br>161.42 136 FJH   |
| 107.6 119 FJH<br>122.5 120 FJH<br>127.5 121 FJH<br>145.5 127 FJH<br>148.5 130 CMG<br>152.5 129 FJH<br>163.4 136 FJH | 083.5 :141 FJH<br>102.5 126 FJH<br>109.5 122 FJH<br>127.5 107 FJH<br>146.4 94 FJH<br>148.5 92 CMG  | 110.54 107 FJH   | 122.5 138 FJH<br>131.4 133 FJH<br>147.4 130 FJH<br>148.5 126 CMG   | 0220-00 R Cet<br>type Mira HIP   |
| 012020 RX Psc<br>type Mira  | 013937 AR And<br>type UGSS   | 020227 Z Tri<br>type Mira  | 021281 Z Cep<br>type Mira  | 122.5 106 JCH<br>151.6 112 CMG<br>160.6 125 CMG  |
| 106.5 98 FJH<br>127.5 102 FJH<br>145.5 110 FJH<br>148.5 111 CMG   | 059.53 118 FJH<br>110.52 127 FJH<br>111.48 125 FJH<br>122.46:156 FJH<br>124.47:155 FJH<br>127.47:157 FJH<br>130.47:156 FJH<br>134.42 118 FJH<br>136.46 120 FJH<br>139.39 121 FJH<br>147.42 158 FJH<br>152.49:158 FJH<br>159.38 126 FJH<br>160.43 130 FJH<br>161.39 146 FJH | 086.5 137 FJH<br>106.5 :150 FJH<br>122.5 :150 FJH<br>147.4 150 FJH   | 083.5 134 FJH<br>106.5 139 FJH<br>122.5 143 FJH<br>146.3 146 CMG<br>149.4 149 FJH  | 022150 RR Per<br>type Mira   |
| 012031 TY Psc<br>type UGSU  | 014958 X Cas<br>type Mira HIP  | 020356 UV Per<br>type UGSS   | 0214-03 Mira<br>type Mira HIP  | 107.5 100 FJH<br>128.5 108 FJH<br>148.5 118 CMG  |
| 107.53 130 FJH<br>109.52:145 FJH<br>130.46 133 FJH<br>131.433143 FJH  | 111.48 125 FJH<br>122.46:156 FJH<br>124.47:155 FJH<br>127.47:157 FJH<br>130.47:156 FJH<br>134.42 118 FJH<br>136.46 120 FJH<br>139.39 121 FJH<br>147.42 158 FJH<br>152.49:158 FJH<br>159.38 126 FJH<br>160.43 130 FJH<br>161.39 146 FJH                                     | 127.47<157 FJH   | 122.5 69 JCH<br>129.5 50 BMU<br>133.6 45 BMU<br>145.6 39 SAQ<br>147.5 43 CMG<br>151.6 40 CMG<br>157.5 39 SAQ<br>160.6 40 CMG<br>161.5 37 SAQ   | 0228-13 U Cet<br>type Mira HIP   |
| 012350 RZ Per<br>type Mira  | 015254 U Per<br>type Mira HIP  | 020657A TZ Per<br>type UGZ   | 021558 S Per<br>type SRc HIP   | 160.6 134 CMG  |
| 148.5 132 CMG   | 071.5 104 SEN<br>087.5 105 DEN<br>092.4 99 DEN<br>095.5 106 EHN<br>098.5 98 DEN<br>106.5 110 KKP<br>122.5 99 SEN<br>130.4 :103 KKP   | 083.47 137 FJH<br>085.55 133 FJH<br>086.52 135 FJH<br>102.57 131 FJH<br>104.49 135 FJH<br>105.45 134 FJH<br>106.47 135 FJH<br>107.53 135 FJH<br>109.40 136 FJH<br>110.53 134 FJH<br>111.47 135 FJH<br>122.47 135 FJH<br>124.48 135 FJH<br>127.47 143 FJH<br>130.46 144 FJH<br>131.44 143 FJH<br>139.37 144 FJH<br>142.42 144 FJH<br>145.38 142 FJH<br>147.41 128 FJH<br>148.43 128 FJH<br>149.41 129 FJH<br>152.38 138 FJH<br>159.43 134 FJH<br>161.39 128 FJH | 145.6 39 SAQ<br>147.5 43 CMG<br>151.6 40 CMG<br>157.5 39 SAQ<br>160.6 40 CMG<br>161.5 37 SAQ   | 022980 RR Cep<br>type Mira   |
| 012502 R Psc<br>type Mira   | 015254 U Per<br>type Mira HIP  | 020657A TZ Per<br>type UGZ   | 021558 S Per<br>type SRc HIP   | 086.5 148 FJH<br>106.5 :149 FJH<br>122.5 141 FJH<br>145.4 134 FJH<br>146.3 138 CMG   |
| 148.5 131 CMG   | 071.5 104 SEN<br>087.5 105 DEN<br>092.4 99 DEN<br>095.5 106 EHN<br>098.5 98 DEN<br>106.5 110 KKP<br>122.5 99 SEN<br>130.4 :103 KKP   | 107.53 130 FJH<br>109.52:145 FJH<br>130.46 133 FJH<br>131.433143 FJH   | 059.5 110 FJH<br>071.5 108 SEN<br>071.5 109 FJH<br>086.6 109 SEN<br>095.5 110 EHN<br>122.5 106 SEN<br>122.6 106 FJH<br>133.4 104 BMU<br>147.5 105 SEN<br>148.5 107 CMG<br>156.6 108 SEN<br>163.5 108 SEN | 023133 R Tri<br>type Mira HIP  |
| 012746 SX And<br>type Mira  | 071.5 104 SEN<br>087.5 105 DEN<br>092.4 99 DEN<br>095.5 106 EHN<br>098.5 98 DEN<br>106.5 110 KKP<br>122.5 99 SEN<br>130.4 :103 KKP   | 107.53 130 FJH<br>109.52:145 FJH<br>130.46 133 FJH<br>131.433143 FJH   | 021770 AM Cas<br>type UGSS   | 068.4 :109 KKP<br>085.6 103 FJH<br>096.5 99 EHN<br>106.5 : 92 KKP<br>107.6 90 FJH<br>122.5 85 JCH<br>128.4 79 KKP<br>148.5 70 CMG<br>161.6 60 SAQ              |
| 081.5 126 FJH<br>104.5 118 FJH<br>127.5 115 FJH<br>148.5 106 CMG  | 071.5 104 SEN<br>087.5 105 DEN<br>092.4 99 DEN<br>095.5 106 EHN<br>098.5 98 DEN<br>106.5 110 KKP<br>122.5 99 SEN<br>130.4 :103 KKP   | 107.53 130 FJH<br>109.52:145 FJH<br>130.46 133 FJH<br>131.433143 FJH   | 021770 AM Cas<br>type UGSS   | 068.4 :109 KKP<br>085.6 103 FJH<br>096.5 99 EHN<br>106.5 : 92 KKP<br>107.6 90 FJH<br>122.5 85 JCH<br>128.4 79 KKP<br>148.5 70 CMG<br>161.6 60 SAQ              |
| 013050 KT Per<br>type UGZ   | 071.5 104 SEN<br>087.5 105 DEN<br>092.4 99 DEN<br>095.5 106 EHN<br>098.5 98 DEN<br>106.5 110 KKP<br>122.5 99 SEN<br>130.4 :103 KKP   | 107.53 130 FJH<br>109.52:145 FJH<br>130.46 133 FJH<br>131.433143 FJH   | 021770 AM Cas<br>type UGSS   | 068.4 :109 KKP<br>085.6 103 FJH<br>096.5 99 EHN<br>106.5 : 92 KKP<br>107.6 90 FJH<br>122.5 85 JCH<br>128.4 79 KKP<br>148.5 70 CMG<br>161.6 60 SAQ              |

|                                |                                |                                |                                |                                |
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| 024217 T Ari<br>type SRA HIP   | 040150 FO Per<br>type UG       | 151.6 136 CMG                  | 054615C RU Tau<br>type Mira    | 151.6 110 CMG                  |
| 122.5 93 TOO                   | 109.52 127 FJH                 | 050003A V Ori<br>type Mira     | 151.6 137 CMG                  | 062564 RT Cam<br>type Mira     |
| 122.5 94 JCH                   | 110.54 126 FJH                 | 151.6 122 CMG                  | 054920A U Ori<br>type Mira HIP | 151.6 110 CMG                  |
| 030226 Z Ari<br>type Mira      | 122.52 130 FJH                 | 050953 R Aur<br>type Mira HIP  | 151.6 97 CMG                   | 062574 SU Cam<br>type Mira HIP |
| 107.6 103 FJH                  | 139.47 127 FJH                 | 085.6 98 FJH                   | 054974 V Cam<br>type Mira      | 122.5 150 FJH                  |
| 122.5 106 FJH                  | 152.49 135 FJH                 | 107.6 87 FJH                   | 059.5 109 FJH                  | 063159 U Lyn<br>type Mira      |
| 139.5 113 FJH                  | 041916 VX Tau<br>type Mira     | 140.5 78 FJH                   | 071.5 94 FJH                   | 106.5 102 FJH                  |
| 030514 U Ari<br>type Mira      | 122.6 135 FJH                  | 147.5 75 CMG                   | 083.4 87 FJH                   | 127.5 104 FJH                  |
| 107.6 84 FJH                   | 152.5 :145 FJH                 | 052036 W Aur<br>type Mira      | 106.4 87 FJH                   | 147.5 110 CMG                  |
| 122.5 90 FJH                   | 042209 R Tau<br>type Mira      | 107.6 97 FJH                   | 128.4 90 FJH                   | 152.5 119 FJH                  |
| 0314-01 X Cet<br>type Mira HIP | 151.6 92 CMG                   | 127.5 106 FJH                  | 146.3 101 CMG                  | 063444A AA Aur<br>type Mira    |
| 151.6 104 CMG                  | 042309 S Tau<br>type Mira      | 151.6 118 CMG                  | 148.4 98 FJH                   | 151.6 137 CMG                  |
| 160.6 96 CMG                   | 151.6 153 CMG                  | 152.5 121 FJH                  | 055439 AZ Aur<br>type Mira     | 063558 S Lyn<br>type Mira      |
| 032043 Y Per<br>type Mira      | 043065 T Cam<br>type Mira      | 0524-04 S Ori<br>type Mira HIP | 151.6 128 CMG                  | 147.5 140 CMG                  |
| 084.4 : 91 KKP                 | 059.5 130 FJH                  | 151.6 97 CMG                   | 060246 VY Aur<br>type Mira     | 152.5 143 FJH                  |
| 086.5 95 DEN                   | 083.4 137 FJH                  | 053326 RR Tau<br>type INAS     | 106.5 127 FJH                  | 065111 Y Mon<br>type Mira HIP  |
| 087.4 89 KKP                   | 105.5 137 FJH                  | 151.6 121 CMG                  | 127.5 134 FJH                  | 151.6 136 CMG                  |
| 095.5 102 BHN                  | 110.5 137 FJH                  | 053337 RU Aur<br>type Mira HIP | 152.5 135 FJH                  | 065355 R Lyn<br>type Mira HIP  |
| 098.5 94 DEN                   | 122.5 124 FJH                  | 151.6 :150 CMG                 | 060547 SS Aur<br>type UGSS     | 070109 V CMi<br>type Mira      |
| 111.4 97 KKP                   | 146.3 107 CMG                  | 152.5 :152 FJH                 | 139.47 107 FJH                 | 107.6 116 FJH                  |
| 128.4 101 KKP                  | 147.4 107 FJH                  | 053531 U Aur<br>type Mira      | 140.49 108 FJH                 | 147.5 104 CMG                  |
| 148.5 95 CMG                   | 043208 RX Tau<br>type Mira HIP | 127.5 87 FJH                   | 142.43 109 FJH                 | 151.6 150 CMG                  |
| 032335 R Per<br>type Mira      | 151.6 141 CMG                  | 148.5 85 FJH                   | 145.49 114 FJH                 | 070122A R Gem<br>type Mira HIP |
| 107.5 93 FJH                   | 043274 X Cam<br>type Mira HIP  | 151.6 84 CMG                   | 147.45 119 FJH                 | 096.6 77 SAQ                   |
| 127.5 103 FJH                  | 059.5 136 FJH                  | 053538 SZ Aur<br>type Mira     | 152.51 143 FJH                 | 151.6 76 CMG                   |
| 139.5 111 FJH                  | 071.5 134 FJH                  | 107.6 127 FJH                  | 060746A ST Aur<br>type Mira    | 070310 R CMi<br>type Mira HIP  |
| 147.4 120 FJH                  | 081.5 113 FJH                  | 127.5 116 FJH                  | 151.6 135 CMG                  | 151.6 100 CMG                  |
| 148.5 126 CMG                  | 106.4 88 FJH                   | 151.6 114 CMG                  | 061647 V Aur<br>type Mira HIP  | 071713 V Gem<br>type Mira HIP  |
| 032443 GK Per<br>type Na       | 116.5 84 FJH                   | 152.5 115 FJH                  | 106.5 112 FJH                  | 151.6 116 CMG                  |
| 107.54 130 FJH                 | 128.4 82 FJH                   | 054319 SU Tau<br>type RCB      | 127.5 115 FJH                  |                                |
| 122.53 130 FJH                 | 146.3 81 CMG                   | 151.6 98 CMG                   | 151.6 122 CMG                  |                                |
| 034532 RX Per<br>type Mira     | 148.4 84 FJH                   | 152.5 94 FJH                   | 0617-02 V Mon<br>type Mira HIP |                                |
| 107.6 133 FJH                  | 044617 V Tau<br>type Mira      | 054615A Z Tau<br>type Mira     | 151.6 132 CMG                  |                                |
| 122.5 132 FJH                  | 122.6 136 FJH                  | 151.6 126 CMG                  | 061925 WV Gem<br>type Mira     |                                |
| 147.4 141 FJH                  | 151.6 139 CMG                  |                                |                                |                                |
| 034711 IK Tau<br>type Mira     | 152.5 141 FJH                  |                                |                                |                                |
| 152.5 <152 FJH                 | 045307 R Ori<br>type Mira HIP  |                                |                                |                                |



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| 072141 VX Aur<br>type Mira HIP   | 129.43 109 BMU<br>131.64 114 BMU<br>133.42 117 BMU<br>142.43 130 FJH   | 126.4 77 BMU<br>147.5 81 CMG<br>163.4 89 SEN   | 068.4 81 KKP<br>068.4 83 FJH<br>068.4 83 SAQ   | type Mira HIP  |
| 151.6 106 CMG  | 145.49 112 FJH<br>146.33 110 CMG   | 122532 T CVn<br>type Mira HIP  | 071.4 88 NWL<br>071.5 83 SEN   | 043.6 124 BMU<br>051.4 128 FJH<br>076.4 135 FJH<br>085.4 134 FJH<br>092.5 134 TOO<br>105.4 132 FJH<br>114.4 126 FJH<br>134.3 114 FJH<br>145.3 107 JCH<br>145.3 109 CMG<br>163.3 100 CMG                              |
| 072708 S CMi<br>type Mira HIP  | 148.44 113 FJH<br>152.52 129 FJH   | 095.4 122 BMU  | 085.4 89 NWL<br>085.4 93 KKP<br>086.5 90 BHN<br>095.4 89 BHN<br>106.4 95 FJH<br>106.4 :107 KKP<br>111.4 109 KKP<br>122.4 105 SEN | 076.4 135 FJH<br>085.4 134 FJH<br>092.5 134 TOO<br>105.4 132 FJH<br>114.4 126 FJH<br>134.3 114 FJH<br>145.3 107 JCH<br>145.3 109 CMG<br>163.3 100 CMG  |
| 151.6 98 CMG   | 081633 T Lyn<br>type Mira HIP  | 123160 T UMa<br>type Mira HIP  | 106.4 95 FJH<br>106.4 :107 KKP<br>111.4 109 KKP<br>122.4 105 SEN   | 076.4 135 FJH<br>085.4 134 FJH<br>092.5 134 TOO<br>105.4 132 FJH<br>114.4 126 FJH<br>134.3 114 FJH<br>145.3 107 JCH<br>145.3 109 CMG<br>163.3 100 CMG  |
| 072811 T CMi<br>type Mira  | 151.6 97 CMG   | 051.4 125 FJH<br>058.4 127 FJH<br>076.4 129 FJH<br>095.4 128 BHN<br>105.4 125 FJH<br>122.4 115 SEN<br>126.4 112 BMU<br>134.3 104 FJH<br>145.6 91 SAQ<br>148.3 87 FJH<br>148.5 90 CMG<br>161.6 80 SAQ<br>163.4 79 SEN                 | 126.4 104 BMU<br>128.4 :110 KKP<br>134.3 110 FJH<br>148.3 120 FJH<br>148.5 116 CMG<br>161.3 121 FJH                              | 142539 V Boo<br>type SRa HIP   |
| 151.6 133 CMG  | 083350 X UMa<br>type Mira  | 093178 Y Dra<br>type Mira  | 124238 U CVn<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 073508 U CMi<br>type Mira HIP  | 151.6 124 CMG  | 093178 Y Dra<br>type Mira  | 047.4 120 FJH<br>079.4 130 FJH   | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 151.6 94 CMG   | 093178 Y Dra<br>type Mira  | 087.3 : 86 KKP   | 133273 T UMi<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 073723 S Gem<br>type Mira  | 081.5 90 FJH<br>106.4 94 FJH<br>116.5 96 FJH<br>127.6 99 FJH<br>148.3 108 CMG<br>148.4 112 FJH                       | 123307 R Vir<br>type Mira HIP  | 133273 T UMi<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 151.6 144 CMG  | 093934 R LMi<br>type Mira HIP  | 123366 RV Dra<br>type Mira   | 083.4 101 FJH<br>107.4 117 FJH<br>122.4 114 FJH<br>146.3 130 CMG<br>146.3 130 FJH<br>161.3 134 FJH                               | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 074323 T Gem<br>type Mira  | 161.6 102 SAQ  | 059.5 128 FJH<br>071.5 117 SEN<br>081.5 109 FJH<br>106.4 93 FJH<br>122.4 94 SEN<br>134.3 99 FJH<br>148.3 103 FJH<br>161.3 105 FJH<br>163.4 :107 SEN  | 133273 T UMi<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 151.6 90 CMG   | 094211 R Leo<br>type Mira HIP  | 087.3 : 86 KKP   | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 074922 U Gem<br>type UGSS+E  | 085.4 91 KKP<br>095.4 93 KKP   | 123459 RS UMa<br>type Mira   | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 151.25 144 CMG   | 095968 CH UMa<br>type UGSS   | 045.5 110 FJH<br>071.4 85 NWL<br>071.5 87 SEN<br>076.4 86 FJH<br>085.4 91 NWL<br>086.5 89 BHN<br>095.4 90 BHN<br>105.4 100 FJH<br>122.4 110 SEN<br>124.4 110 FJH<br>126.4 109 BMU<br>134.3 115 FJH<br>148.5 123 CMG<br>161.3 129 FJH | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 080362 SU UMa<br>type UGSU   | 083.44 128 FJH   | 123459 RS UMa<br>type Mira   | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 152.51 142 FJH   | 103769 R UMa<br>type Mira HIP  | 045.5 110 FJH<br>071.4 85 NWL<br>071.5 87 SEN<br>076.4 86 FJH<br>085.4 91 NWL<br>086.5 89 BHN<br>095.4 90 BHN<br>105.4 100 FJH<br>122.4 110 SEN<br>124.4 110 FJH<br>126.4 109 BMU<br>134.3 115 FJH<br>148.5 123 CMG<br>161.3 129 FJH | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 080837 RT Lyn<br>type Mira   | 086.5 108 BHN<br>095.4 108 BHN<br>095.6 :107 TOO<br>107.4 109 FJH<br>122.4 117 TOO<br>126.4 117 BMU<br>148.5 125 CMG | 123459 RS UMa<br>type Mira   | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 151.6 138 CMG  | 083.44 128 FJH   | 045.5 110 FJH<br>071.4 85 NWL<br>071.5 87 SEN<br>076.4 86 FJH<br>085.4 91 NWL<br>086.5 89 BHN<br>095.4 90 BHN<br>105.4 100 FJH<br>122.4 110 SEN<br>124.4 110 FJH<br>126.4 109 BMU<br>134.3 115 FJH<br>148.5 123 CMG<br>161.3 129 FJH | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 081473 Z Cam<br>type UGZ   | 103769 R UMa<br>type Mira HIP  | 123459 RS UMa<br>type Mira   | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
| 044.56 110 BMU<br>047.41 113 FJH<br>051.43 121 FJH<br>059.45 132 FJH<br>079.44 132 FJH<br>081.45 134 FJH<br>083.42 116 FJH<br>104.48 108 FJH<br>105.48 108 FJH<br>106.42 109 FJH<br>107.42 111 FJH<br>109.38 104 FJH<br>126.35 131 BMU<br>127.36 130 BMU<br>127.57 129 FJH | 086.5 108 BHN<br>095.4 108 BHN<br>095.6 :107 TOO<br>107.4 109 FJH<br>122.4 117 TOO<br>126.4 117 BMU<br>148.5 125 CMG | 123459 RS UMa<br>type Mira   | 140113 Z Boo<br>type Mira  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
|  | 115158 Z UMa<br>type SRb   | 123961 S UMa<br>type Mira HIP  | 141567 U UMi<br>type Mira HIP  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
|  | 071.4 82 NWL<br>071.5 79 SEN<br>085.4 78 NWL<br>095.4 74 NWL<br>122.4 : 72 SEN                                       | 123961 S UMa<br>type Mira HIP  | 141567 U UMi<br>type Mira HIP  | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |
|  |  | 123961 S UMa<br>type Mira HIP  | 141954 S Boo   | 043.6 89 BMU<br>071.4 82 NWL<br>071.5 : 83 SEN<br>073.4 : 97 KKP<br>087.5 80 NWL<br>092.5 82 TOO<br>096.4 84 BHN<br>102.5 : 83 TOO<br>122.4 : 85 SEN<br>128.3 88 JCH<br>145.3 88 JCH<br>145.3 89 CMG<br>163.3 89 CMG |

|   |   |   |   |   |
|---|---|---|---|---|
| 144339 RR Boo<br>type Mira HIP  | 076.5 58 BMU<br>091.5 60 TOO<br>092.5 59 BMU<br>096.4 64 BHN  | 160118 R Her<br>type Mira   | 145.3 106 CMG<br>163.3 127 CMG  | 132.35 132 FJH<br>142.33 120 FJH  |
| 047.4 :145 FJH<br>071.4 138 FJH<br>085.4 121 FJH<br>106.4 107 FJH<br>128.3 102 JCH<br>134.3 107 FJH<br>145.3 108 JCH<br>163.3 112 CMG   | 120.4 60 JCH<br>126.3 59 BMU<br>127.4 62 JCH<br>143.3 61 JCH<br>148.3 61 CMG<br>163.3 60 CMG  | 058.5 142 FJH<br>068.5 144 FJH<br>086.5 143 FJH<br>111.4 148 FJH<br>145.3 135 CMG<br>163.3 134 CMG  | 163137 W Her<br>type Mira   | 164715 S Her<br>type Mira HIP   |
| 151336 RT Boo<br>type Mira HIP  | 051.4 104 FJH<br>068.4 116 FJH<br>079.4 124 FJH<br>105.4 132 FJH<br>114.4 134 FJH<br>122.4 135 FJH<br>126.3 137 BMU<br>145.3 137 CMG<br>163.3 137 CMG | 160210 U Ser<br>type Mira HIP   | 071.5 101 NWL<br>076.4 104 FJH<br>105.4 123 FJH<br>115.4 123 FJH<br>148.3 134 CMG   | 051.4 94 FJH<br>068.4 93 FJH<br>115.4 79 FJH<br>128.4 78 JCH<br>132.3 79 FJH<br>145.5 82 CMG<br>159.3 85 JCH<br>163.3 86 CMG          |
| 145.3 111 CMG<br>163.3 121 CMG  | 154536 X CrB<br>type Mira HIP   | 160625 RU Her<br>type Mira HIP  | 071.5 101 NWL<br>076.4 104 FJH<br>105.4 123 FJH<br>115.4 123 FJH<br>148.3 134 CMG   | 1652-02 SS Oph<br>type Mira   |
| 151714 S Ser<br>type Mira HIP   | 154615 R Ser<br>type Mira HIP   | 163266 R Dra<br>type Mira HIP   | 071.5 101 NWL<br>076.4 104 FJH<br>105.4 123 FJH<br>115.4 123 FJH<br>148.3 134 CMG   | 148.3 92 CMG  |
| 148.3 125 CMG<br>163.3 128 CMG  | 068.4 82 FJH<br>071.5 83 NWL<br>087.5 89 NWL<br>091.5 : 90 TOO<br>115.4 97 FJH<br>148.3 119 CMG<br>161.3 121 FJH<br>163.3 123 CMG                     | 071.5 114 SEN<br>085.5 119 FJH<br>095.6 124 TOO<br>099.4 123 BHN<br>104.5 128 TOO<br>105.5 126 FJH<br>117.4 126 FJH<br>117.4 128 CMG<br>127.5 126 FJH<br>139.3 123 FJH<br>145.3 123 CMG<br>146.3 121 FJH<br>163.4 114 SEN | 165631 RV Her<br>type Mira  | 051.4 110 FJH<br>068.4 115 FJH<br>081.4 125 FJH<br>102.4 138 FJH<br>111.4 146 FJH<br>124.4 152 FJH<br>145.3 152 CMG<br>145.3 :157 FJH |
| 151731 S CrB<br>type Mira HIP   | 154639 V CrB<br>type Mira HIP   | 161138 W CrB<br>type Mira   | 071.5 114 SEN<br>085.5 119 FJH<br>095.6 124 TOO<br>099.4 123 BHN<br>104.5 128 TOO<br>105.5 126 FJH<br>117.4 126 FJH<br>117.4 128 CMG<br>127.5 126 FJH<br>139.3 123 FJH<br>145.3 123 CMG<br>146.3 121 FJH<br>163.4 114 SEN | 165722 SY Her<br>type Mira HIP  |
| 037.5 132 TOO<br>045.5 131 FJH<br>059.5 131 FJH<br>071.4 :123 KKP<br>076.4 131 FJH<br>076.5 135 BMU<br>086.5 131 FJH<br>091.5 136 TOO<br>095.4 132 BMU<br>096.4 136 BHN<br>099.6 :130 TOO<br>105.4 130 FJH<br>114.4 129 FJH<br>126.3 128 BMU<br>145.3 122 CMG<br>163.3 96 CMG | 084.4 87 KKP<br>096.4 87 BHN<br>109.4 93 FJH<br>126.3 97 BMU<br>128.4 98 JCH<br>145.3 103 CMG<br>163.3 104 CMG  | 068.4 114 FJH<br>079.4 119 FJH<br>099.4 125 BHN<br>105.4 129 FJH<br>114.4 130 FJH<br>122.4 130 FJH<br>126.3 130 BMU<br>134.3 132 FJH<br>145.3 130 CMG<br>163.3 118 CMG  | 163414 AS Her<br>type Mira HIP  | 105.4 122 FJH<br>110.4 127 FJH<br>115.4 130 FJH<br>124.4 126 FJH<br>132.3 118 FJH<br>142.3 103 FJH<br>145.5 102 CMG<br>163.3 90 CMG   |
| 153378A S UMi<br>type Mira HIP  | 155229 Z CrB<br>type Mira   | 162119 U Her<br>type Mira HIP   | 045.5 117 FJH<br>068.4 127 FJH<br>083.4 136 FJH<br>106.4 136 FJH<br>142.3 133 FJH<br>145.5 133 CMG<br>163.3 121 CMG   | 1702-15 R Oph<br>type Mira HIP  |
| 045.5 121 FJH<br>066.5 124 FJH<br>071.5 122 SEN<br>083.4 120 FJH<br>103.4 110 BHN<br>107.4 105 FJH<br>122.4 101 SEN<br>131.4 98 FJH<br>163.4 95 SEN   | 051.4 107 FJH<br>068.4 119 FJH<br>079.4 125 FJH<br>105.4 133 FJH<br>114.4 137 FJH<br>122.4 139 FJH<br>145.3 146 CMG                                   | 045.5 122 FJH<br>058.4 125 FJH<br>076.4 125 FJH<br>091.6 133 TOO<br>099.4 125 BHN<br>099.6 :126 TOO<br>105.4 123 FJH<br>115.4 124 FJH<br>132.3 119 FJH<br>145.3 117 CMG<br>145.3 :118 JCH<br>163.3 114 CMG                | 164012 UV Her<br>type Mira  | 127.4 136 BMU   |
| 154428A R CrB<br>type RCB   | 155526 T CrB<br>type Nd   | 162807A SS Her<br>type Mira HIP   | 068.4 110 FJH<br>083.4 101 FJH<br>105.4 99 FJH<br>116.4 97 FJH<br>132.3 101 FJH<br>140.3 101 FJH<br>147.3 105 CMG   | 170217 VY Her<br>type Mira  |
| 043.5 60 BMU<br>055.4 60 BMU<br>071.5 59 BMU  | 076.5 105 BMU<br>095.4 104 BMU<br>126.3 105 BMU   | 106.4 116 FJH<br>109.41 125 FJH<br>111.38 132 FJH   | 164025 AH Her<br>type UGZ   | 086.4 152 FJH<br>127.4 151 FJH<br>145.3 143 FJH<br>147.3 136 CMG  |
|   |   |   |   | 170627A RT Her<br>type Mira   |
|   |   |   |   | 058.5 123 FJH<br>076.4 113 FJH<br>102.4 108 FJH<br>109.4 108 FJH  |

|           |        |     |           |       |       |           |        |           |           |        |           |            |        |        |        |     |       |    |     |
|-----------|--------|-----|-----------|-------|-------|-----------|--------|-----------|-----------|--------|-----------|------------|--------|--------|--------|-----|-------|----|-----|
| 128.4     | 113    | FJH | 058.5     | 131   | FJH   | 059.5     | 123    | FJH       | 140.3     | 124    | FJH       | 163.3      | 144    | CMG    |        |     |       |    |     |
| 139.3     | 116    | FJH | 071.4     | 125   | FJH   | 081.5     | 130    | FJH       | 159.3     | 115    | FJH       | <hr/>      |        |        |        |     |       |    |     |
| 145.5     | 119    | CMG | 079.4     | 119   | FJH   | 111.4     | 137    | FJH       | <hr/>     |        |           |            | 182306 | T Ser  |        |     |       |    |     |
| 146.3     | 119    | FJH | 114.5     | 90    | FJH   | 122.4     | 142    | FJH       | 181730    | TV Lyr | type Mira |            |        |        |        |     |       |    |     |
| 159.3     | 122    | FJH | 128.4     | 93    | JCH   | 145.3     | 113    | CMG       | <hr/>     |        |           |            |        |        |        |     |       |    |     |
| 163.3     | 128    | CMG | 145.5     | 96    | CMG   | <hr/>     |        |           |           |        |           | 071.5      | 146    | FJH    |        |     |       |    |     |
| <hr/>     |        |     | 146.3     | 94    | FJH   | 181031    | TV Her | 045.5     | 118       | FJH    | 086.4     | 139        | FJH    |        |        |     |       |    |     |
| 171401    | Z Oph  |     | 163.3     | 110   | CMG   | type Mira |        | 059.5     | 118       | FJH    | 106.4     | 130        | FJH    |        |        |     |       |    |     |
| type Mira |        | HIP | <hr/>     |       |       |           |        |           |           |        |           |            | 124.4  | 129    | FJH    |     |       |    |     |
| <hr/>     |        |     | 175654    | V Dra | 051.4 | 113       | FJH    | 081.4     | 121       | FJH    | 140.3     | 122        | FJH    |        |        |     |       |    |     |
| 146.3     | 107    | CMG | type Mira |       | 068.4 | 124       | FJH    | 102.4     | 129       | FJH    | 147.5     | 124        | CMG    |        |        |     |       |    |     |
| 163.3     | 96     | CMG | <hr/>     |       |       |           |        |           |           |        |           |            |        | 159.3  | 117    | FJH |       |    |     |
| <hr/>     |        |     | 047.4     | 114   | FJH   | 079.4     | 130    | FJH       | 109.5     | 135    | FJH       | <hr/>      |        |        |        |     |       |    |     |
| 171723    | RS Her |     | 081.5     | 105   | FJH   | 099.4     | 130    | BHN       | 117.4     | 141    | CMG       | 183138     | LL Lyr |        |        |     |       |    |     |
| type Mira |        | HIP | 102.5     | 103   | FJH   | 102.5     | 134    | FJH       | 117.4     | 141    | FJH       | type UG    |        |        |        |     |       |    |     |
| <hr/>     |        |     | 109.5     | 106   | FJH   | 111.4     | 139    | FJH       | 124.4     | 143    | FJH       | <hr/>      |        |        |        |     |       |    |     |
| 068.4     | 93     | FJH | 130.4     | 113   | FJH   | 124.4     | 143    | FJH       | 145.3     | 148    | FJH       | 058.46<155 | FJH    |        |        |     |       |    |     |
| 087.6     | 105    | TOO | 139.3     | 119   | FJH   | 142.3     | 146    | FJH       | 148.4     | 144    | CMG       | 068.47<155 | FJH    |        |        |     |       |    |     |
| 095.5     | 107    | TOO | 146.3     | 123   | FJH   | 145.5     | 144    | CMG       | <hr/>     |        |           |            |        |        |        |     |       |    |     |
| 099.4     | 108    | BHN | 180531    |       | T Her | 159.3     | 145    | FJH       | 181828    | AZ Her | type Mira |            |        |        |        |     |       |    |     |
| 104.5     | 111    | TOO | type Mira |       | HIP   | 163.3     | 141    | CMG       | <hr/>     |        |           |            |        |        |        |     |       |    |     |
| 105.4     | 113    | FJH | <hr/>     |       |       |           |        |           |           |        |           |            |        |        |        |     |       |    |     |
| 115.4     | 115    | FJH | 045.5     | 128   | FJH   | 181103    | RY Oph | 110.5     | 115       | FJH    | <hr/>     |            |        |        |        |     |       |    |     |
| 124.4     | 118    | FJH | 058.4     | 121   | FJH   | type Mira |        | HIP       | <hr/>     |        |           |            | 047.4  | 126    | FJH    |     |       |    |     |
| 139.3     | 118    | FJH | 068.4     | 120   | FJH   | 146.3     | 127    | CMG       | 182039    | TW Lyr | 059.5     | 115        | FJH    |        |        |     |       |    |     |
| 145.3     | 119    | CMG | 073.4     | 113   | KKP   | <hr/>     |        |           |           |        |           |            |        |        |        |     | 081.4 | 98 | FJH |
| 146.3     | 119    | FJH | 079.4     | 109   | FJH   | 181136    | W Lyr  | 045.5     | 122       | FJH    | 107.5     | 109        | FJH    |        |        |     |       |    |     |
| 159.3     | 118    | FJH | 087.6     | 92    | TOO   | type Mira |        | HIP       | 059.5     | 130    | FJH       | 130.4      | 117    | FJH    |        |     |       |    |     |
| 163.3     | 116    | CMG | 095.5     | 89    | TOO   | 068.4     | 81     | SAQ       | 071.4     | 133    | FJH       | 145.3      | 129    | CMG    |        |     |       |    |     |
| <hr/>     |        |     | 096.4     | 88    | SAQ   | 068.4     | 83     | KKP       | 079.4     | 135    | FJH       | 159.3      | 136    | FJH    |        |     |       |    |     |
| 172809A   | RU Oph |     | 099.4     | 83    | BHN   | 084.4     | 81     | FJH       | 102.5     | 141    | FJH       | <hr/>      |        |        |        |     |       |    |     |
| type Mira |        |     | 102.6     | 81    | TOO   | 084.4     | 83     | KKP       | 110.5     | 141    | FJH       | 183225     | RZ Her |        |        |     |       |    |     |
| <hr/>     |        |     | 107.4     | 83    | FJH   | 084.5     | 83     | HIL       | 124.4     | 143    | FJH       | type Mira  |        |        |        |     |       |    |     |
| 058.5     | 144    | FJH | 116.4     | 84    | FJH   | 095.4     | 92     | KKP       | 132.4     | 145    | FJH       | 047.5      | 136    | FJH    |        |     |       |    |     |
| 071.4     | 138    | FJH | 120.4     | 83    | JCH   | 095.5     | 89     | TOO       | 145.3     | 148    | FJH       | 058.5      | 131    | FJH    |        |     |       |    |     |
| 086.5     | 129    | FJH | 122.4     | 86    | TOO   | 095.5     | 90     | BHN       | 152.3     | 147    | FJH       | 071.5      | 129    | FJH    |        |     |       |    |     |
| 106.4     | 121    | FJH | 128.4     | 90    | FJH   | 099.4     | 88     | HIL       | <hr/>     |        |           |            |        | 085.5  | 119    | FJH |       |    |     |
| 124.4     | 114    | FJH | 128.4     | 90    | JCH   | 104.5     | 91     | TOO       | 182172    | RT Dra | 102.4     | 111        | FJH    |        |        |     |       |    |     |
| 140.3     | 100    | FJH | 145.3     | 97    | JCH   | 109.5     | 92     | FJH       | type Mira |        | 111.4     | 107        | FJH    |        |        |     |       |    |     |
| 146.3     | 102    | CMG | 145.5     | 98    | CMG   | 117.4     | 100    | HIL       | 047.4     | 120    | FJH       | 120.4      | 107    | FJH    |        |     |       |    |     |
| 163.3     | 100    | CMG | 146.3     | 96    | FJH   | 120.4     | 98     | JCH       | 059.5     | 124    | FJH       | 130.4      | 112    | FJH    |        |     |       |    |     |
| <hr/>     |        |     | 159.3     | 119   | FJH   | 128.4     | 101    | JCH       | 076.5     | 127    | FJH       | 139.3      | 115    | FJH    |        |     |       |    |     |
| 1744-06   | RS Oph |     | 163.3     | 116   | CMG   | 128.4     | 103    | FJH       | 085.5     | 130    | FJH       | 145.5      | 112    | CMG    |        |     |       |    |     |
| type Nd   |        |     | <hr/>     |       |       |           |        |           |           |        |           |            |        | 148.3  | 116    | FJH |       |    |     |
| <hr/>     |        |     | 180565    |       | W Dra | 140.3     | 106    | FJH       | 102.5     | 132    | FJH       | 163.3      | 120    | CMG    |        |     |       |    |     |
| 092.6     | 116    | TOO | type Mira |       | 146.3 | 116       | CMG    | 122.4     | 134       | FJH    | <hr/>     |            |        |        |        |     |       |    |     |
| <hr/>     |        |     | 047.4     | 100   | FJH   | 152.3     | 119    | FJH       | 131.4     | 132    | FJH       | 183308     | X Oph  |        |        |     |       |    |     |
| 175111    | RT Oph |     | 059.5     | 97    | FJH   | 163.4     | 122    | CMG       | 139.3     | 133    | FJH       | type Mira  |        |        |        |     |       |    |     |
| type Mira |        | HIP | 081.5     | 96    | FJH   | <hr/>     |        |           |           |        |           | 145.3      | 133    | CMG    |        |     |       |    |     |
| 124.4     | 139    | FJH | 102.5     | 100   | FJH   | 181306    | BC Oph | 146.3     | 131       | FJH    | 129.4     | 79         | BMU    |        |        |     |       |    |     |
| 146.3     | 138    | CMG | 109.5     | 101   | FJH   | type Mira |        | HIP       | 163.4     | 128    | FJH       | <hr/>      |        |        |        |     |       |    |     |
| 159.3     | 135    | FJH | 122.4     | 114   | FJH   | 086.5     | 132    | FJH       | <hr/>     |        |           |            |        | 183922 | AE Her |     |       |    |     |
| 163.3     | 137    | CMG | 131.4     | 117   | FJH   | 106.4     | 129    | FJH       | 182224    | SV Her | type Mira |            |        |        |        |     |       |    |     |
| <hr/>     |        |     | 139.3     | 121   | FJH   | 124.4     | 112    | FJH       | type Mira |        | 058.5     | 125        | FJH    |        |        |     |       |    |     |
| 175458A   | T Dra  |     | 145.3     | 121   | CMG   | 140.3     | 108    | FJH       | 058.5     | 135    | FJH       | 079.4      | 105    | FJH    |        |     |       |    |     |
| type Mira |        | HIP | 146.3     | 122   | FJH   | 159.3     | 102    | FJH       | 068.5     | 138    | FJH       | 102.4      | 93     | FJH    |        |     |       |    |     |
| <hr/>     |        |     | 161.3     | 126   | FJH   | <hr/>     |        |           |           |        |           |            |        |        |        |     | 111.5 | 94 | FJH |
| 109.5     | 116    | FJH | <hr/>     |       |       |           |        |           |           |        |           |            |        |        | 128.4  | 95  | FJH   |    |     |
| 145.3     | 98     | CMG | 180666    |       | X Dra | 181406    | AY Oph | 105.5     | 147       | FJH    | 139.3     | 96         | FJH    |        |        |     |       |    |     |
| <hr/>     |        |     | type Mira |       | 047.4 | 121       | FJH    | type Mira |           | 118.4  | 145       | FJH        | 146.3  | 104    | FJH    |     |       |    |     |
| 175519    | RY Her |     | <hr/>     |       |       |           |        |           |           |        |           |            |        | 142.3  | 147    | FJH |       |    |     |
| type Mira |        |     | 086.5     | 147   | FJH   | 124.4     | 141    | FJH       | 145.5     | 145    | CMG       | <hr/>      |        |        |        |     |       |    |     |
| <hr/>     |        |     | <hr/>     |       |       |           |        |           |           |        |           |            |        |        | 159.3  | 140 | FJH   |    |     |

|                            |                            |                               |                             |                                |
|----------------------------|----------------------------|-------------------------------|-----------------------------|--------------------------------|
| 184134 RY Lyr<br>type Mira | 149.39 134 FJH             | 163.4 108 CMG                 | 148.3 135 FJH               | 190941 RU Lyr<br>type Mira     |
| 058.5 140 FJH              | 185032 RX Lyr<br>type Mira | 185947 WZ Lyr<br>type Mira    | 148.4 134 CMG               | 066.5 117 FJH                  |
| 068.5 143 FJH              | 051.5 132 FJH              | 047.4 136 FJH                 | 159.3 139 FJH               | 081.4 115 FJH                  |
| 085.5 150 FJH              | 058.5 126 FJH              | 068.5 139 FJH                 | 190529A V Lyr<br>type Mira  | 102.5 117 FJH                  |
| 105.5 :146 FJH             | 068.5 123 FJH              | 086.4 141 FJH                 | 058.5 :153 FJH              | 109.5 119 FJH                  |
| 117.4 146 CMG              | 079.4 121 FJH              | 102.5 147 FJH                 | 068.5 155 FJH               | 118.4 120 FJH                  |
| 117.4 147 FJH              | 102.5 124 FJH              | 111.4 147 FJH                 | 085.5 :154 FJH              | 130.4 124 FJH                  |
| 124.4 145 FJH              | 109.5 127 FJH              | 124.4 147 FJH                 | 118.4 150 FJH               | 143.5 126 FJH                  |
| 142.3 143 FJH              | 117.4 128 CMG              | 142.3 148 FJH                 | 142.4 142 FJH               | 146.3 125 CMG                  |
| 146.3 144 CMG              | 117.4 129 FJH              | 152.4 149 FJH                 | 152.4 140 FJH               | 161.4 129 FJH                  |
| 152.3 138 FJH              | 130.4 138 FJH              | 190108 R Aql<br>type Mira HIP | 190529B VZ Lyr<br>type Mira | 163.4 131 CMG                  |
| 163.4 138 CMG              | 142.3 144 FJH              | 148.5 98 CMG                  | 118.4 138 FJH               | 190967 U Dra<br>type Mira      |
| 184137 AY Lyr<br>type UGSU | 148.4 149 CMG              | 163.4 91 CMG                  | 128.4 134 FJH               | 059.5 134 FJH                  |
| 058.46<155 FJH             | 152.4 149 FJH              | 190317 SV Sge<br>type RCB     | 142.3 119 FJH               | 081.4 130 FJH                  |
| 066.45 131 FJH             | 185131 SX Lyr<br>type Mira | 051.5 117 FJH                 | 148.3 118 FJH               | 102.5 126 FJH                  |
| 068.45 127 FJH             | 122.4 143 FJH              | 109.4 115 FJH                 | 159.3 115 FJH               | 109.5 124 FJH                  |
| 071.43 127 FJH             | 130.4 141 FJH              | 128.5 116 FJH                 | 190627A UV Lyr<br>type Mira | 122.4 117 FJH                  |
| 076.44 131 FJH             | 139.4 139 FJH              | 140.3 114 FJH                 | 047.4 139 FJH               | 131.4 115 FJH                  |
| 079.4 138 FJH              | 147.4 138 FJH              | 190333 AB Lyr<br>type Mira    | 148.4 :146 CMG              | 139.3 112 FJH                  |
| 127.37 137 FJH             | 159.3 138 FJH              | 118.4 113 FJH                 | 190643 ST Lyr<br>type Mira  | 145.3 113 CMG                  |
| 128.38 135 FJH             | 185132 FF Lyr<br>type Mira | 128.4 113 FJH                 | 059.5 115 FJH               | 163.4 99 FJH                   |
| 1842-05 R Sct<br>type RV   | 122.4 156 FJH              | 159.3 134 FJH                 | 081.4 119 FJH               | 1910-07 W Aql<br>type Mira     |
| 043.5 57 BMU               | 145.3 :160 FJH             | 190443 MV Lyr<br>type NL      | 102.5 129 FJH               | 148.5 139 CMG                  |
| 152.3 57 CMG               | 185634 Z Lyr<br>type Mira  | 047.43 126 FJH                | 109.5 126 FJH               | 191046 SS Lyr<br>type Mira HIP |
| 184243 RW Lyr<br>type Mira | 047.4 138 FJH              | 059.48 127 FJH                | 124.4 130 FJH               | 068.5 141 FJH                  |
| 047.4 145 FJH              | 068.5 127 FJH              | 068.46 127 FJH                | 143.5 135 FJH               | 086.4 148 FJH                  |
| 058.5 149 FJH              | 081.4 122 FJH              | 081.42 128 FJH                | 148.4 136 CMG               | 106.5 :148 FJH                 |
| 068.5 153 FJH              | 102.5 125 FJH              | 102.47 127 FJH                | 152.4 142 FJH               | 124.4 :149 FJH                 |
| 086.4 :156 FJH             | 109.5 125 FJH              | 106.52 127 FJH                | 161.4 144 FJH               | 145.3 142 FJH                  |
| 122.4 :157 FJH             | 118.4 119 FJH              | 124.42 128 FJH                | 163.4 142 CMG               | 148.4 143 CMG                  |
| 145.3 :162 FJH             | 120.4 :114 JCH             | 130.45 128 FJH                | 190925 S Lyr<br>type Mira   | 161.4 140 FJH                  |
| 148.4 155 CMG              | 128.4 107 JCH              | 139.41 127 FJH                | 146.3 114 CMG               | 191517 W Sge<br>type Mira      |
| 184826 CY Lyr<br>type UGSS | 130.4 112 FJH              | 143.45 128 FJH                | 163.4 113 CMG               | 148.5 133 CMG                  |
| 058.46 148 FJH             | 140.3 108 FJH              | 146.3 127 CMG                 | 190933A RS Lyr<br>type Mira | 191637 U Lyr<br>type Mira HIP  |
| 068.47<156 FJH             | 146.3 104 CMG              | 152.36 128 FJH                | 051.5 117 FJH               | 066.5 111 FJH                  |
| 071.46 132 FJH             | 152.3 103 FJH              | 161.38 128 FJH                | 058.5 120 FJH               | 109.5 111 FJH                  |
| 086.45 132 FJH             | 159.3 103 JCH              | 163.4 128 CMG                 | 068.5 120 FJH               | 146.3 111 CMG                  |
| 104.42 133 FJH             | 163.4 107 CMG              | 190527 TY Lyr<br>type Mira    | 081.4 114 FJH               | 191831 AN Lyr<br>type Mira     |
| 105.43 141 FJH             | 185737 RT Lyr<br>type Mira | 045.5 114 FJH                 | 102.5 110 FJH               | 058.5 :155 FJH                 |
| 117.37 133 FJH             | 058.5 148 FJH              | 059.5 108 FJH                 | 109.5 110 FJH               | 076.5 :155 FJH                 |
| 118.37 139 FJH             | 068.5 148 FJH              | 071.4 106 FJH                 | 122.4 110 FJH               | 105.5 136 FJH                  |
| 130.35 133 FJH             | 085.5 141 FJH              | 081.4 106 FJH                 | 130.4 114 FJH               | 122.4 116 FJH                  |
| 131.39 137 FJH             | 102.5 138 FJH              | 102.5 119 FJH                 | 139.4 116 FJH               | 128.4 114 FJH                  |
| 132.36 141 FJH             | 109.5 135 FJH              | 109.5 118 FJH                 | 146.3 121 CMG               | 139.4 109 FJH                  |
| 142.33 137 FJH             | 117.4 135 CMG              | 122.4 123 FJH                 | 152.3 128 FJH               |                                |
| 145.30 131 FJH             | 117.4 135 FJH              | 139.4 131 FJH                 |                             |                                |
| 146.32 132 FJH             | 130.4 128 FJH              |                               |                             |                                |
| 147.39 133 FJH             | 139.4 122 FJH              |                               |                             |                                |
| 148.32 132 FJH             | 152.3 113 FJH              |                               |                             |                                |

|                                |                                |                                 |                               |                                 |
|--------------------------------|--------------------------------|---------------------------------|-------------------------------|---------------------------------|
| 152.3 104 FJH                  | 081.5 107 FJH                  | 146.4 132 CMG                   | 059.5 151 FJH                 | 104.4 134 FJH                   |
| 192150 CH Cyg<br>type Z And    | 106.4 100 FJH                  | 162.4 123 FJH                   | 104.4 120 FJH                 | 114.5 135 FJH                   |
| 146.4 88 CMG                   | 128.5 108 FJH                  |                                 | 114.4 115 FJH                 | 128.4 134 FJH                   |
| 192201 TU Aql<br>type Mira HIP | 141.4 110 FJH                  | 1952-02 RR Aql<br>type Mira HIP | 130.5 110 FJH                 | 140.3 126 FJH                   |
| 148.5 132 CMG                  | 148.4 111 CMG                  |                                 | 141.4 113 FJH                 | 146.4 123 CMG                   |
| 163.4 138 CMG                  | 161.3 120 FJH                  | 148.5 116 CMG                   | 200357 S Cyg<br>type Mira     | 163.4 102 FJH                   |
| 192928 TY Cyg<br>type Mira     | 163.4 119 CMG                  | 1953-08 RS Aql<br>type Mira     | 051.5 120 FJH                 | 201437B WX Cyg<br>type Mira HIP |
| 059.5 150 FJH                  | 193954 V369Cy<br>type Mira     | 148.5 130 CMG                   | 076.5 130 FJH                 | 071.5 123 SEN                   |
| 086.5 143 FJH                  | 146.5 127 CMG                  | 195533 V482Cyg<br>type RCB      | 104.4 141 FJH                 | 122.4 117 SEN                   |
| 104.4 138 FJH                  | 194027 YZ Vul<br>type Mira     | 043.5 117 BMU                   | 117.4 146 CMG                 | 146.4 115 CMG                   |
| 124.4 132 FJH                  | 047.5 147 FJH                  | 076.5 116 BMU                   | 117.4 146 FJH                 | 147.5 :115 SEN                  |
| 143.5 126 FJH                  | 071.5 151 FJH                  | 098.4 116 BMU                   | 147.4 153 FJH                 | 163.4 111 SEN                   |
| 146.3 128 CMG                  | 124.5 144 FJH                  | 104.4 116 FJH                   | 200812 RU Aql<br>type Mira    | 201537 P Cyg<br>type NL         |
| 193311 RT Aql<br>type Mira HIP | 148.3 139 FJH                  | 195551 CM Cyg<br>type Mira      | 045.5 128 FJH                 | 120.4 51 JCH                    |
| 045.5 140 FJH                  | 194048 RT Cyg<br>type Mira HIP | 051.5 136 FJH                   | 059.5 127 FJH                 | 201559 CN Cyg<br>type Mira HIP  |
| 059.5 143 FJH                  | 081.4 107 FJH                  | 059.5 133 FJH                   | 071.5 136 FJH                 | 051.5 144 FJH                   |
| 071.5 143 FJH                  | 099.4 121 BHN                  | 086.4 125 FJH                   | 106.4 :148 FJH                | 076.5 143 FJH                   |
| 085.5 148 FJH                  | 104.4 118 FJH                  | 104.4 109 FJH                   | 118.4 147 FJH                 | 086.4 135 FJH                   |
| 104.4 149 FJH                  | 114.4 121 FJH                  | 114.4 105 FJH                   | 147.4 145 FJH                 | 104.4 126 FJH                   |
| 118.4 149 FJH                  | 130.5 119 FJH                  | 130.5 101 FJH                   | 148.5 138 CMG                 | 111.5 120 FJH                   |
| 142.4 140 FJH                  | 141.4 107 FJH                  | 141.4 104 FJH                   | 161.3 139 FJH                 | 122.4 :116 SEN                  |
| 148.4 140 CMG                  | 146.4 104 CMG                  | 146.5 104 CMG                   | 163.4 139 CMG                 | 128.4 120 FJH                   |
| 161.3 138 FJH                  | 194348 TU Cyg<br>type Mira     | 162.4 105 FJH                   | 2009-06 Z Aql<br>type Mira    | 141.4 109 FJH                   |
| 163.4 140 CMG                  | 081.4 97 FJH                   | 195818 TX Sge<br>type Mira      | 148.5 101 CMG                 | 146.5 106 CMG                   |
| 193428 BG Cyg<br>type Mira HIP | 099.4 108 BHN                  | 047.4 :150 FJH                  | 200938 RS Cyg<br>type SRa HIP | 147.5 101 SEN                   |
| 146.4 110 CMG                  | 104.4 110 FJH                  | 130.4 129 FJH                   | 060.5 76 DEN                  | 162.4 102 FJH                   |
| 193449 R Cyg<br>type Mira HIP  | 114.4 119 FJH                  | 140.3 124 FJH                   | 071.5 85 SEN                  | 163.4 99 SEN                    |
| 068.4 83 FJH                   | 130.5 131 FJH                  | 161.3 127 FJH                   | 076.5 88 DEN                  | 201621 PU Vul<br>type NL        |
| 076.4 78 DEN                   | 145.5 134 FJH                  |                                 | 086.6 : 80 SEN                | 051.5 106 FJH                   |
| 081.5 82 DEN                   | 146.4 137 CMG                  | 195849 Z Cyg<br>type Mira HIP   | 096.4 71 SAQ                  | 076.5 105 BMU                   |
| 084.4 85 FJH                   | 194604 X Aql<br>type Mira      | 060.5 91 DEN                    | 122.4 74 SEN                  | 081.5 111 FJH                   |
| 093.5 88 DEN                   | 045.5 119 FJH                  | 068.5 86 DEN                    | 147.5 73 SEN                  | 098.4 106 BMU                   |
| 099.4 89 BHN                   | 105.4 111 FJH                  | 076.5 89 DEN                    | 163.4 76 SEN                  | 109.4 111 FJH                   |
| 104.4 95 FJH                   | 128.5 124 FJH                  | 081.5 94 DEN                    | 201008 R Del<br>type Mira HIP | 128.5 113 FJH                   |
| 116.5 103 FJH                  | 142.4 129 FJH                  | 093.5 96 DEN                    | 045.5 125 FJH                 | 133.4 107 BMU                   |
| 120.4 98 JCH                   | 148.5 130 CMG                  | 141.4 124 FJH                   | 059.5 119 FJH                 | 140.3 113 FJH                   |
| 128.4 105 FJH                  | 163.4 138 CMG                  | 146.5 127 CMG                   | 114.5 89 FJH                  | 201647 U Cyg<br>type Mira HIP   |
| 129.5 103 JCH                  | 194632 ChiCyg<br>type Mira HIP | 200212 SY Aql<br>type Mira HIP  | 120.5 93 JCH                  | 051.5 112 FJH                   |
| 141.4 111 FJH                  | 045.5 131 FJH                  | 071.5 126 FJH                   | 128.4 96 FJH                  | 071.5 91 DEN                    |
| 146.4 114 CMG                  | 059.5 133 FJH                  | 106.4 131 FJH                   | 146.3 105 FJH                 | 081.4 106 FJH                   |
| 162.4 117 FJH                  | 083.5 139 FJH                  | 148.5 142 CMG                   | 148.3 107 CMG                 | 096.4 100 BHN                   |
| 193509 RV Aql<br>type Mira     | 102.5 142 FJH                  | 163.4 143 CMG                   | 162.4 115 FJH                 | 104.4 107 FJH                   |
| 045.5 129 FJH                  | 111.4 143 FJH                  | 200250 BU Cyg<br>type Mira      | 201130 SX Cyg<br>type Mira    | 116.5 101 FJH                   |
|                                | 117.4 141 CMG                  | 047.4 140 FJH                   | 047.4 140 FJH                 | 120.4 : 99 JCH                  |
|                                | 131.4 138 FJH                  | 066.5 137 FJH                   | 066.5 137 FJH                 | 128.4 103 FJH                   |
|                                | 145.3 134 FJH                  | 083.5 138 FJH                   | 083.5 138 FJH                 | 129.4 99 JCH                    |
|                                |                                |                                 |                               | 146.4 96 CMG                    |
|                                |                                |                                 |                               | 163.4 97 FJH                    |

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|--|---|--|--|---|
| 202343 V503Cyg<br>type UGSS  | 076.5 118 FJH<br>104.4 133 FJH<br>111.5 133 FJH<br>127.5 135 FJH<br>147.4 136 FJH   | 085.5 110 FJH<br>105.5 116 FJH<br>122.4 119 FJH<br>130.4 121 FJH<br>142.4 124 FJH<br>161.3 126 FJH   | 124.4 <160 FJH<br>131.42 138 FJH<br>132.37 136 FJH<br>134.36 138 FJH<br>136.33 138 FJH<br>139.36<146 FJH   | 086.5 147 FJH<br>106.5 148 FJH<br>122.4 124 FJH<br>134.4 104 FJH<br>146.3 95 CMG  |
| 124.4 <150 FJH<br>139.35:148 FJH   | 203513 SS Del<br>type Mira  | 203918 ES Del<br>type Mira   | 148.32 138 FJH<br>149.39 137 FJH<br>152.34 135 FJH<br>154.30 135 FJH<br>161.39:162 FJH   | 210405 RR Equ<br>type Mira  |
| 202509 RY Del<br>type Mira   | 045.5 136 FJH<br>068.5 152 FJH<br>127.5 :156 FJH<br>142.4 152 FJH<br>152.4 148 FJH  | 058.5 150 FJH<br>068.5 150 FJH<br>106.5 146 FJH<br>118.4 140 FJH<br>130.4 138 FJH<br>143.5 132 FJH   | 2044-05 T Agr<br>type Mira HIP   | 066.5 111 FJH<br>085.5 119 FJH<br>104.5 125 FJH<br>124.5 137 FJH<br>145.4 144 FJH<br>146.3 :146 CMG   |
| 202512 RX Del<br>type Mira   | 203537 FF Cyg<br>type Mira  | 203937 DR Cyg<br>type Mira HIP   | 085.5 121 FJH<br>105.4 126 FJH<br>122.4 117 FJH<br>130.4 113 FJH<br>142.4 101 FJH<br>152.3 90 CMG<br>161.3 84 FJH  | 210415 TZ Peg<br>type Mira  |
| 059.5 122 FJH<br>068.5 127 FJH<br>086.5 139 FJH<br>102.5 147 FJH<br>106.5 147 FJH<br>118.4 151 FJH<br>127.4 151 FJH<br>142.4 148 FJH<br>152.4 138 FJH  | 146.4 133 CMG   | 147.5 95 CMG   | 204846 RZ Cyg<br>type Mira   | 148.4 110 CMG   |
| 202817 Z Del<br>type Mira  | 203611 Y Del<br>type Mira   | 204016 T Del<br>type Mira  | 105.5 121 FJH<br>105.4 126 FJH<br>122.4 117 FJH<br>130.4 113 FJH<br>142.4 101 FJH<br>152.3 90 CMG<br>161.3 84 FJH  | 2105-04 RS Agr<br>type Mira   |
| 059.5 122 FJH<br>068.5 127 FJH<br>086.5 139 FJH<br>102.5 147 FJH<br>106.5 147 FJH<br>118.4 151 FJH<br>127.4 151 FJH<br>142.4 148 FJH<br>152.4 138 FJH  | 058.\$ 144 FJH<br>068.5 145 FJH<br>118.4 150 FJH<br>127.5 155 FJH<br>145.3 :156 FJH   | 045.5 119 FJH<br>058.5 122 FJH<br>068.5 130 FJH<br>086.4 137 FJH<br>102.5 142 FJH<br>117.4 149 FJH<br>117.4 150 CMG<br>124.5 150 FJH<br>129.4 147 BMU<br>145.3 152 FJH<br>147.3 146 CMG<br>161.4 149 FJH | 205017 X Del<br>type Mira  | 105.5 :147 FJH<br>122.4 151 FJH<br>161.3 127 FJH  |
| 045.5 126 FJH<br>068.5 117 FJH<br>081.5 110 FJH<br>099.5 101 BMU<br>105.4 97 FJH<br>114.5 99 FJH<br>120.5 98 JCH<br>128.4 97 JCH<br>128.4 98 FJH<br>129.5 98 BMU<br>146.3 101 FJH<br>147.3 102 CMG | 203718 HR Del<br>type Nb  | 2041-04 W Agr<br>type Mira   | 068.5 118 FJH<br>081.5 120 FJH<br>086.5 123 FJH<br>104.4 129 FJH<br>117.4 131 FJH<br>117.4 134 CMG<br>124.5 136 FJH<br>129.5 136 BMU<br>142.3 141 FJH<br>147.3 146 CMG<br>152.4 142 FJH<br>161.4 145 FJH | 210587 X UMi<br>type Mira   |
| 202918 AG Del<br>type Mira   | 203816 S Del<br>type Mira HIP   | 085.5 146 FJH<br>122.4 152 FJH<br>130.4 148 FJH<br>152.3 137 CMG<br>161.3 134 FJH  | 205030A UX Cyg<br>type Mira  | 147.3 129 CMG   |
| 045.5 125 FJH<br>059.5 135 FJH   | 081.5 111 FJH<br>102.5 121 FJH<br>110.5 125 FJH<br>118.4 124 FJH<br>124.5 125 FJH<br>129.5 122 BMU<br>139.4 124 FJH<br>147.3 123 CMG<br>162.4 118 FJH | 204318 V Del<br>type Mira  | 147.5 148 CMG  | 210612 AN Peg<br>type Mira  |
| 202954 ST Cyg<br>type Mira   | 203847 V Cyg<br>type Mira HIP   | 058.5 :155 FJH<br>068.5 :156 FJH<br>118.4 :156 FJH<br>127.5 153 FJH<br>145.3 :156 FJH<br>148.4 150 CMG   | 205923A R Vul<br>type Mira HIP   | 210812 R Equ<br>type Mira   |
| 051.5 125 FJH<br>076.5 110 FJH<br>104.4 110 FJH<br>114.4 110 FJH<br>128.4 100 FJH<br>141.4 102 FJH<br>146.5 101 CMG  | 051.5 132 FJH<br>066.5 133 FJH<br>081.4 133 FJH<br>104.4 126 FJH<br>114.4 129 FJH<br>130.4 128 FJH<br>142.4 126 FJH<br>146.4 121 CMG<br>163.4 112 FJH | 204334 T Cyg<br>type IB  | 095.5 113 TOO<br>104.6 120 TOO<br>147.5 111 CMG  | 051.5 133 FJH<br>058.5 130 FJH<br>083.5 109 FJH<br>104.5 96 FJH<br>114.5 95 FJH<br>122.5 91 JCH<br>128.4 92 JCH<br>128.4 95 FJH<br>146.3 98 CMG<br>146.3 98 FJH |
| 202962 BF Cep<br>type Mira   | 2039-05 Y Agr<br>type Mira  | 120.4 55 JCH   | 210129 TW Cyg<br>type Mira   | 146.5 127 CMG   |
| 051.5 113 FJH  | 204341 V516Cyg<br>type UGSS   | 210382 X Cep<br>type Mira  | 146.5 127 CMG  | 210818 AS Peg<br>type Mira  |
|  |   |  |  | 058.5 :155 FJH  |

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|----------------|----------------|----------------|----------------|----------------|
| 068.5 :153 FJH | 142.4 138 FJH  | 114.38 104 FJH | 148.3 106 CMG  | 163.3 118 CMG  |
| 076.5 153 FJH  | 148.4 135 CMG  | 115.36 81 FJH  | 162.4 100 FJH  |                |
| 104.5 151 FJH  | 154.5 128 FJH  | 116.38 83 FJH  |                | 220613 Y Peg   |
| 118.4 152 FJH  |                | 117.36 83 FJH  | 214612 AG Peg  | type Mira      |
| 127.5 :155 FJH | 212610 UU Peg  | 117.38 83 CMG  | type Z And     |                |
| 145.3 :156 FJH | type Mira      | 118.43 83 FJH  |                | 051.5 119 FJH  |
| 161.4 :156 FJH |                | 122.46 83 TOO  | 122.5 81 JCH   | 059.5 128 FJH  |
|                | 066.5 133 FJH  | 124.35 84 EMU  |                | 068.5 136 FJH  |
| 210836 DU Cyg  | 085.5 138 FJH  | 126.35 89 EMU  | 215605 V Peg   | 118.4 :155 FJH |
| type Mira      | 104.5 141 FJH  | 127.36 93 EMU  | type Mira      | 127.5 :155 FJH |
|                | 118.4 144 FJH  | 127.50 100 FJH |                | 145.4 153 FJH  |
| 122.5 115 FJH  | 122.5 145 FJH  | 128.37 102 FJH | 068.5 124 FJH  | 148.4 154 CMG  |
| 131.4 114 FJH  | 145.3 148 FJH  | 128.38 98 CMG  | 085.5 111 FJH  |                |
| 146.5 118 CMG  |                | 129.43 104 EMU | 105.5 96 FJH   | 220714 RS Peg  |
|                | 213678 S Cep   | 131.39 112 FJH | 122.5 86 JCH   | type Mira HIP  |
| 210868 T Cep   | type Mira HIP  | 131.64 114 EMU | 127.5 86 FJH   |                |
| type Mira HIP  |                | 132.40 115 FJH | 129.5 85 JCH   | 051.5 122 FJH  |
|                | 099.4 92 BHN   | 133.42 116 EMU | 146.3 90 FJH   | 059.5 116 FJH  |
| 071.5 80 SEN   | 116.5 85 FJH   | 134.36 117 FJH | 148.4 89 CMG   | 071.5 104 FJH  |
| 085.5 68 HIL   | 128.4 83 FJH   | 136.34 118 FJH | 163.3 95 CMG   | 085.5 95 FJH   |
| 086.5 78 SEN   | 146.3 79 CMG   | 140.35 118 FJH | 163.4 95 CMG   | 107.4 98 FJH   |
| 092.6 75 TOO   |                | 141.39 116 FJH |                | 124.5 104 FJH  |
| 096.4 65 SAQ   | 213753 RU Cyg  | 145.46 117 FJH | 215934 RT Peg  | 136.3 108 FJH  |
| 096.4 73 BHN   | type SR        | 148.32 119 CMG | type Mira      | 147.5 115 CMG  |
| 099.4 68 DEN   |                | 149.39 117 FJH |                | 149.4 115 FJH  |
| 099.5 65 HIL   | 068.5 88 DEN   | 154.30 117 FJH | 058.5 146 FJH  | 163.3 120 CMG  |
| 102.5 : 70 TOO | 071.5 88 SEN   | 159.29 118 FJH | 076.5 148 FJH  |                |
| 117.4 65 HIL   | 076.4 86 DEN   | 162.41 118 FJH | 086.5 147 FJH  | 220912 RU Peg  |
| 120.4 62 JCH   | 085.5 89 DEN   | 163.42 122 CMG | 106.4 146 FJH  | type UGSS      |
| 122.4 64 SEN   | 086.5 87 SEN   |                | 122.6 140 FJH  |                |
| 128.4 60 JCH   | 093.5 88 DEN   | 214012 TU Peg  | 131.4 136 FJH  | 045.52 127 FJH |
| 145.6 60 SAQ   | 122.4 88 SEN   | type Mira HIP  | 145.4 126 FJH  | 051.53 127 FJH |
| 146.3 61 CMG   | 147.5 88 SEN   |                | 148.4 122 CMG  | 058.49 127 FJH |
| 147.5 62 SEN   | 163.4 87 SEN   | 081.5 101 FJH  | 163.4 104 CMG  | 066.47 128 FJH |
| 163.4 63 SEN   |                | 106.5 111 FJH  |                | 068.49 127 FJH |
|                | 213843 SS Cyg  | 114.5 114 FJH  | 220133B RZ Peg | 071.47 127 FJH |
| 2109-03 RR Agr | type UGSS      | 127.5 117 FJH  | type Mira HIP  | 076.46 126 FJH |
| type Mira      |                | 142.4 120 FJH  |                | 081.51 118 FJH |
|                | 043.53 117 EMU | 148.4 120 CMG  | 081.5 114 FJH  | 083.48 109 FJH |
| 105.5 102 FJH  | 044.56 116 EMU | 163.4 123 FJH  | 106.4 126 FJH  | 085.48 101 FJH |
| 130.4 107 FJH  | 051.46 117 FJH |                | 120.4 129 FJH  | 086.51 100 FJH |
| 161.3 117 FJH  | 066.49 84 FJH  | 214024 RR Peg  | 131.4 132 FJH  | 102.50 123 FJH |
|                | 071.47 107 EMU | type Mira      | 145.4 130 FJH  | 104.52 127 FJH |
| 211614 X Peg   | 071.52 108 FJH |                | 148.4 126 CMG  | 106.46 127 FJH |
| type Mira      | 076.47 114 EMU | 047.5 137 FJH  | 152.4 130 FJH  | 109.51 127 FJH |
|                | 076.49 116 FJH | 058.5 140 FJH  | 163.4 126 CMG  | 110.56 127 FJH |
| 071.5 99 FJH   | 081.44 116 FJH | 068.5 145 FJH  | 163.4 126 FJH  | 118.42 128 FJH |
| 104.5 101 FJH  | 083.46 117 FJH | 076.5 146 FJH  |                | 122.55 127 FJH |
| 114.5 106 FJH  | 092.46 120 EMU | 085.5 147 FJH  | 220337 W Lac   | 131.43 127 FJH |
| 128.5 118 FJH  | 094.42 118 EMU | 102.5 :150 FJH | type Mira      | 136.33 127 FJH |
| 142.4 121 FJH  | 095.42 119 EMU | 117.4 149 CMG  |                | 142.40 120 FJH |
| 148.4 121 CMG  | 095.55 119 TOO | 117.4 150 FJH  | 146.3 133 CMG  | 145.40 127 FJH |
| 152.3 128 FJH  | 096.45 119 BHN | 124.4 148 FJH  |                | 149.39 127 FJH |
| 163.3 133 CMG  | 098.42 119 EMU | 145.4 146 FJH  | 220412 T Peg   | 154.47 127 FJH |
| 163.4 133 FJH  | 099.54 119 TOO | 148.4 146 CMG  | type Mira      | 159.33 128 FJH |
|                | 102.52 118 FJH | 154.5 142 FJH  |                | 161.32 128 FJH |
| 212216 TV Peg  | 104.38 117 FJH |                | 058.5 136 FJH  | 163.29 133 CMG |
| type Mira      | 104.45 119 EMU | 214443 WY Cyg  | 071.5 132 FJH  | 163.35 127 FJH |
|                | 104.56 116 TOO | type Mira      | 085.5 125 FJH  |                |
| 058.5 150 FJH  | 105.46 118 FJH |                | 102.5 121 FJH  | 222129 RV Peg  |
| 068.5 :151 FJH | 106.50 120 EMU | 058.5 142 FJH  | 124.5 120 FJH  | type Mira      |
| 076.5 :154 FJH | 107.43 118 FJH | 107.4 125 FJH  | 136.3 120 FJH  |                |
| 118.4 152 FJH  | 109.39 118 FJH | 128.4 113 FJH  | 147.5 120 CMG  | 122.6 :153 FJH |
| 127.4 147 FJH  | 110.40 118 FJH | 136.3 110 FJH  | 149.4 115 FJH  | 148.4 155 CMG  |

149.4 153 FJH  
 222439 S Lac  
 type Mira HIP  
 051.5 122 FJH  
 066.5 113 FJH  
 107.4 87 FJH  
 116.5 87 FJH  
 128.4 87 FJH  
 146.3 88 FJH  
 146.3 92 CMG  
 222924 SS Peg  
 type Mira HIP  
 051.5 131 FJH  
 058.5 130 FJH  
 068.5 129 FJH  
 102.5 125 FJH  
 111.5 120 FJH  
 128.4 118 FJH  
 145.5 113 FJH  
 163.4 95 CMG  
 223841 R Lac  
 type Mira  
 058.5 147 FJH  
 071.5 149 FJH  
 085.5 148 FJH  
 102.5 144 FJH  
 110.4 142 FJH  
 117.4 139 FJH  
 117.4 142 CMG  
 127.4 135 FJH  
 143.5 130 FJH  
 146.3 127 CMG  
 224517 SX Peg  
 type Mira HIP  
 066.5 122 FJH  
 081.5 125 FJH  
 102.5 130 FJH  
 122.5 132 FJH  
 145.4 132 FJH  
 152.4 131 FJH  
 163.4 126 CMG  
 225542 SZ And  
 type Mira  
 051.5 123 FJH  
 071.5 126 FJH  
 081.5 128 FJH  
 102.5 138 FJH  
 110.4 139 FJH  
 117.4 139 FJH  
 117.4 140 CMG  
 127.4 140 FJH  
 145.5 141 FJH  
 148.4 142 CMG  
 161.4 146 FJH

225914 RW Peg  
 type Mira  
 051.5 129 FJH  
 058.5 134 FJH  
 068.5 140 FJH  
 086.5 :146 FJH  
 102.5 147 FJH  
 118.4 144 FJH  
 122.5 :143 TOO  
 127.5 140 FJH  
 143.5 128 FJH  
 148.4 128 CMG  
 152.4 126 FJH  
 163.4 115 CMG  
 230110 R Peg  
 type Mira HIP  
 043.6 75 BMU  
 085.6 85 FJH  
 107.4 94 FJH  
 122.5 98 JCH  
 127.5 98 FJH  
 129.5 98 JCH  
 147.5 114 CMG  
 148.4 110 FJH  
 163.4 110 CMG  
 230746 OS And  
 type Na  
 127.48<160 FJH  
 230759 V Cas  
 type Mira HIP  
 071.5 101 SEN  
 095.5 112 BHN  
 106.4 119 FJH  
 122.5 127 FJH  
 130.4 126 FJH  
 139.4 126 FJH  
 145.5 127 CMG  
 154.3 122 FJH  
 163.4 118 SEN  
 231425 W Peg  
 type Mira HIP  
 085.6 106 FJH  
 105.5 115 FJH  
 106.5 113 BMU  
 127.5 121 FJH  
 143.5 126 FJH  
 147.5 124 CMG  
 154.3 123 FJH  
 163.4 124 FJH  
 231508 S Peg  
 type Mira HIP  
 104.5 109 FJH

122.5 102 JCH  
 127.5 104 FJH  
 129.5 101 JCH  
 148.4 96 CMG  
 148.4 99 FJH  
 163.4 82 CMG  
 231817 IP Peg  
 type UGSS+E  
 124.39 146 FJH  
 152.38 131 FJH  
 154.32 130 FJH  
 159.43 133 FJH  
 160.46 135 FJH  
 161.32 141 FJH  
 231839 BU And  
 type Mira  
 051.5 127 FJH  
 066.5 131 FJH  
 081.5 135 FJH  
 104.5 137 FJH  
 118.4 139 FJH  
 127.4 142 FJH  
 145.4 137 FJH  
 160.4 133 FJH  
 232144 AL And  
 type Mira  
 145.4 :150 FJH  
 232543 DX And  
 type UGSS  
 058.51 145 FJH  
 066.49 143 FJH  
 068.50 144 FJH  
 071.48 143 FJH  
 076.46 144 FJH  
 085.49 144 FJH  
 102.52 143 FJH  
 104.49 144 FJH  
 110.44 143 FJH  
 118.42 143 FJH  
 122.46 143 FJH  
 124.39 143 FJH  
 127.38 143 FJH  
 131.43 143 FJH  
 136.33 143 FJH  
 145.37 144 FJH  
 147.44 143 FJH  
 148.43 144 FJH  
 149.40 144 FJH  
 152.46 144 FJH  
 161.41 143 FJH  
 232642 BG And  
 type Mira  
 051.5 140 FJH  
 058.5 143 FJH

068.5 144 FJH  
 085.5 145 FJH  
 102.5 148 FJH  
 118.4 142 FJH  
 127.4 136 FJH  
 145.4 129 FJH  
 160.5 122 FJH  
 232848 Z And  
 type Z And  
 081.5 110 FJH  
 107.4 108 FJH  
 128.4 111 FJH  
 148.5 106 CMG  
 233109 FF Peg  
 type Mira  
 148.4 149 CMG  
 233956 Z Cas  
 type Mira  
 066.5 143 FJH  
 076.5 144 FJH  
 086.5 145 FJH  
 102.5 146 FJH  
 110.5 146 FJH  
 122.5 147 FJH  
 145.4 146 FJH  
 145.5 147 CMG  
 161.4 146 FJH  
 235053 RR Cas  
 type Mira  
 051.5 121 FJH  
 066.5 122 FJH  
 086.5 129 FJH  
 102.5 133 FJH  
 110.4 135 FJH  
 122.5 135 FJH  
 130.4 136 FJH  
 145.4 142 FJH  
 145.5 141 CMG  
 161.4 147 FJH  
 235255 WY Cas  
 type Mira  
 051.5 115 FJH  
 066.5 112 FJH  
 079.4 106 FJH  
 106.4 90 FJH  
 128.4 87 FJH  
 145.5 87 CMG  
 146.4 87 FJH  
 235350 R Cas  
 type Mira HIP  
 095.5 94 BHN  
 106.4 103 FJH

139.4 115 FJH  
 145.5 110 CMG  
 152.5 120 FJH  
 235525 Z Peg  
 type Mira HIP  
 043.6 84 BMU  
 068.4 80 SAQ  
 071.5 78 BMU  
 085.6 80 FJH  
 086.4 83 BHN  
 095.4 80 BHN  
 107.4 90 FJH  
 116.5 93 FJH  
 122.5 97 JCH  
 128.4 98 FJH  
 129.5 97 JCH  
 148.4 104 FJH  
 148.4 107 CMG  
 154.5 114 FJH  
 163.4 116 CMG  
 235855A Y Cas  
 type Mira  
 066.5 146 FJH  
 076.5 141 FJH  
 086.5 137 FJH  
 102.5 135 FJH  
 110.4 137 FJH  
 122.5 137 FJH  
 130.4 135 FJH  
 139.4 126 FJH  
 145.5 120 CMG  
 154.3 112 FJH  
 235939 SV And  
 type Mira HIP  
 066.5 143 FJH  
 076.5 144 FJH  
 085.5 141 FJH  
 102.5 136 FJH  
 110.4 137 FJH  
 127.5 132 FJH  
 145.5 132 FJH  
 148.5 128 CMG  
 160.4 123 FJH