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**Identification of NSV Stars in the Hubble Space Telescope  
Guide Star Catalogue**

The Hubble Space Telescope Guide Star Catalogue (GSC) is a collection of approximately 20 million objects in the magnitude range 9 to 16 (see Lasker *et al.* 1990). Among other data, accurate coordinates (equinox J2000) are quoted for each star (see Taff *et al.* 1990 for a discussion on the positional errors of the GSC).

This extensive database when combined with the excellent Pickles software package (McCarney, McArthur, and Jefferys 1989) is a powerful source for the identification and improvement of positions for different types of objects such as variable and suspected variable stars. In fact, the GSC has already been used in variable stars research by Gil Hutton (1992) and Morel (1992a,b) among others.

In this note we report cross-identifications of southern suspected variable stars with GSC objects, as part of a program conducted to improve the positions of southern variable and suspected variable stars (see Lopez and Girard 1990, 1991).

The suspected variable stars discussed here were extracted from the NSV catalogue provided in CD-ROM by the Astronomical Data Center and the National Space Science Center/World Data Center A for Rockets and Satellites (ADC/NSSDC). Stars which have both, the declination given to the nearest minute of arc and a literature reference to a finding chart, were isolated.

The objects on one square degree around each of the NSV stars were plotted on the computer screen using Pickles (version 3.058). The suspected variables were then identified using the chart recommended in the NSV catalogue. Due to the fact that most of the coordinates quoted in the NSV are only approximate, this approach seems to be the most convenient for a correct identification of the star. No attempt has been made to do an automatic (computer) identification like the one being done by Egret *et al.* (1992) for the cross-identification of INCA with GSC objects.

Table I lists the identifications which have been found. The first column gives the NSV number, the second one provides the GSC number with the

TABLE I  
Identification of NSV with GSC Stars

| NSV   | GSC        | RA (1950.0) |    |       | Dec |    |      |
|-------|------------|-------------|----|-------|-----|----|------|
|       |            | h           | m  | s     | °   | '  | "    |
| 03037 | 5948.00574 | 6           | 33 | 2.31  | -15 | 20 | 21.0 |
| 03042 | 5373.01957 | 6           | 33 | 28.41 | -13 | 2  | 29.8 |
| 03046 | 5952.01758 | 6           | 34 | 25.85 | -16 | 56 | 59.9 |
| 03100 | 5953.02223 | 6           | 38 | 4.81  | -17 | 47 | 24.5 |
| 03169 | 5957.00499 | 6           | 38 | 58.48 | -20 | 6  | 9.8  |
| 03182 | 5953.01422 | 6           | 40 | 44.97 | -17 | 17 | 15.9 |
| 03184 | 5949.01722 | 6           | 40 | 59.16 | -15 | 53 | 9.2  |
| 03209 | 5957.01622 | 6           | 44 | 22.18 | -19 | 16 | 0.2  |
| 03251 | 5391.01022 | 6           | 49 | 47.59 | -13 | 26 | 15.5 |
| 03256 | 5958.01164 | 6           | 50 | 20.85 | -19 | 3  | 31.0 |
| 03267 | 5958.02547 | 6           | 51 | 54.04 | -19 | 26 | 4.8  |
| 03327 | 5963.00870 | 6           | 57 | 40.48 | -15 | 51 | 33.4 |
| 03329 | 5967.00642 | 6           | 58 | 6.57  | -18 | 32 | 36.3 |
| 03336 | 5971.00472 | 6           | 58 | 52.26 | -18 | 47 | 16.6 |
| 03348 | 5963.01809 | 7           | 0  | 14.05 | -15 | 34 | 55.1 |
| 03354 | 5963.01286 | 7           | 1  | 14.62 | -15 | 28 | 6.9  |
| 03362 | 5967.00817 | 7           | 1  | 42.06 | -17 | 48 | 17.4 |
| 03366 | 5972.02429 | 7           | 2  | 21.44 | -19 | 33 | 11.8 |
| 03430 | 5964.03133 | 7           | 7  | 7.48  | -16 | 15 | 37.5 |
| 03451 | 5964.03236 | 7           | 9  | 27.46 | -16 | 7  | 24.9 |
| 03465 | 5406.02125 | 7           | 10 | 54.72 | -13 | 13 | 23.5 |
| 03475 | 5973.00742 | 7           | 12 | 9.17  | -19 | 35 | 7.7  |
| 03483 | 5969.01438 | 7           | 12 | 31.97 | -17 | 24 | 34.8 |
| 03488 | 5406.01967 | 7           | 13 | 8.74  | -14 | 21 | 37.3 |
| 03489 | 5965.02026 | 7           | 13 | 2.96  | -16 | 10 | 54.1 |

TABLE I (cont.)

| NSV   | GSC        | RA (1950.0) |    |       | Dec |    |      |
|-------|------------|-------------|----|-------|-----|----|------|
|       |            | h           | m  | s     | °   | '  | "    |
| 03501 | 5965.00438 | 7           | 14 | 18.12 | -15 | 36 | 49.2 |
| 03531 | 5969.00224 | 7           | 17 | 1.11  | -17 | 52 | 52.8 |
| 03621 | 5983.00400 | 7           | 28 | 36.30 | -16 | 54 | 25.3 |
| 03630 | 5983.01877 | 7           | 29 | 49.46 | -18 | 16 | 27.6 |
| 03651 | 5979.02750 | 7           | 32 | 49.81 | -15 | 1  | 24.7 |
| 03657 | 5987.00120 | 7           | 33 | 43.85 | -18 | 38 | 20.4 |
| 03707 | 5418.02306 | 7           | 41 | 24.57 | -11 | 47 | 6.1  |
| 03750 | 5985.00005 | 7           | 46 | 58.41 | -17 | 35 | 46.6 |
| 03751 | 5423.00809 | 7           | 47 | 2.61  | -13 | 39 | 38.5 |
| 03860 | 6562.02125 | 7           | 58 | 34.95 | -26 | 48 | 27.9 |
| 03882 | 6558.02114 | 8           | 1  | 11.82 | -25 | 21 | 35.6 |
| 03908 | 6007.01592 | 8           | 5  | 14.46 | -21 | 41 | 2.3  |
| 03929 | 6004.01148 | 8           | 7  | 54.02 | -20 | 9  | 34.2 |
| 03978 | 6009.00204 | 8           | 14 | 11.94 | -21 | 9  | 56.4 |
| 03995 | 6560.02934 | 8           | 15 | 42.61 | -25 | 51 | 25.2 |
| 04048 | 6009.03815 | 8           | 21 | 2.25  | -20 | 49 | 3.8  |
| 04067 | 6573.04986 | 8           | 23 | 16.33 | -25 | 55 | 13.7 |
| 05749 | 6109.00856 | 12          | 32 | 39.98 | -20 | 17 | 13.5 |
| 08546 | 5657.00321 | 17          | 18 | 21.61 | -13 | 27 | 10.8 |
| 12065 | 6306.02487 | 19          | 26 | 25.02 | -19 | 22 | 2.4  |
| 12620 | 6313.01630 | 19          | 55 | 37.51 | -15 | 14 | 28.0 |
| 12827 | 6319.01822 | 20          | 5  | 56.40 | -18 | 24 | 44.5 |
| 12940 | 6315.00854 | 20          | 12 | 25.53 | -15 | 45 | 38.7 |
| 14091 | 5806.00066 | 22          | 14 | 34.55 | -11 | 44 | 41.7 |

format *rrrrr.nnnnn* where *r* refers to a region number and *n* to the order number on that region (see Lasker *et al.* 1990). The last two columns give RA and Dec (B1950.0). We have preferred to express the positions extracted from the GSC in the 1950 equinox -instead of the J2000 of the GSC- since it is the standard one for both the NSV and GCVS IV. No average between GSC positions of the same star in different regions has been made.

I would like to thank the ADC/NSSDC for providing a CD-ROM with the NSV and GCVS IV among other very useful catalogues.

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References:

- Egret, D., Didelon, P., McLean, B.J., *et al.* 1992. *Astron. Astrophys.* **258**,217.  
Gil Hutton, R. 1992. *Inf. Bull. Var. Stars* No. 3723.  
Lasker, B., Sturch, C., McLean, B.J. *et al.* 1990. *Astron. J.* **99**, 2019.  
Lopez, C.E., and Girard, T.M. 1990. *Publ. Astron. Soc. of the Pacific* **102**, 1018.  
\_\_\_\_\_ 1991. *Inf. Bull. Var. Stars* No. 3681.  
McCarney, J., McArthur, B., and Jefferys, W.H. 1989. *Bull. Amer. Astron. Soc.* **21**, 1075.  
Morel, M. 1992. *Inf. Bull. Var. Stars* No. 3701.  
\_\_\_\_\_ 1992. *Inf. Bull. Var. Stars* No. 3702.  
Taff, L.G., Lattanzi, M.G., Bucciarelli, B. *et al.* 1990. *Ap J. (Letters)*, **353**, L45.