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2018 NA

Observer details:

104 San Marcello Pistoiese. Observers P. Bacci, M. Maestriperi. Measurers P. Bacci, L. Tesi, G. Fagioli. 0.60-m reflector + CCD.
703 Catalina Sky Survey. Observer H. Groeller. Measurers B. M. Africano, E. J. Christensen, D. C. Fuls, A. R. Gibbs, A. D. Grauer, H. Groeller, J. A. Johnson, R. A. Kowalski, S. M. Larson, G. J. Leonard, R. L. Seaman, F. C. Shelly. 0.68-m Schmidt + 10K CCD.
734 Farpoint Observatory. Observers G. Hug, B. Caler, T. Edwards, R. Valentine. Measurer D. Cromer. 0.69-m reflector + CCD.
A17 Guidestar Observatory, Weinheim. Observers M. Emmerich, S. Melchert. 0.36-m f/6 Schmidt-Cassegrain + CCD.
H36 Sandlot Observatory, Scranton. Observer G. Hug. 0.56-m reflector + CCD.
I41 Palomar Mountain--ZTF. Observer A. U. Tomatic. Measurers Q.-Z. Ye, A. J. Nielsen, H.-W. Lin, F. Masci. 1.2-m f/2.4 Schmidt + ZTF camera.
 I52 Steward Observatory, Mt. Lemmon Station. Observer E. J. Christensen. Measurers B. M. Africano, E. J. Christensen, D. C. Fuls, A. R. Gibbs, A. D. Grauer, H. Groeller, J. A. Johnson, R. A. Kowalski, S. M. Larson, G. J. Leonard, R. L. Seaman, F. C. Shelly. 1.0-m reflector + CCD.
 K63 G. Pascoli Observatory, Castelvecchio Pascoli. Observer R. Bacci. 0.40-m f/3.2 Newtonian reflector + CCD.
 K78 iota Scorpii Observatory, La Spezia. Observer G. Scarfi. 0.40-m f/8 Ritchey-Chretien + CCD.
K87 Dettelbach Vineyard Observatory. Observer B. Haeusler. 0.30-m Schmidt-Cassegrain + CCD.
 L01 Visnjan Observatory, Tican. Observer K. Korlevic. 1.0-m f/2.9 reflector + CCD.
 P93 Space Tracking and Communications Center, JAXA. Observers S. Urakawa, A. Asami. 1.0-m f/3.0 reflector + CCD.

Orbital elements:

2018 NA Earth MOID = 0.0385 AU
 Epoch 2018 Mar. 23.0 TT = JDT 2458200.5 MPC
 M 334.67423 (2000.0) P Q
 n 0.50624868 Peri. 347.82686 -0.88261003 +0.46918723
 a 1.5591699 Node 220.19712 -0.42740630 -0.82689532
 e 0.4841391 Incl. 2.60860 -0.19576363 -0.31001206
 P 1.95 H 23.1 G 0.15 U 7

Residuals in seconds of arc

| | | | | | | | | | | | |
|--------|-----|------|------|--------|-----|-------|-------|--------|-----|------|------|
| 180701 | 703 | 0.7+ | 0.3- | 180701 | K87 | 0.3- | 0.2- | 180702 | I41 | 1.1+ | 0.5+ |
| 180701 | 703 | 0.0 | 0.1+ | 180701 | K87 | 0.0 | 0.5+ | 180702 | I41 | 0.0 | 0.8- |
| 180701 | 703 | 0.1- | 0.6+ | 180701 | K87 | 0.1+ | 0.3- | 180702 | I41 | 0.3+ | 0.7+ |
| 180701 | I52 | 0.2+ | 0.1+ | 180701 | K87 | 0.3+ | 0.0 | 180702 | K63 | 0.1- | 0.8- |
| 180701 | I52 | 0.3- | 0.1+ | 180701 | K87 | 0.6- | 0.0 | 180702 | K63 | 0.1- | 0.5- |
| 180701 | I52 | 0.6- | 0.2+ | 180701 | K87 | 0.2- | 0.2+ | 180702 | A17 | 0.2+ | 0.1+ |
| 180701 | I52 | 0.3- | 0.0 | 180701 | K87 | 0.1- | 0.1- | 180702 | K63 | 0.5+ | 0.1- |
| 180701 | P93 | 0.9+ | 0.7- | 180701 | K87 | 1.1- | 0.7+ | 180702 | L01 | 0.0 | 0.3+ |
| 180701 | P93 | 0.7+ | 0.6- | 180702 | 734 | (2.9+ | 3.3-) | 180702 | L01 | 0.2- | 0.5+ |
| 180701 | K78 | 0.4+ | 0.8- | 180702 | 734 | (3.0+ | 2.9-) | 180702 | L01 | 0.1- | 0.5- |
| 180701 | K78 | 0.1+ | 0.4- | 180702 | 734 | (3.1+ | 2.3-) | 180702 | 104 | 0.3- | 0.2- |
| 180701 | K78 | 0.1+ | 0.8- | 180702 | H36 | 1.5+ | 0.1- | 180702 | L01 | 0.1+ | 0.2+ |
| 180701 | K78 | 0.2+ | 0.2- | 180702 | I52 | 0.1- | 0.6+ | 180702 | 104 | 0.1- | 0.0 |
| 180701 | K78 | 0.1- | 0.6- | 180702 | I52 | 0.2- | 0.0 | 180702 | 104 | 0.4- | 0.2- |

| | | | | | | | | | | | |
|--------|-----|------|------|--------|-----|------|------|--------|-----|------|------|
| 180701 | K87 | 0.7- | 0.3+ | 180702 | I52 | 0.3+ | 0.1+ | 180702 | A17 | 0.3- | 0.1+ |
| 180701 | K87 | 0.5- | 0.3+ | 180702 | I52 | 0.3- | 0.3+ | 180702 | A17 | 0.1- | 0.1- |
| 180701 | K87 | 0.2- | 0.5+ | 180702 | H36 | 0.7+ | 0.4+ | 180702 | A17 | 0.1+ | 0.2+ |
| 180701 | K87 | 0.3+ | 0.3- | 180702 | H36 | 0.3+ | 1.4- | | | | |
| 180701 | K87 | 0.3- | 0.1- | 180702 | I41 | 0.1+ | 0.5+ | | | | |