

2016 WM1

First observed at Mt. Lemmon Survey on 2016-11-19.

(Discoverer will be defined when the object is numbered. See [this note](#) on how discoverers are determined.)

Orbit

Orbit type: Apollo

Near-Earth Object

One opposition object seen prior.

Interactive Orbit Sketch

Note: WebGL enabled browser required.

| | | | | | |
|----------------------------|------------------|---------------------------|-------------|---|--------------|
| epoch | 2019-04-27.0 | semimajor axis (AU) | 1.1808667 | uncertainty | 2 |
| epoch JD | 2458600.5 | mean anomaly (°) | 270.83988 | reference | MPO 394771 |
| perihelion date | 2019-08-21.08287 | mean daily motion (°/day) | 0.76807310 | observations used | 23 |
| perihelion JD | 2458716.58287 | aphelion distance (AU) | 1.599 | oppositions | 1 |
| argument of perihelion (°) | 91.67683 | period (years) | 1.28 | arc length (days) | 5 |
| ascending node (°) | 55.22397 | P-vector [x] | -0.74818665 | first opposition used | 2016 |
| inclination (°) | 27.00800 | P-vector [y] | 0.26342334 | last opposition used | 2016 |
| eccentricity | 0.3540137 | P-vector [z] | 0.60895392 | residual rms (arc-secs) | 0.32 |
| perihelion distance (AU) | 0.7628237 | Q-vector [x] | -0.54871153 | perturbbers coarse indicator | M-v |
| Tisserand w.r.t. Jupiter | 5.2 | Q-vector [y] | -0.76164310 | perturbbers precise indicator | 003Eh |
| ΔV w.r.t. Earth (km/sec) | 10.5 | Q-vector [z] | -0.34469615 | first observation date used | 2016-11-19.0 |
| | | absolute magnitude | 24.8 | last observation date used | 2016-11-24.0 |
| | | phase slope | 0.15 | computer name | MPCW |

| | |
|--|----------------|
| JD of orbit computation | 2457745.741095 |
| perihelion JD uncertainty (days) | 9.5879E-02 |
| argument of perihelion uncertainty (°) | 9.2914E-02 |
| ascending node uncertainty (°) | 5.4941E-03 |
| inclination uncertainty (°) | 8.0926E-02 |
| eccentricity uncertainty | 1.1038E-03 |
| perihelion distance uncertainty (AU) | 8.2702E-05 |

Minimum Orbit Intersection Distances (in AU)

for orbit epoch: 2458200.5, reference: MPO394771

| | |
|---------|-----------|
| Mercury | 0.434691 |
| Venus | 0.207614 |
| Earth | 0.0091229 |
| Mars | 0.318596 |
| Jupiter | 3.60409 |
| Saturn | 8.05493 |
| Uranus | 17.4201 |
| Neptune | 28.5103 |

Observations

26 total observations over interval: 2016 11 19.17089 – 2016 11 24.15172

These data are available for [download](#) ([format description](#)).

| Date (UT) | J2000 RA | J2000 Dec | Magn | Location | Ref |
|-------------------|--------------|--------------|--------|--|---------------------|
| 2016 11 19.17089 | 01 33 46.51 | +08 36 41.5 | 20.5 V | G96 – Mt. Lemmon Survey | MPS 745444 |
| 2016 11 19.17684 | 01 33 37.36 | +08 38 18.5 | 19.9 V | G96 – Mt. Lemmon Survey | MPS 745444 |
| 2016 11 19.18124 | 01 33 30.49 | +08 39 31.5 | 20.0 V | G96 – Mt. Lemmon Survey | MPS 745444 |
| 2016 11 19.18555 | 01 33 23.79 | +08 40 42.1 | 20.1 V | G96 – Mt. Lemmon Survey | MPS 745444 |
| 2016 11 19.210706 | 01 32 44.07 | +08 47 34.2 | 20.2 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 19.217421 | 01 32 33.58 | +08 49 25.1 | 20.5 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 19.224343 | 01 32 22.74 | +08 51 19.5 | 20.4 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 19.231308 | 01 32 11.84 | +08 53 14.6 | 20.4 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 19.23667 | 01 32 03.95 | +08 54 48.4 | 20.3 R | 291 – LPL/Spacewatch II | MPS 745444 |
| 2016 11 19.23985 | 01 31 58.96 | +08 55 41.0 | 20.2 R | 291 – LPL/Spacewatch II | MPS 745444 |
| 2016 11 19.24308 | 01 31 53.89 | +08 56 34.5 | 20.1 R | 291 – LPL/Spacewatch II | MPS 745444 |
| 2016 11 19.25054 | 01 31 42.08 | +08 58 36.7 | 20.5 V | G96 – Mt. Lemmon Survey | MPS 745444 |
| 2016 11 19.25286 | 01 31 38.46 | +08 59 14.4 | 20.4 V | G96 – Mt. Lemmon Survey | MPS 745444 |
| 2016 11 19.25320 | 01 31 37.97 | +08 59 19.7 | 21.5 V | G96 – Mt. Lemmon Survey | MPS 745444 |
| 2016 11 20.077930 | 01 09 46.24 | +12 53 14.2 | 20.1 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 20.084930 | 01 09 34.23 | +12 55 16.4 | 20.4 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 20.091948 | 01 09 22.19 | +12 57 19.0 | 20.1 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 20.100147 | 01 09 08.09 | +12 59 42.1 | 20.0 V | H01 – Magdalena Ridge Observatory, Socorro | MPS 745444 |
| 2016 11 22.08970 | 00 08 33.00 | +22 28 22.9 | 20.4 R | 926 – Tenagra II Observatory, Nogales | MPS 745444 |
| 2016 11 22.09272 | 00 08 26.97 | +22 29 12.3 | 20.0 R | 926 – Tenagra II Observatory, Nogales | MPS 745444 |
| 2016 11 22.09578 | 00 08 20.89 | +22 30 01.6 | 20.4 R | 926 – Tenagra II Observatory, Nogales | MPS 745444 |
| 2016 11 23.189700 | 23 32 25.796 | +27 02 48.33 | 21.3 G | T12 – Mauna Kea-UH/Tholen NEO Follow-Up (2.24-m) | MPS 752866 |
| 2016 11 23.193288 | 23 32 18.484 | +27 03 37.46 | 20.8 G | T12 – Mauna Kea-UH/Tholen NEO Follow-Up (2.24-m) | MPS 752866 |
| 2016 11 24.14730 | 23 00 59.40 | +30 18 07.8 | 19.7 V | I52 – Steward Observatory, Mt. Lemmon Station | MPS 747748 |
| 2016 11 24.14879 | 23 00 56.17 | +30 18 26.7 | 20.5 V | I52 – Steward Observatory, Mt. Lemmon Station | MPS 747748 |
| 2016 11 24.15172 | 23 00 50.31 | +30 18 57.4 | 18.6 V | I52 – Steward Observatory, Mt. Lemmon Station | MPS 747748 |

