* NOVA *

N. 1199 - 1 SETTEMBRE 2017

ASSOCIAZIONE ASTROFILI SEGUSINI

ASTEROIDE 3122 FLORENCE

Il 1° settembre 2017 l'asteroide 3122 Florence transita a 7 milioni di km dalla Terra (18.5 volte la distanza media Terra-Luna: 384.401 km). Non c'è pericolo di collisione, ma trattandosi di una roccia di grandi dimensioni (4.4 km circa di diametro) è visibile con piccoli telescopi – raggiungendo la 9ª magnitudine dalla fine di agosto all'inizio di settembre –, anche se la Luna disturba le osservazioni.

L'asteroide è stato scoperto nel marzo 1981 al Siding Spring Observatory in Australia. Il nome è in onore di Florence Nightingale (1820-1910), la fondatrice della moderna assistenza infermieristica.

Il transito di quest'anno è il più vicino alla Terra dal 1890 e "questo è il più grande asteroide che passa vicino al nostro pianeta da quando ha avuto inizio il programma per monitorare gli asteroidi che possono avvicinarsi alla Terra" ha detto Paul Chodas, responsabile del Center for Near-Earth Object Studies (CNEOS) della NASA al Jet Propulsion Laboratory di Pasadena, California.

L'avvicinamento dell'asteroide Florence (alla velocità di 13.5 km/s) sarà osservato dai radiotelescopi di Goldstone in California e di Arecibo a Puerto Rico. Il radar è stato utilizzato per osservare centinaia di asteroidi. Quando questi piccoli resti naturali della formazione del sistema solare passano relativamente vicini alla Terra, il radar è una tecnica potente per studiarne le dimensioni, le forme, la rotazione e le caratteristiche superficiali, e per determinare in modo più preciso il loro percorso orbitale. In questa occasione le immagini radar potrebbero rivelare dettagli superficiali con dimensioni fino a 10 metri.

https://www.nasa.gov/feature/jpl/large-asteroid-to-safely-pass-earth-on-sept-1

https://ssd.jpl.nasa.gov/sbdb.cgi?sstr=3122&orb=1

http://spaceweathergallery.com/indiv_upload.php?upload_id=138574
(Asteroide 3122 Florence ripreso il 29 agosto 2017 da Michael Jäger a Weißenkirchen, Austria)

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*******************************************************************************
Ephemeris / WWW_USER Thu Aug 31 07:32:20 2017 Pasadena, USA      / Horizons
*******************************************************************************
Target body name: 3122 Florence (1981 ET3)        {source: JPL#381}
Center body name: Earth (399)                     {source: DE431}
Center-site name: Grange Observatory, Bussoleno
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Start time      : A.D. 2017-Aug-30 20:00:00.0000 UT
Stop  time      : A.D. 2017-Sep-16 20:00:00.0000 UT
Step-size       : 1440 minutes
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*******************************************************************************************************************************
 Date__(UT)__HR:MN     R.A._(ICRF/J2000.0)_DEC Azi_(a-appr)_Elev  APmag  S-brt            delta      deldot    S-O-T /r
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 2017-Aug-30 20:00  m  21 14 24.75 -12 35 37.0 144.5361  25.2816   8.65   4.06 0.04901724395031  -3.8444796 159.5341 /T
 2017-Aug-31 20:00  m  21 05 06.71 -03 45 35.9 143.7192  34.6773   8.69   4.15 0.04750765319969  -1.6822091 155.9758 /T
 2017-Sep-01 20:00  m  20 55 43.82 +05 24 14.8 142.6094  44.3907   8.84   4.29 0.04727970554104   0.5948308 149.9215 /T
 2017-Sep-02 20:00  m  20 46 18.48 +14 23 27.2 141.0396  53.9069   9.08   4.44 0.04834530284879   2.8051434 142.7568 /T
 2017-Sep-03 20:00  m  20 36 53.05 +22 44 49.0 138.6884  62.7590   9.37   4.58 0.05061614402761   4.7908151 135.5182 /T
 2017-Sep-04 20:00  m  20 27 29.81 +30 11 11.1 134.8565  70.6335   9.68   4.70 0.05393323494232   6.4651325 128.7995 /T
 2017-Sep-05 20:00  m  20 18 10.91 +36 36 36.5 127.7298  77.3587  10.00   4.81 0.05811052123730   7.8147940 122.8608 /T
 2017-Sep-06 20:00  m  20 08 58.35 +42 03 17.9 111.3440  82.7160  10.30   4.89 0.06296975884340   8.8729120 117.7538 /T
 2017-Sep-07 20:00  m  19 59 53.93 +46 37 41.9  67.2996  85.6226  10.59   4.96 0.06835830470810   9.6903423 113.4226 /T
 2017-Sep-08 20:00  m  19 50 59.29 +50 27 35.7  17.4375  84.3420  10.87   5.02 0.07415342561042  10.3179022 109.7694 /T
 2017-Sep-09 20:00  m  19 42 15.84 +53 40 30.5 357.9440  81.4121  11.12   5.06 0.08025960960742  10.7988714 106.6893 /T
 2017-Sep-10 20:00     19 33 44.83 +56 23 02.3 349.8483  78.4838  11.35   5.10 0.08660353640651  11.1674210 104.0862 /T
 2017-Sep-11 20:00     19 25 27.31 +58 40 41.7 345.6352  75.8203  11.56   5.13 0.09312902536933  11.4495509 101.8781 /T
 2017-Sep-12 20:00     19 17 24.13 +60 37 58.5 343.1079  73.4387  11.76   5.16 0.09979279778647  11.6647243  99.9969 /T
 2017-Sep-13 20:00     19 09 35.97 +62 18 30.3 341.4516  71.3114  11.94   5.18 0.10656119067810  11.8274447  98.3873 /T
 2017-Sep-14 20:00     19 02 03.34 +63 45 12.0 340.3018  69.4044  12.11   5.19 0.11340770165764  11.9485452  97.0048 /T
 2017-Sep-15 20:00     18 54 46.57 +65 00 24.6 339.4723  67.6860  12.26   5.21 0.12031118512965  12.0361698  95.8132 /T
 2017-Sep-16 20:00     18 47 45.85 +66 06 01.9 338.8587  66.1288  12.40   5.22 0.12725453431099  12.0964953  94.7831 /T

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Column meaning:

TIME
Prior to 1962, times are UT1. Dates thereafter are UTC. Any 'b' symbol in the 1st-column denotes a B.C. date. First-column blank (" ") denotes an A.D. date. Calendar dates prior to 1582-Oct-15 are in the Julian calendar system. Later calendar dates are in the Gregorian system.

Time tags refer to the same instant throughout the solar system, regardless of where the observer is located. For example, if an observation from the surface of another body has an output time-tag of 12:31:00 UTC, an Earth-based time-scale, it refers to the instant on that body simultaneous to 12:31:00 UTC on Earth.

The Barycentric Dynamical Time scale (TDB) is used internally as defined by the planetary equations of motion. Conversion between TDB and the selected non-uniform UT output time-scale has not been determined for UTC times after the next July or January 1st. The last known leap-second is used as a constant over future intervals.

NOTE: "n.a." in output means quantity "not available" at the print-time.

SOLAR PRESENCE (OBSERVING SITE)
Time tag is followed by a blank, then a solar-presence symbol:

'*'	Daylight (refracted solar upper-limb on or above apparent horizon)
'C'	Civil twilight/dawn
'N'	Nautical twilight/dawn
'A'	Astronomical twilight/dawn
' '	Night OR geocentric ephemeris

LUNAR PRESENCE (OBSERVING SITE)
The solar-presence symbol is immediately followed by a lunar-presence symbol:

'm'	Refracted upper-limb of Moon on or above apparent horizon
' '	Refracted upper-limb of Moon below apparent horizon OR geocentric ephemeris

R.A._(ICRF/J2000.0)_DEC =
J2000.0 astrometric right ascension and declination of target center. Adjusted for light-time. Units: HMS (HH MM SS.ff) and DMS (DD MM SS.f)

Azi_(a-appr)_Elev =
Airless apparent azimuth and elevation of target center. Adjusted for light-time, the gravitational deflection of light, stellar aberration, precession and nutation. Azimuth measured North(0) -> East(90) -> South(180) -> West(270) -> North (360). Elevation is with respect to plane perpendicular to local zenith direction. TOPOCENTRIC ONLY. Units: DEGREES

APmag S-brt =
Asteroid's approximate apparent visual magnitude & surface brightness:
APmag = H + 5*log10(delta) + 5*log10(r) - 2.5*log10((1-G)*phi1 + G*phi2)
For solar phase angles > 90 deg, the error could exceed 1 magnitude. For phase angles > 120 degrees, output values are rounded to the nearest integer to indicate the errors could be large and unknown.
Units: NONE & VISUAL MAGNITUDES PER SQUARE ARCSECOND

delta deldot =
Range ("delta") and range-rate ("delta-dot") of target center with respect to the observer at the instant light seen by the observer at print-time would have left the target center (print-time minus down-leg light-time); the distance traveled by a light ray emanating from the center of the target and recorded by the observer at print-time. "deldot" is a projection of the velocity vector along this ray, the light-time-corrected line-of-sight from the coordinate center, and indicates relative motion. A positive "deldot" means the target center is moving away from the observer (coordinate center). A negative "deldot" means the target center is moving toward the observer.
Units: AU and KM/S

S-O-T /r =
Sun-Observer-Target angle; target's apparent SOLAR ELONGATION seen from the observer location at print-time. Angular units: DEGREES
The '/r' column indicates the target's apparent position relative to the Sun in the observer's sky, as described below:
For an observing location on the surface of a rotating body (considering its rotational sense):
/T indicates target TRAILS Sun (evening sky; rises and sets AFTER Sun)
/L indicates target LEADS Sun (morning sky; rises and sets BEFORE Sun)

For an observing point NOT on a rotating body (such as a spacecraft), the "leading" and "trailing" condition is defined by the observer's heliocentric orbital motion: if continuing in the observer's current direction of heliocentric motion would encounter the target's apparent longitude first, followed by the Sun's, the target LEADS the Sun as seen by the observer. If the Sun's apparent longitude would be encountered first, followed by the target's, the target TRAILS the Sun.
NOTE: The S-O-T solar elongation angle is numerically the minimum separation angle of the Sun and target in the sky in any direction. It does NOT indicate the amount of separation in the leading or trailing directions, which are defined in the equator of a spherical coordinate system.

Computations by ...
Solar System Dynamics Group, Horizons On-Line Ephemeris System
4800 Oak Grove Drive, Jet Propulsion Laboratory - Pasadena, CA 91109 USA
Information: http://ssd.jpl.nasa.gov/
Connect : telnet://ssd.jpl.nasa.gov:6775 (via browser)
telnet ssd.jpl.nasa.gov 6775 (via command-line)
Author : Jon.D.Giorgini@jpl.nasa.gov

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