* NOVA *

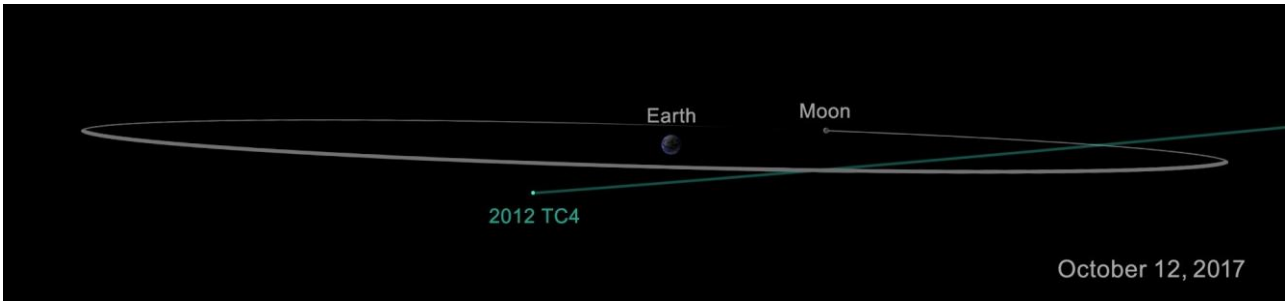
N. 1212 - 7 OTTOBRE 2017

ASSOCIAZIONE ASTROFILI SEGUSINI

AVVICINAMENTO ASTEROIDE 2012 TC4

Il 12 ottobre c.a. alle ore 8 CEST l'asteroide Near Earth (NEA) di tipo Apollo denominato 2012 TC4 passerà a circa 49000 km dalla superficie terrestre, a quanto stima il JPL di Pasadena.

La Luna non disturberà le osservazioni durante l'avvicinamento dell'oggetto celeste, stimato grande 16 m e con velocità di circa 8 km/s, di prima sera a partire dall'8 c.m.; la magnitudine prevista è attorno alla 14ª e sfrecerà nel cielo stellato a più di 1° al minuto la sera dell'11 ottobre. Il 12 ottobre non sarà più visibile nel cielo serale.



Avvicinamento alla Terra dell'asteroide 2012 TC4 il 12 ottobre 2017. Crediti: NASA / JPL-Caltech

Pubblichiamo un'effemeride utile per la Valle di Susa con le posizioni alle ore 21 CEST.

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Target body name: (2012 TC4)                        {source: JPL#48}
Center body name: Earth (399)                       {source: DE431}
Center-site name: Grange Observatory, Bussoleno

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 Date__(UT)__HR:MN     R.A._(ICRF/J2000.0)_DEC Azi_(a-appr)_Elev  APmag            delta      deldot    S-O-T /r
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 2017-Oct-05 19:00  m  23 01 14.75 -02 03 08.3 132.6564  31.7024  19.89 0.02456393772068  -6.7906144 152.9466 /T
 2017-Oct-06 19:00  m  23 00 41.51 -02 11 37.7 133.8776  32.1583  19.56 0.02076335012512  -6.7751951 151.8005 /T
 2017-Oct-07 19:00  m  22 59 58.24 -02 23 34.1 135.1881  32.5725  19.15 0.01696769682445  -6.7631355 150.5959 /T
 2017-Oct-08 19:00     22 58 54.82 -02 42 01.7 136.6611  32.9175  18.63 0.01317475156022  -6.7547652 149.2768 /T
 2017-Oct-09 19:00     22 57 04.76 -03 15 03.2 138.4862  33.1205  17.93 0.00938170674077  -6.7511699 147.6959 /T
 2017-Oct-10 19:00     22 52 49.25 -04 32 34.7 141.3594  32.9002  16.87 0.00558403478292  -6.7550478 145.2985 /T
 2017-Oct-11 19:00     22 30 03.48 -11 20 12.6 151.5742  29.2412  14.62 0.00177532335279  -6.7185528 136.5830 /T
 2017-Oct-12 19:00     10 39 29.54 +06 15 28.5 327.9668 -33.4968    20. 0.00223926455815   6.7427821  40.3818 /L
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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.
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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 =

Asteroid's approximate apparent visual magnitude from the standard IAU H-G magnitude relationship:

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 error could be large and unknown.

Units: MAGNITUDE

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/
Author : Jon.D.Giorgini@jpl.nasa.gov

Links:

https://ssd.jpl.nasa.gov/sbdb.cgi?sstr=2012 TC4&orb=1
https://www.jpl.nasa.gov/news/news.php?feature=6906
https://www.nasa.gov/feature/jpl/asteroid-flyby-will-benefit-nasa-detection-and-tracking-network
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