

* NOVA *

N. 1804 - 24 AGOSTO 2020

ASSOCIAZIONE ASTROFILI SEGUSINI

CERERE IN OPPOSIZIONE

Cerere (1 Ceres o A801 AA), il primo asteroide scoperto – il 1° gennaio 1801 da Giuseppe Piazzi a Palermo (v. *Circolare interna* AAS 121, dicembre 2007, pp. 4-5) – il 28 agosto 2020 sarà nel punto più vicino alla Terra, a 2 UA, nella costellazione dell'Aquario con magnitudine 7.7 a circa 6° a NNE dalla stella Fomalhaut (α Piscis Austrinii). Il momento preciso dell'opposizione col Sole sarà il 4 settembre 2020. Il 12 settembre sarà a circa 2° a Nord di ϵ Piscis Austrinii.

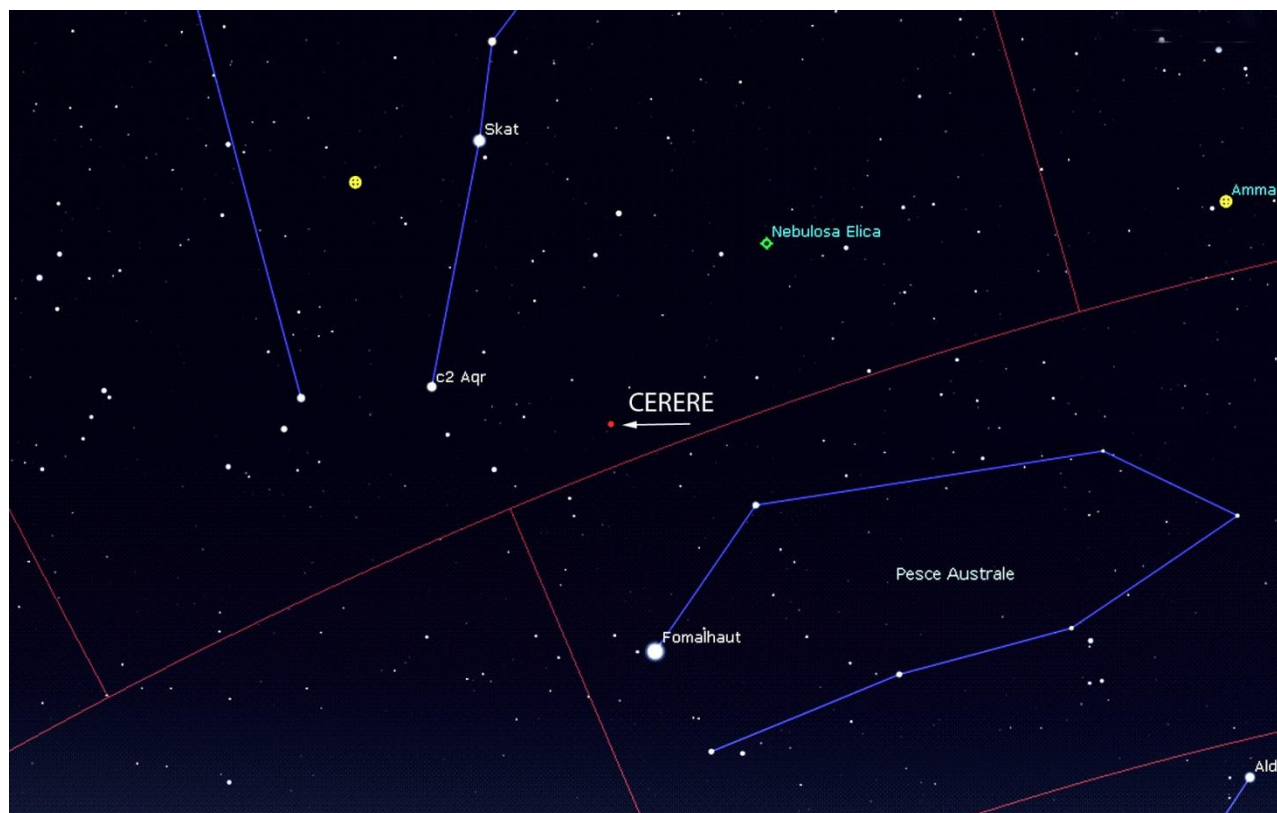
Nelle pagine seguenti riportiamo le effemeridi di Cerere dal 25 agosto al 24 settembre 2020, calcolate dal JPL per il nostro Grange Observatory.

Cerere, osservato da vicino dalla sonda spaziale Dawn dal 2015 al 2018 (v. p. es. *Nova* 1796 dell'11 agosto 2020), ha un diametro di 940 km; inizialmente classificato come pianeta, fu declassato ad asteroide nel 1852 e infine, nel 2006, considerato "pianeta nano" come Plutone e altri oggetti trans-nettuniani.

Almanacco 2020 - Unione Astrofili Italiani, pp. 94 e 97

"A Dwarf Planet at Opposition", *Sky & Telescope*, August 2016, p. 50

Ceres - JPL Small-Body Database Browser - NASA, <https://ssd.jpl.nasa.gov/sbdb.cgi?sstr=1&orb=1>



Il pianeta nano Cerere il 28 agosto 2020 in una cartina realizzata con *Stellarium*, <https://stellarium.org/it/> (g.z.)

V. anche la cartina della British Astronomical Association - Computing Section su
https://britastro.org/computing/ch/1_Ceres_2020Jul28Sep28.html

NEWSLETTER TELEMATICA APERIODICA DELL'A.A.S. PER SOCI E SIMPATIZZANTI - ANNO XV

La *Nova* è pubblicazione telematica aperiodica dell'A.A.S. - Associazione Astrofili Segusini di Susa (TO) riservata a Soci e Simpatizzanti.

È pubblicata senza alcuna periodicità regolare (v. Legge 7 marzo 2001, n. 62, art. 1, comma 3) e pertanto non è sottoposta agli obblighi previsti dalla Legge 8 febbraio 1948, n. 47, art. 5. I dati personali utilizzati per l'invio telematico della *Nova* sono trattati dall'AAS secondo i principi del *Regolamento generale sulla protezione dei dati* (GDPR - Regolamento UE 2016/679).

www.astrofilisusa.it

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*****
Ephemeris / WWW_USER Sun Aug 23 10:11:13 2020 Pasadena, USA / Horizons
*****
Target body name: 1 Ceres (A801 AA) {source: JPL#47}
Center body name: Earth (399) {source: DE431}
Center-site name: Grange Observatory, Bussoleno
*****
Start time : A.D. 2020-Aug-25 00:00:00.0000 UT
Stop time : A.D. 2020-Sep-24 00:00:00.0000 UT
Step-size : 1440 minutes
*****
*****
Date (UT) HR:MN R.A. (ICRF) DEC Azi (a-appr) Elev APmag S-brt S-O-T /r Cnst
*****
2020-Aug-25 00:00 22 56 01.71 -23 27 18.7 176.6161 21.4422 7.729 6.603 164.1106 /L Aqr
2020-Aug-26 00:00 22 55 12.27 -23 33 23.7 177.7938 21.3818 7.724 6.599 164.3547 /L Aqr
2020-Aug-27 00:00 22 54 22.41 -23 39 21.4 178.9706 21.3061 7.721 6.596 164.5162 /L Aqr
2020-Aug-28 00:00 22 53 32.21 -23 45 11.4 180.1458 21.2152 7.719 6.595 164.5922 /L Aqr
2020-Aug-29 00:00 m 22 52 41.71 -23 50 53.4 181.3190 21.1093 7.719 6.595 164.5813 /L Aqr
2020-Aug-30 00:00 m 22 51 50.96 -23 56 27.1 182.4895 20.9885 7.722 6.597 164.4837 /L Aqr
2020-Aug-31 00:00 m 22 51 00.02 -24 01 52.2 183.6569 20.8528 7.726 6.600 164.3010 /L Aqr
2020-Sep-01 00:00 m 22 50 08.95 -24 07 08.2 184.8206 20.7025 7.731 6.604 164.0363 /L Aqr
2020-Sep-02 00:00 m 22 49 17.79 -24 12 15.0 185.9803 20.5378 7.739 6.610 163.6935 /L Aqr
2020-Sep-03 00:00 m 22 48 26.60 -24 17 12.2 187.1354 20.3589 7.747 6.617 163.2777 /T Aqr
2020-Sep-04 00:00 m 22 47 35.43 -24 21 59.6 188.2854 20.1659 7.757 6.625 162.7943 /T Aqr
2020-Sep-05 00:00 m 22 46 44.34 -24 26 36.9 189.4300 19.9591 7.769 6.633 162.2491 /T Aqr
2020-Sep-06 00:00 m 22 45 53.38 -24 31 03.9 190.5688 19.7387 7.781 6.643 161.6480 /T Aqr
2020-Sep-07 00:00 m 22 45 02.61 -24 35 20.3 191.7012 19.5051 7.794 6.653 160.9964 /T Aqr
2020-Sep-08 00:00 m 22 44 12.08 -24 39 25.9 192.8270 19.2584 7.809 6.664 160.2999 /T Aqr
2020-Sep-09 00:00 m 22 43 21.85 -24 43 20.5 193.9458 18.9990 7.823 6.675 159.5632 /T Aqr
2020-Sep-10 00:00 m 22 42 31.96 -24 47 04.0 195.0573 18.7272 7.839 6.686 158.7911 /T Aqr
2020-Sep-11 00:00 m 22 41 42.48 -24 50 36.0 196.1612 18.4433 7.855 6.698 157.9876 /T Aqr
2020-Sep-12 00:00 m 22 40 53.46 -24 53 56.6 197.2571 18.1476 7.871 6.710 157.1565 /T PsA
2020-Sep-13 00:00 m 22 40 04.95 -24 57 05.5 198.3448 17.8404 7.888 6.722 156.3012 /T PsA
2020-Sep-14 00:00 22 39 17.01 -25 00 02.6 199.4240 17.5220 7.905 6.734 155.4247 /T PsA
2020-Sep-15 00:00 22 38 29.68 -25 02 47.8 200.4946 17.1929 7.923 6.746 154.5296 /T PsA
2020-Sep-16 00:00 22 37 43.03 -25 05 20.9 201.5563 16.8533 7.940 6.758 153.6183 /T PsA
2020-Sep-17 00:00 22 36 57.09 -25 07 41.9 202.6090 16.5036 7.958 6.770 152.6930 /T PsA
2020-Sep-18 00:00 22 36 11.93 -25 09 50.8 203.6524 16.1442 7.976 6.781 151.7556 /T PsA
2020-Sep-19 00:00 22 35 27.58 -25 11 47.4 204.6865 15.7753 7.994 6.793 150.8077 /T PsA
2020-Sep-20 00:00 22 34 44.11 -25 13 31.7 205.7112 15.3975 8.013 6.804 149.8510 /T PsA
2020-Sep-21 00:00 22 34 01.55 -25 15 03.7 206.7263 15.0110 8.031 6.816 148.8867 /T PsA
2020-Sep-22 00:00 22 33 19.94 -25 16 23.5 207.7317 14.6161 8.049 6.827 147.9161 /T PsA
2020-Sep-23 00:00 22 32 39.33 -25 17 31.0 208.7275 14.2133 8.068 6.838 146.9401 /T PsA
2020-Sep-24 00:00 22 31 59.76 -25 18 26.3 209.7136 13.8028 8.086 6.849 145.9599 /T PsA
*****

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Column meaning:

TIME

Times PRIOR to 1962 are UT1, a mean-solar time closely related to the prior but now-deprecated GMT. Times AFTER 1962 are in UTC, the current civil or "wall-clock" time-scale. UTC is kept within 0.9 seconds of UT1 using integer leap-seconds for 1972 and later years.

Conversion from the internal Barycentric Dynamical Time (TDB) of solar system dynamics to the non-uniform civil UT time-scale requested for output has not been determined for UTC times after the next July or January 1st. Therefore, the last known leap-second is used as a constant over future intervals.

Time tags refer to the UT time-scale conversion from TDB on Earth regardless of observer location within the solar system, although clock rates may differ due to the local gravity field and no analog to "UT" may be defined for that location.

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.

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)____DEC' =

Astrometric right ascension and declination of the target center with respect to the observing site (coordinate origin) in the reference frame of the planetary ephemeris (ICRF). Compensated for down-leg light-time delay aberration.

Units: RA in hours-minutes-seconds of time, HH MM SS.ff{ffff}

DEC in degrees-minutes-seconds of arc, SDD MN SC.f{ffff}

'Azi_(a-appr) Elev' =

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

'APmag S-brt' =

The asteroids' approximate apparent airless visual magnitude and surface brightness using the standard IAU H-G system magnitude model:

$APmag = H + 5 \log_{10}(\delta) + 5 \log_{10}(r) - 2.5 \log_{10}((1-G)*\phi_1 + G*\phi_2)$

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. For Earth-based observers, the estimated dimming due to atmospheric absorption (extinction) is available as a separate, requestable quantity.

Surface brightness is the average airless visual magnitude of a square-arcsecond of the illuminated portion of the apparent disk. It is computed only if the target radius is known.

Units: MAGNITUDES & MAGNITUDES PER SQUARE ARCSECOND

'S-O-T /r' =

Sun-Observer-Target apparent SOLAR ELONGATION ANGLE seen from the observers' location at print-time.

The '/r' column provides a code indicating the targets' apparent position relative to the Sun in the observers' sky, as described below:

Case A: For an observing location on the surface of a rotating body, that body rotational sense is considered:

/T indicates target TRAILS Sun (evening sky: rises and sets AFTER Sun)

/L indicates target LEADS Sun (morning sky: rises and sets BEFORE Sun)

Case B: For an observing point that does not have a rotational model (such as a spacecraft), the "leading" and "trailing" condition is defined by the observers' heliocentric ORBITAL motion:

* If continuing in the observers' current direction of heliocentric motion would encounter the targets' 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 targets', the target TRAILS the Sun.

Two other codes can be output:

/* indicates observer is Sun-centered (undefined)

/? Target is aligned with Sun center (no lead or trail)

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 would be defined along the equator of a spherical coordinate system.

Units: DEGREES

'Cnst' =

Constellation ID; the 3-letter abbreviation for the name of the constellation containing the target centers' astrometric position, as defined by IAU (1930) boundary delineation. See documentation for list of abbreviations.

Computations by ...

Solar System Dynamics Group, Horizons On-Line Ephemeris System

4800 Oak Grove Drive, Jet Propulsion Laboratory - Pasadena, CA 91109 USA

Information : <https://ssd.jpl.nasa.gov/>

Documentation: https://ssd.jpl.nasa.gov/?horizons_doc

Connect : <https://ssd.jpl.nasa.gov/?horizons> (browser)

telnet ssd.jpl.nasa.gov 6775 (command-line)

e-mail command interface available

Script and CGI interfaces available

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