

* NOVA *

N. 1938 - 14 APRILE 2021

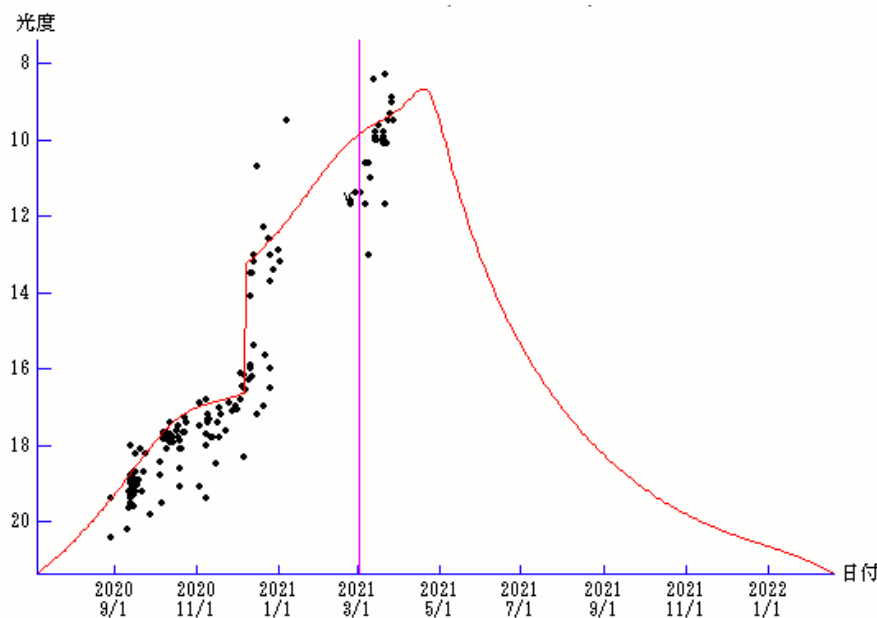
ASSOCIAZIONE ASTROFILI SEGUSINI

COMETA C/2020 R4 (ATLAS)

La cometa C/2020 R4 (ATLAS) è stata scoperta dal sistema robotico autonomo "Asteroid Terrestrial-Impact Last Alert System" (<https://atlas.fallingstar.com/home.php>) il 12 settembre del 2020, quando la sua magnitudine era prossima alla 20a.

La cometa sarà visibile al mattino e di prima sera dalle effemeridi che alleghiamo ed è stata vista raggiungere la magnitudine 8 al suo massimo avvicinamento alla Terra all'inizio di aprile c.a. quand'era osservabile al mattino dalle nostre latitudini nell'Aquila con una tinta verdina.

Le effemeridi che pubblichiamo sono per il caposaldo AAS: al crepuscolo astronomico serale avrà un'altezza sull'orizzonte di 30° con la cometa di 12a, raggiungendo poi i 73° di altezza verso il 10 maggio in prossimità del Leone, però con una magnitudine di 14.5 secondo MPC. Sarà quindi necessario un piccolo telescopio per osservarla oppure per riprenderla con una camera elettronica.



Curva di luce della cometa C/2020 R4 (ATLAS),
da Seiichi Yoshida (comet@aerith.net)

<http://aerith.net/comet/catalog/2020R4/2020R4.html>

NEWSLETTER TELEMATICA APERIODICA DELL'A.A.S. - ASSOCIAZIONE ASTROFILI SEGUSINI APS – ANNO XVI

La Nova è pubblicazione telematica aperiodica dell'A.A.S. - Associazione Astrofili Segusini APS 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

COMETA C/2020 R4 (ATLAS) - EFFEMERIDI DEL MATTINO (ORE 4 CEST)

```
*****
JPL/HORIZONS                      ATLAS (C/2020 R4)                      2021-Apr-12 05:57:34
*****
Ephemeris / WWW_USER Mon Apr 12 05:57:34 2021 Pasadena, USA           / Horizons
*****

Target body name: ATLAS (C/2020 R4)                      {source: JPL#9}
Center body name: Earth (399)                             {source: DE431}
Center-site name: Grange Observatory, Bussoleno
*****

Start time      : A.D. 2021-Apr-04 02:00:00.0000 UT
Stop  time      : A.D. 2021-May-30 02:00:00.0000 UT
Step-size       : 1440 minutes
*****
*****
Date__ (UT)__HR:MN   R.A.____ (ICRF)____ DEC Azi_ (a-appr)_Elev   T-mag   N-mag   S-O-T /r
*****
2021-Apr-04 02:00   m  19 37 36.64 +00 52 15.1 107.7111  18.0787 12.822 16.147 78.6691 /L
2021-Apr-05 02:00   19 33 15.37 +01 41 21.7 108.7620  20.0752 12.788 16.086 80.5779 /L
2021-Apr-06 02:00   19 28 33.04 +02 33 55.3 109.8667  22.1670 12.751 16.020 82.5565 /L
2021-Apr-07 02:00   19 23 27.31 +03 30 14.0 111.0348  24.3630 12.714 15.950 84.6110 /L
2021-Apr-08 02:00   19 17 55.57 +04 30 36.5 112.2783  26.6728 12.676 15.876 86.7477 /L
2021-Apr-09 02:00   19 11 54.89 +05 35 21.9 113.6120  29.1064 12.637 15.797 88.9731 /L
2021-Apr-10 02:00   19 05 22.00 +06 44 49.0 115.0551  31.6739 12.597 15.713 91.2933 /L
2021-Apr-11 02:00   18 58 13.31 +07 59 15.6 116.6317  34.3854 12.557 15.625 93.7140 /L
2021-Apr-12 02:00   18 50 24.83 +09 18 56.6 118.3737  37.2501 12.518 15.532 96.2398 /L
2021-Apr-13 02:00   18 41 52.28 +10 44 02.4 120.3234  40.2753 12.479 15.436 98.8730 /L
2021-Apr-14 02:00   18 32 31.06 +12 14 36.3 122.5378  43.4651 12.441 15.336 101.6134 /L
2021-Apr-15 02:00   18 22 16.43 +13 50 31.2 125.0961  46.8182 12.407 15.234 104.4560 /L
2021-Apr-16 02:00   18 11 03.65 +15 31 25.6 128.1095  50.3247 12.375 15.131 107.3901 /L
2021-Apr-17 02:00   17 58 48.26 +17 16 39.7 131.7385  53.9610 12.349 15.029 110.3964 /L
2021-Apr-18 02:00   17 45 26.51 +19 05 10.7 136.2189  57.6827 12.329 14.929 113.4458 /L
2021-Apr-19 02:00   17 30 55.87 +20 55 30.5 141.9011  61.4129 12.317 14.834 116.4967 /L
2021-Apr-20 02:00   17 15 15.74 +22 45 44.1 149.2981  65.0235 12.314 14.747 119.4940 /L
2021-Apr-21 02:00   m  16 58 28.11 +24 33 32.9 159.1069  68.3071 12.322 14.671 122.3690 /L
2021-Apr-22 02:00   m  16 40 38.32 +26 16 22.3 172.0489  70.9461 12.342 14.609 125.0424 /L
2021-Apr-23 02:00   m  16 21 55.49 +27 51 33.1 188.2132  72.5244 12.375 14.564 127.4288 /L
2021-Apr-24 02:00   m  16 02 32.55 +29 16 38.2 206.0453  72.6843 12.422 14.538 129.4456 /L
2021-Apr-25 02:00   m  15 42 45.74 +30 29 38.1 222.7198  71.3892 12.482 14.533 131.0236 /L
2021-Apr-26 02:00   m  15 22 53.41 +31 29 14.3 236.3252  68.9584 12.555 14.550 132.1171 /L
2021-Apr-27 02:00   m  15 03 14.46 +32 14 56.2 246.7005  65.8172 12.640 14.588 132.7113 /L
2021-Apr-28 02:00   m  14 44 06.61 +32 47 00.4 254.5163  62.3064 12.735 14.645 132.8239 /L
2021-Apr-29 02:00   m  14 25 44.95 +33 06 23.2 260.4971  58.6518 12.840 14.720 132.4997 /L
2021-Apr-30 02:00   m  14 08 21.00 +33 14 29.0 265.1926  54.9933 12.953 14.808 131.8020 /T
2021-May-01 02:00   m  13 52 02.43 +33 12 57.2 268.9806  51.4146 13.072 14.907 130.8014 /T
2021-May-02 02:00   m  13 36 53.26 +33 03 31.3 272.1159  47.9645 13.195 15.014 129.5678 /T
2021-May-03 02:00   m  13 22 54.44 +32 47 50.2 274.7710  44.6690 13.322 15.127 128.1637 /T
2021-May-04 02:00   m  13 10 04.56 +32 27 22.9 277.0654  41.5398 13.451 15.242 126.6419 /T
2021-May-05 02:00   m  12 58 20.60 +32 03 26.0 279.0832  38.5793 13.582 15.360 125.0449 /T
2021-May-06 02:00   12 47 38.49 +31 37 02.9 280.8852  35.7840 13.713 15.477 123.4056 /T
2021-May-07 02:00   12 37 53.65 +31 09 05.0 282.5160  33.1473 13.844 15.593 121.7486 /T
2021-May-08 02:00   12 29 01.33 +30 40 12.5 284.0093  30.6602 13.974 15.708 120.0916 /T
2021-May-09 02:00   12 20 56.82 +30 10 56.4 285.3905  28.3129 14.103 15.820 118.4475 /T
2021-May-10 02:00   12 13 35.65 +29 41 40.2 286.6795  26.0954 14.231 15.929 116.8249 /T
2021-May-11 02:00   12 06 53.65 +29 12 41.1 287.8919  23.9979 14.357 16.036 115.2295 /T
2021-May-12 02:00   A  12 00 46.98 +28 44 11.5 289.0403  22.0110 14.481 16.140 113.6648 /T
2021-May-13 02:00   A  11 55 12.17 +28 16 20.2 290.1345  20.1256 14.604 16.240 112.1327 /T
2021-May-14 02:00   A  11 50 06.09 +27 49 12.9 291.1827  18.3337 14.725 16.338 110.6338 /T
2021-May-15 02:00   A  11 45 25.92 +27 22 53.1 292.1918  16.6276 14.843 16.432 109.1683 /T
2021-May-16 02:00   A  11 41 09.17 +26 57 22.9 293.1673  15.0005 14.960 16.523 107.7354 /T
2021-May-17 02:00   A  11 37 13.57 +26 32 43.0 294.1140  13.4459 15.075 16.612 106.3342 /T
2021-May-18 02:00   A  11 33 37.16 +26 08 53.1 295.0357  11.9581 15.188 16.697 104.9635 /T
2021-May-19 02:00   A  11 30 18.13 +25 45 52.6 295.9359  10.5320 15.299 16.780 103.6220 /T
2021-May-20 02:00   A  11 27 14.92 +25 23 40.1 296.8175  9.1629 15.408 16.860 102.3083 /T
2021-May-21 02:00   A  11 24 26.11 +25 02 14.1 297.6831  7.8464 15.515 16.938 101.0210 /T
2021-May-22 02:00   Am 11 21 50.44 +24 41 32.9 298.5347  6.5789 15.620 17.013 99.7585 /T
2021-May-23 02:00   Am 11 19 26.77 +24 21 34.6 299.3743  5.3567 15.724 17.086 98.5196 /T
2021-May-24 02:00   Am 11 17 14.10 +24 02 17.3 300.2036  4.1768 15.825 17.156 97.3029 /T
2021-May-25 02:00   Am 11 15 11.52 +23 43 39.0 301.0240  3.0362 15.925 17.225 96.1071 /T
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*****
Date__ (UT) __HR:MN      R.A.____ (ICRF) ____DEC Azi_ (a-appr) _Elev   T-mag   N-mag   S-O-T /r
*****
2021-May-26 02:00 Am  11 13 18.23 +23 25 37.9 301.8369   1.9325  16.024  17.291  94.9310 /T
2021-May-27 02:00 Am  11 11 33.48 +23 08 12.0 302.6434   0.8632  16.121  17.355  93.7735 /T
2021-May-28 02:00 Am  11 09 56.63 +22 51 19.6 303.4445  -0.1737  16.216  17.418  92.6335 /T
2021-May-29 02:00 Am  11 08 27.08 +22 34 58.9 304.2411  -1.1801  16.309  17.479  91.5099 /T
2021-May-30 02:00 Am  11 07 04.29 +22 19 08.1 305.0342  -2.1578  16.402  17.538  90.4018 /T
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COMETA C/2020 R4 (ATLAS) - EFFEMERIDI DELLA SERA (ORE 22 CEST)

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*****
JPL/HORIZONS                      ATLAS (C/2020 R4)                      2021-Apr-12 01:41:20
*****
Ephemeris / WWW_USER Mon Apr 12 01:41:20 2021 Pasadena, USA           / Horizons
*****
Target body name: ATLAS (C/2020 R4)                                {source: JPL#9}
Center body name: Earth (399)                                       {source: DE431}
Center-site name: Grange Observatory, Bussoleno
*****
Start time      : A.D. 2021-Apr-11 20:00:00.0000 UT
Stop time       : A.D. 2021-May-30 20:00:00.0000 UT
Step-size        : 1440 minutes
*****
*****
Date__ (UT) __HR:MN      R.A.____ (ICRF) ____DEC Azi_ (a-appr) _Elev   T-mag   N-mag   S-O-T /r
*****
2021-Apr-24 20:00 Am  15 47 44.93 +30 12 31.2  75.6336  29.5821  12.465  14.533  130.6708 /L
2021-Apr-25 20:00 Am  15 27 52.27 +31 15 33.9  78.2825  34.3001  12.535  14.544  131.8887 /L
2021-Apr-26 20:00 Am  15 08 08.29 +32 04 45.4  81.0987  38.8767  12.617  14.577  132.6080 /L
2021-Apr-27 20:00 Am  14 48 51.15 +32 40 11.1  84.1142  43.2637  12.710  14.629  132.8383 /L
2021-Apr-28 20:00 A   14 30 16.71 +33 02 38.2  87.3662  47.4218  12.813  14.700  132.6186 /L
2021-Apr-29 20:00 A   14 12 37.44 +33 13 25.2  90.8987  51.3205  12.924  14.785  132.0083 /T
2021-Apr-30 20:00 A   13 56 01.97 +33 14 08.9  94.7624  54.9375  13.042  14.881  131.0773 /T
2021-May-01 20:00 A   13 40 35.20 +33 06 32.6  99.0147  58.2566  13.164  14.987  129.8961 /T
2021-May-02 20:00 A   13 26 18.77 +32 52 17.2 103.7186  61.2660  13.290  15.098  128.5296 /T
2021-May-03 20:00 A   13 13 11.83 +32 32 54.2 108.9378  63.9563  13.419  15.213  127.0331 /T
2021-May-04 20:00 A   13 01 11.66 +32 09 43.7 114.7303  66.3186  13.549  15.330  125.4517 /T
2021-May-05 20:00 A   12 50 14.44 +31 43 52.2 121.1343  68.3442  13.680  15.448  123.8205 /T
2021-May-06 20:00 A   12 40 15.66 +31 16 14.0 128.1509  70.0247  13.811  15.564  122.1661 /T
2021-May-07 20:00 N   12 31 10.58 +30 47 32.1 135.7227  71.3543  13.941  15.679  120.5078 /T
2021-May-08 20:00 N   12 22 54.49 +30 18 19.5 143.7196  72.3329  14.071  15.792  118.8596 /T
2021-May-09 20:00 N   12 15 22.83 +29 49 01.6 151.9405  72.9696  14.199  15.902  117.2310 /T
2021-May-10 20:00 N   12 08 31.36 +29 19 56.9 160.1404  73.2852  14.325  16.010  115.6285 /T
2021-May-11 20:00 N   12 02 16.14 +28 51 19.0 168.0757  73.3118  14.450  16.114  114.0558 /T
2021-May-12 20:00 N   11 56 33.63 +28 23 17.5 175.5490  73.0897  14.573  16.215  112.5154 /T
2021-May-13 20:00 Nm  11 51 20.60 +27 55 58.7 182.4344  72.6626  14.695  16.314  111.0082 /T
2021-May-14 20:00 Nm  11 46 34.16 +27 29 26.8 188.6786  72.0725  14.814  16.409  109.5343 /T
2021-May-15 20:00 Nm  11 42 11.73 +27 03 44.0 194.2849  71.3572  14.931  16.501  108.0933 /T
2021-May-16 20:00 Nm  11 38 11.01 +26 38 51.4 199.2934  70.5483  15.046  16.590  106.6843 /T
2021-May-17 20:00 Nm  11 34 29.94 +26 14 49.0 203.7621  69.6711  15.160  16.676  105.3061 /T
2021-May-18 20:00 Nm  11 31 06.70 +25 51 36.2 207.7548  68.7458  15.271  16.760  103.9574 /T
2021-May-19 20:00 Nm  11 27 59.65 +25 29 11.7 211.3337  67.7875  15.381  16.840  102.6369 /T
2021-May-20 20:00 Nm  11 25 07.33 +25 07 34.2 214.5555  66.8077  15.488  16.918  101.3430 /T
2021-May-21 20:00 Nm  11 22 28.46 +24 46 41.9 217.4702  65.8152  15.594  16.994  100.0745 /T
2021-May-22 20:00 Nm  11 20 01.87 +24 26 33.0 220.1207  64.8164  15.698  17.068  98.8298 /T
2021-May-23 20:00 Nm  11 17 46.52 +24 07 05.5 222.5436  63.8159  15.800  17.139  97.6076 /T
2021-May-24 20:00 Nm  11 15 41.48 +23 48 17.6 224.7700  62.8172  15.901  17.208  96.4067 /T
2021-May-25 20:00 Nm  11 13 45.92 +23 30 07.3 226.8259  61.8229  15.999  17.274  95.2258 /T
2021-May-26 20:00 Nm  11 11 59.08 +23 12 32.7 228.7333  60.8347  16.096  17.339  94.0637 /T
2021-May-27 20:00 N   11 10 20.30 +22 55 32.1 230.5108  59.8538  16.192  17.402  92.9193 /T
2021-May-28 20:00 N   11 08 48.96 +22 39 03.5 232.1743  58.8811  16.286  17.463  91.7917 /T
2021-May-29 20:00 N   11 07 24.51 +22 23 05.3 233.7370  57.9171  16.379  17.523  90.6798 /T
2021-May-30 20:00 N   11 06 06.47 +22 07 36.0 235.2105  56.9622  16.470  17.581  89.5829 /T
*****

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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

'T-mag N-mag' =

Comets' apparent visual total magnitude ("T-mag") and nuclear magnitude ("N-mag") using the standard IAU model:

T-mag= M1 + 5*log10(delta) + k1*log10(r)

N-mag= M2 + 5*log10(delta) + k2*log10(r) + phcof*beta

Units: MAGNITUDES

'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

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

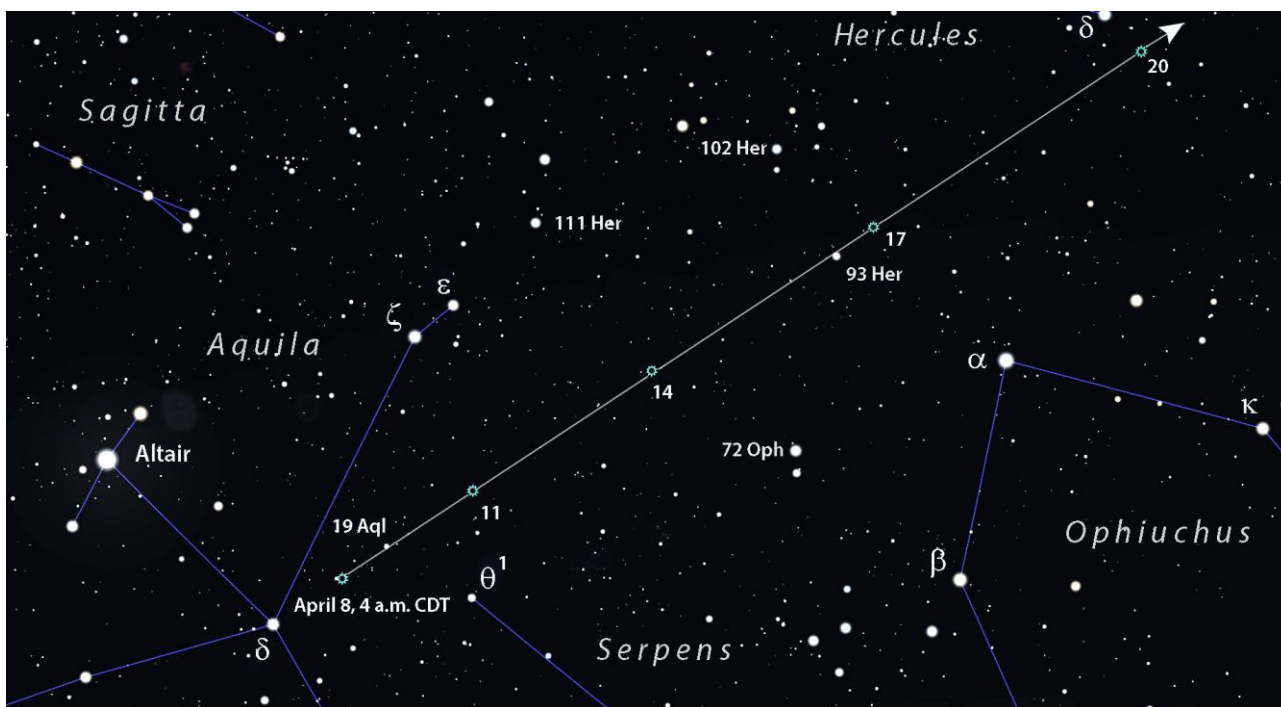
Connect : <https://ssd.jpl.nasa.gov/?horizons> (browser)

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

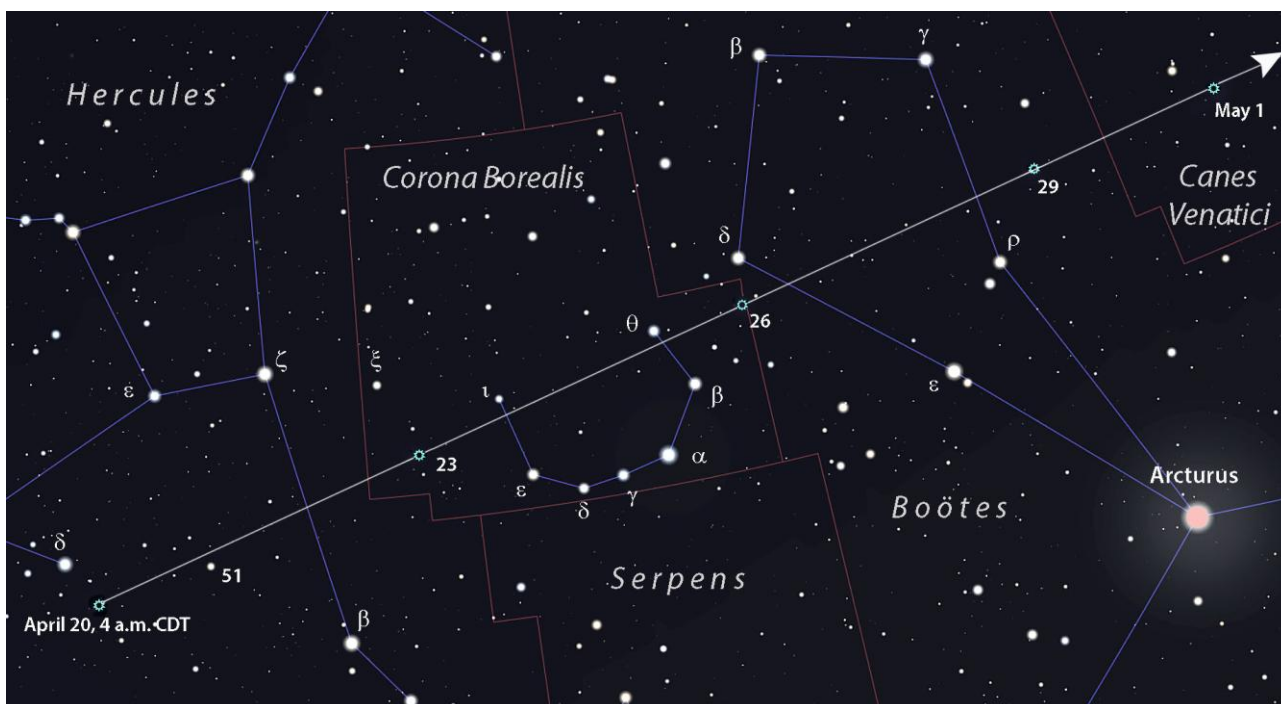
e-mail command interface available - Script and CGI interfaces available

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





Il percorso della cometa C/2020 R4 (ATLAS) a intervalli di tre giorni tra l'8 e il 20 aprile 2021 da Aquila a Ercole. Poiché la cometa si vede meglio prima dell'alba le posizioni indicate sono riferite alle ore 4 am CDT (Central Daylight Time) invece dello standard UT (CDT = UT – 5h). Sono mostrate stelle fino alla magnitudine 8. *Stellarium with additions by the author* (da Bob King, "Make the most of Comet ATLAS", *Sky & Telescope*, April 7, 2021), <https://skyandtelescope.org/astronomy-news/make-the-most-of-comet-atlas/>



Il percorso della cometa C/2020 R4 (ATLAS) dal 20 aprile al 1 maggio 2021 da Ercole a Canes Venatici. Le posizioni indicate sono riferite alle ore 4 am CDT ogni 3 giorni. Sono mostrate stelle fino alla magnitudine 7.5. *Stellarium with additions by the author* (da Bob King, "Make the most of Comet ATLAS", *Sky & Telescope*, April 7, 2021), <https://skyandtelescope.org/astronomy-news/make-the-most-of-comet-atlas/>