* NOVA *

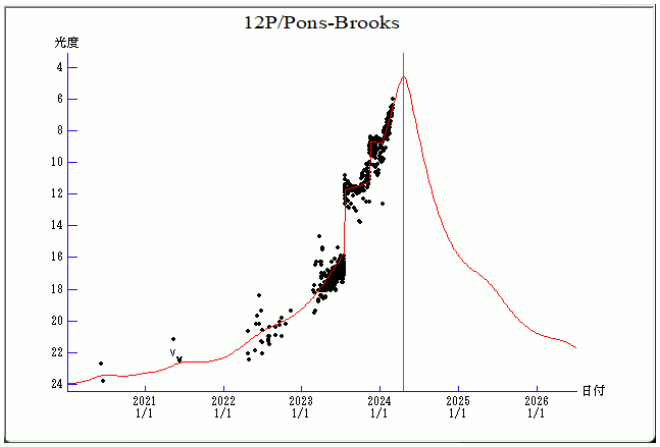
N. 2534 - 21 MARZO 2024

ASSOCIAZIONE ASTROFILI SEGUSINI

COMETA 12P/PONS-BROOKS

Il 21 aprile 2024 la cometa periodica 12P/Pons-Brooks passerà al perielio (a 0.78 unità astronomiche dal Sole, circa 117 milioni di km).
La cometa venne scoperta il 21 luglio 1812 all'Osservatorio di Marsiglia dall'astronomo francese Jean-Louis Pons e riscoperta indipendentemente il 2 settembre 1883 dall'astronomo americano William Robert Brooks. Maik Meyer e colleghi scoprirono poi che la Pons-Brooks era già stata osservata a occhio nudo nel 1457, da Paolo dal Pozzo Toscanelli, e nel 1385, da astronomi cinesi.
Appartiene alla famiglia delle comete Halley-Type: ha un periodo orbitale di 71 anni; all'afelio è a 33.6 unità astronomiche dal Sole, poco oltre l'orbita di Nettuno, e al perielio, è a 0.8 UA, un po' più lontana rispetto all'orbita di Venere. Considerando che ha un'orbita fortemente inclinata (74.2°) sul piano dell'eclittica, i passaggi ravvicinati con i pianeti sono estremamente rari.

Il 10 giugno 2020 la cometa è stata ritrovata dal Lowell Discovery Telescope, quando era di magnitudine +23 a 11.6 unità astronomiche dal Sole. Da allora la luminosità è salita in modo regolare fino al 20 luglio 2023, quando è passata improvvisamente da una magnitudine apparente di +16.6 a +11.6: un valore di luminosità ben cento volte superiore, indice di un'esplosione (outburst) avvenuta sul nucleo (v. *Nova* 2398 del 25 luglio 2023). Un'altra esplosione si è verificata il 5 ottobre 2023 e poi di nuovo a fine novembre 2023.



Curva di luce della cometa 12P/Pons-Brooks
(da Seiichi Yoshida - http://www.aerith.net/).

Si prevede che la cometa durante il mese di marzo possa passare dalla magnitudine 7.1 a 5.2.
Il 12 marzo la cometa 12P/Pons–Brooks si trovava poco meno di 2° a nord di Delta Andromedae, ed è passata poi nella costellazione dei Pesci.
La sera del 31 marzo si troverà a meno di mezzo grado da Hamal (Alfa Arietis), stella di magnitudine 2.0, anche se appena 10° sopra l'orizzonte ovest-nordovest mentre scende la vera oscurità. Nella stessa zona del cielo saranno presenti Giove, molto luminoso, e Urano.
Si prevede che la luminosità della cometa 12P/Pons–Brooks possa ancora leggermente aumentare nel mese di aprile (magnitudine 4.8 il 1° aprile e intorno a 4.1 al momento del perielio, il 21 aprile).

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www.astrofilisusa.it

L’8 aprile la cometa si troverà a 25° dal Sole, «con l’opportunità di osservarla o immaginarla», come scrive Pete Lawrence su *BBC Sky at Night,* dai luoghi dell’America del Nord interessati dall’eclisse solare totale in quel giorno.

https://ssd.jpl.nasa.gov/tools/sbdb_lookup.html#/?sstr=12P&view=OPC
https://www.skyatnightmagazine.com/advice/comet-12p-pons-brooks (con carte celesti dettagliate)
http://www.aerith.net/comet/catalog/0012P/2024.html

```
*******************************************************************************
Ephemeris / WWW_USER Tue Mar 19 07:17:07 2024 Pasadena, USA      / Horizons
*******************************************************************************
Target body name: 12P/Pons-Brooks                 {source: JPL#K242/57}
Center body name: Earth (399)                     {source: DE441}
Center-site name: Grange Observatory, Bussoleno
*******************************************************************************
Start time      : A.D. 2024-Mar-19 19:00:00.0000 UT
Stop  time      : A.D. 2024-Apr-30 19:00:00.0000 UT
Step-size       : 1440 minutes
*******************************************************************************
*******************************************************************************************************
 Date__(UT)__HR:MN     R.A._____(ICRF)_____DEC  Azi____(a-app)___Elev    T-mag   N-mag     S-O-T /r
*******************************************************************************************************
 2024-Mar-19 19:00 Am  01 12 58.49 +29 25 52.7  292.648471  19.565086    5.957  11.989   34.7255 /T
 2024-Mar-20 19:00 Am  01 17 47.89 +28 58 22.2  292.148146  19.404560    5.882  11.939   34.1572 /T
 2024-Mar-21 19:00 Am  01 22 35.23 +28 30 08.4  291.643723  19.230483    5.809  11.889   33.5899 /T
 2024-Mar-22 19:00 Am  01 27 20.41 +28 01 12.1  291.135698  19.042628    5.736  11.840   33.0246 /T
 2024-Mar-23 19:00 Am  01 32 03.36 +27 31 33.9  290.624569  18.840793    5.664  11.791   32.4618 /T
 2024-Mar-24 19:00 Am  01 36 44.00 +27 01 14.4  290.110835  18.624803    5.593  11.743   31.9026 /T
 2024-Mar-25 19:00 Am  01 41 22.27 +26 30 14.5  289.594997  18.394509    5.523  11.696   31.3478 /T
 2024-Mar-26 19:00 A   01 45 58.10 +25 58 34.9  289.077552  18.149792    5.453  11.649   30.7982 /T
 2024-Mar-27 19:00 A   01 50 31.44 +25 26 16.5  288.558995  17.890559    5.385  11.603   30.2550 /T
 2024-Mar-28 19:00 A   01 55 02.24 +24 53 20.3  288.039812  17.616748    5.318  11.558   29.7191 /T
 2024-Mar-29 19:00 N   01 59 30.47 +24 19 47.1  287.520482  17.328324    5.253  11.514   29.1917 /T
 2024-Mar-30 19:00 N   02 03 56.09 +23 45 38.0  287.001474  17.025281    5.189  11.472   28.6741 /T
 2024-Mar-31 19:00 N   02 08 19.06 +23 10 54.1  286.483244  16.707643    5.127  11.430   28.1673 /T
 2024-Apr-01 19:00 N   02 12 39.38 +22 35 36.2  285.966230  16.375463    5.066  11.389   27.6728 /T
 2024-Apr-02 19:00 N   02 16 57.03 +21 59 45.7  285.450858  16.028822    5.007  11.350   27.1920 /T
 2024-Apr-03 19:00 N   02 21 11.99 +21 23 23.5  284.937533  15.667830    4.950  11.312   26.7263 /T
 2024-Apr-04 19:00 N   02 25 24.27 +20 46 30.9  284.426640  15.292624    4.896  11.275   26.2772 /T
 2024-Apr-05 19:00 N   02 29 33.86 +20 09 09.1  283.918547  14.903369    4.843  11.240   25.8463 /T
 2024-Apr-06 19:00 N   02 33 40.78 +19 31 19.2  283.413597  14.500257    4.793  11.207   25.4352 /T
 2024-Apr-07 19:00 N   02 37 45.04 +18 53 02.4  282.912116  14.083507    4.746  11.175   25.0456 /T
 2024-Apr-08 19:00 N   02 41 46.67 +18 14 20.0  282.414409  13.653364    4.701  11.145   24.6791 /T
 2024-Apr-09 19:00 Nm  02 45 45.67 +17 35 13.2  281.920756  13.210101    4.659  11.117   24.3375 /T
 2024-Apr-10 19:00 Nm  02 49 42.10 +16 55 43.4  281.431412  12.754016    4.620  11.091   24.0224 /T
 2024-Apr-11 19:00 Nm  02 53 35.97 +16 15 51.7  280.946605  12.285435    4.585  11.067   23.7356 /T
 2024-Apr-12 19:00 Nm  02 57 27.35 +15 35 39.4  280.466532  11.804712    4.552  11.046   23.4785 /T
 2024-Apr-13 19:00 Nm  03 01 16.27 +14 55 07.9  279.991360  11.312225    4.523  11.026   23.2528 /T
 2024-Apr-14 19:00 Nm  03 05 02.79 +14 14 18.5  279.521225  10.808381    4.497  11.008   23.0599 /T
 2024-Apr-15 19:00 Nm  03 08 46.97 +13 33 12.5  279.056231  10.293611    4.474  10.993   22.9011 /T
 2024-Apr-16 19:00 Nm  03 12 28.88 +12 51 51.3  278.596453   9.768371    4.455  10.980   22.7774 /T
 2024-Apr-17 19:00 Nm  03 16 08.59 +12 10 16.0  278.141934   9.233136    4.440  10.970   22.6900 /T
 2024-Apr-18 19:00 Nm  03 19 46.18 +11 28 28.1  277.692686   8.688403    4.428  10.962   22.6396 /T
 2024-Apr-19 19:00 Nm  03 23 21.73 +10 46 28.8  277.248692   8.134687    4.420  10.957   22.6267 /T
 2024-Apr-20 19:00 Nm  03 26 55.34 +10 04 19.4  276.809903   7.572515    4.416  10.953   22.6516 /T
 2024-Apr-21 19:00 Nm  03 30 27.08 +09 22 01.1  276.376242   7.002429    4.416  10.953   22.7146 /T
 2024-Apr-22 19:00 Nm  03 33 57.07 +08 39 35.1  275.947600   6.424983    4.419  10.955   22.8153 /T
 2024-Apr-23 19:00 Nm  03 37 25.39 +07 57 02.6  275.523841   5.840737    4.426  10.959   22.9536 /T
 2024-Apr-24 19:00 C   03 40 52.15 +07 14 24.7  275.104801   5.250257    4.437  10.966   23.1287 /T
 2024-Apr-25 19:00 C   03 44 17.47 +06 31 42.5  274.690288   4.654114    4.452  10.975   23.3399 /T
 2024-Apr-26 19:00 C   03 47 41.44 +05 48 57.0  274.280081   4.052879    4.470  10.987   23.5863 /T
 2024-Apr-27 19:00 C   03 51 04.17 +05 06 09.1  273.873938   3.447121    4.491  11.000   23.8668 /T
 2024-Apr-28 19:00 C   03 54 25.80 +04 23 19.7  273.471590   2.837404    4.516  11.016   24.1800 /T
 2024-Apr-29 19:00 C   03 57 46.41 +03 40 29.8  273.072745   2.224286    4.544  11.035   24.5246 /T
 2024-Apr-30 19:00 C   04 01 06.15 +02 57 40.1  272.677091   1.608316    4.576  11.055   24.8992 /T
*******************************************************************************************************

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 SYSTEM

Mixed calendar mode was active such that calendar dates after AD 1582-Oct-15 (if any) are in the modern Gregorian system. Dates prior to 1582-Oct-5 (if any) are in the Julian calendar system, which is automatically extended for dates prior to its adoption on 45-Jan-1 BC. The Julian calendar is useful for matching historical dates. The Gregorian calendar more accurately corresponds to the Earth's orbital motion and seasons. A "Gregorian-only" calendar mode is available if such physical events are the primary interest.

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-app)___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
General site: https://ssd.jpl.nasa.gov/
Mailing list: https://ssd.jpl.nasa.gov/email_list.html
System news : https://ssd.jpl.nasa.gov/horizons/news.html
User Guide : https://ssd.jpl.nasa.gov/horizons/manual.html
Connect : browser https://ssd.jpl.nasa.gov/horizons/app.html#/x
API https://ssd-api.jpl.nasa.gov/doc/horizons.html
command-line telnet ssd.jpl.nasa.gov 6775
e-mail/batch https://ssd.jpl.nasa.gov/ftp/ssd/hrzn_batch.txt
scripts https://ssd.jpl.nasa.gov/ftp/ssd/SCRIPTS
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