



Comet 12P/Pons-Brooks Takes Center Stage

A once (or, twice) in a lifetime visitor returns.

Comet 12P/Pons-Brooks has been exciting to watch. Famous for its unpredictable outbursts, it provided a first taste of its capriciousness this apparition when it blew its top on July 20, 2023. Overnight the distant visitor brightened a hundredfold, morphing from a 16th-magnitude glimmer into a fuzzy, 11th-magnitude dot resembling a small planetary nebula. In the nights that followed, the solar wind shaped jets of expelled material into an uncanny resemblance of the Millennium Falcon spaceship from *Star Wars*.

Others likened it to a horseshoe crab or the cartoon character Yosemite Sam. Additional major outbursts occurred on October 5th and 31st, and on November 14th. Undoubtedly, additional flares will occur before you read this.

During March this famous periodic comet comes into its own and won't have to rely on outbursts alone to vault into visibility. Like Halley's Comet, 12P/Pons-Brooks has a short orbital period and takes just 71 years to circle the Sun. However, for most of us, this spring's appearance will likely be the

first and last time we get a look. It starts the month in western Andromeda just above the Great Square of Pegasus, where it glows at a binocular-tempting 7th magnitude. Tracking southeastward, the comet reaches Aries on the 27th, when it gains an additional two magnitudes. Observers under dark, moonless skies may be able to see the comet without optical aid as a soft blur among the stars. Astroimagers will have an enticing photo opportunity when 12P saunters some 3° south of the Triangulum Galaxy, M33, from March 21st to 23rd.

One of the best times to spot the comet with your naked eye will be at month's end. On the 30th, the icy interloper is positioned just ½° northwest of 2nd-magnitude Alpha (α) Arietis, better known as Hamal. The following night it sits just a little farther southeast of the star. And in mid-April the comet passes

within 3° of Jupiter. While 12P will glow brightest at that time (possibly reaching 4th magnitude), it will also be a challenging target, hovering low in the western sky in twilight. But who knows? More outbursts are likely in the cards, adding a dash of unpredictability to forecasts.

Northern observers will lose sight of the comet in late April, but for observers in the Southern Hemisphere the comet remains in view low in the western sky well into August as it arcs from Taurus into Vela and beyond. Perihelion occurs on April 21st followed by its closest approach to Earth on June 2nd, when it's 1.5 a.u. (220 million km) distant.

Periodic comets like this can transport us back to an earlier era of astronomy, making a connection that enriches the observing experience. French astronomer Jean-Louis Pons discovered the object in July 1812, and then it was recovered by American astronomer William Brooks in September 1883. Both were prolific comet-finders — Pons still holds the record for the most visual comet discoveries at 37. Although it bears the Pons and Brooks names, records of prior appearances date back centuries. Early observers logged the comet in 1385 and 1457 and perhaps as long ago as 245.

At its most recent previous apparitions in 1883–84 and 1953–54, the comet also experienced dramatic flares. The cause of these spectacular fits may be the same as the one that powers the frequent outbursts from Comet 29P/Schwassmann-Wachmann. Rapid outgassing of carbon monoxide and carbon dioxide from the comet's core occurs when heat from the Sun fractures the overlying crust, expelling millions of tons of fresh ice and dust. The sudden release of so much material into the light of day temporarily boosts the comet's brightness, making it appear as if a bomb has exploded. The debris cloud gradually expands and fades until the next blowup recharges the coma with fresh material. To keep track of 12P and its delightfully erratic behavior, visit the Comet Chasers website at cometchasers.org/home/comet-12p-observations.***

[During "totality" of the April 8, 2024 eclipse, Comet 12P may be visible!](#)