

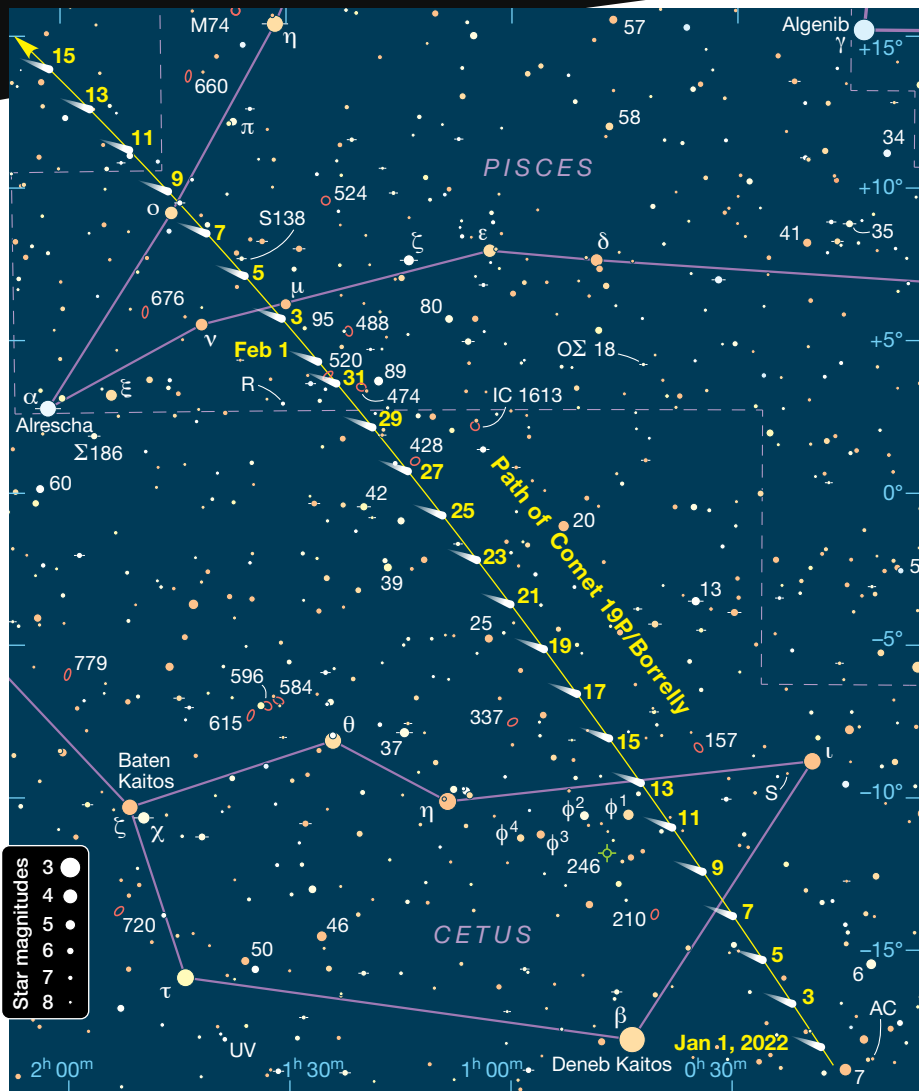
# Bowling for Borrelly

January has a bite to it, but you can bite back by checking out a periodic comet.

If you've ever gone bowling, you have a pretty good idea of what the nucleus of Comet 19P/Borrelly looks like. Up close, it's shaped like a bowling pin except that it's composed of ice and dust and stands 8 kilometers (5 miles) tall. We last got a good look at this periodic comet in our telescopes when it came to perihelion in May 2015. It does so again on February 1st.

Borrelly passed closest to Earth last December but will reach its peak brightness of around 9th magnitude in early January, dimming slightly by month's end. Southern skywatchers got their first good look at this dusty visitor last autumn, and now the rest of us can share in the icy bounty as the comet ascends from western Cetus into Pisces in the evening sky. Your best views will come at the end of twilight,

▼ Comet Borrelly displays a small coma and short tail in this photo taken during its most recent apparition, on August 12, 2015. According to comet expert Alan Hale, Borrelly's current return is the "best one it will have had in over two decades."



▲ Throughout January, Comet 19P/Borrelly will be an early evening target as it traverses Cetus on its way into Pisces. (The comet's positions are plotted for 0<sup>h</sup> UT.)

which coincidentally is the warmest part of January nights. Based on past apparitions, the comet should exhibit a moderately compact coma and a short, eastward-pointing tail. A 6-inch scope will fish it out, but an 8- or 10-inch instrument will better show Borrelly's classic cometary form.

French astronomer Alphonse Borrelly discovered the object on December 28, 1904, when it was also in Cetus and moving northward. Borrelly worked at Marseilles Observatory and discovered 18 asteroids and several more comets in his lifetime. Comet 19P/Borrelly orbits the Sun every 6.9 years and is a member of the Jupiter-family of comets — a passel of frozen leftovers with orbital periods of fewer than 20 years and molded by gravitational interactions with the giant planet.

Borrelly became the second comet (after 1P/Halley) to be imaged up close, when NASA's Deep Space 1 spacecraft flew just 2,170 kilometers from its nucleus in September 2001. Laurence Soderblom, who headed the Deep Space 1's camera team, noted at the time that the photographs recorded "rugged terrain, smooth, rolling plains, deep fractures, and very, very dark material."

The comet remains visible well into spring, though it gradually fades as it proceeds northeastward through Pisces, Aries, Taurus, and Auriga. On the evening of January 10th, Borrelly sweeps 2.3° northwest of the 10.9-magnitude planetary nebula NGC 246, also known as the Skull Nebula. The Moon stays largely out of the picture from December 21st to January 6th, and again from January 19th to February 3rd. \*\*\*