

## Notable COMETS of 2020

### [2I/Borisov](#)

Although the first known interstellar comet (and second known interstellar object) already reached perihelion (Dec. 8) and closest approach (Dec. 28) in 2019, it is of such great importance for cometary science that it simply cannot be absent on this list of notable comets of 2020. The comet will remain (photographically) observable from the southern hemisphere for several months. An international observing campaign has been organized for this comet. For more information see <http://iawn.net/obscomp/Borisov/>

### [289P/Blanpain](#)

This small Jupiter-family comet was discovered independently by Jean-Jacques Blanpain and J.L. Pons in 1819, but then lost until it was eventually recovered in 2003, appearing asteroidal. A faint coma was observed in 2005, further confirming that the object was indeed the lost comet. Then in 2013, a very large outburst was observed by Pan-STARRS, when the comet was at no less than 3.9 AU from the sun. Unfortunately, because this was the first time since 1819 that the object appeared truly cometary, magnitude parameters were published that were based solely on this outburst, causing many planetarium programs to severely overestimate the comet's brightness. Throughout 2019, many people have therefore tried to observe this "bright" comet in vain. Nevertheless, on January 11, 2020 the comet will approach earth to just 0.091 AU, making this year's apparition one of the best opportunities to observe this faint object. It probably won't get as bright magnitude 15, but who knows it won't surprise us with another of its outbursts?

### [114P/Wiseman-Skiff](#)

This Jupiter-family comet reaches perihelion on January 14 at 0.86 AU from earth. Although this apparition is quite good for this object, it is not expected to become brighter than magnitude 14.

### [C/2019 K1 \(ATLAS\)](#)

Comet C/2019 K1 (ATLAS) is yet another one that will probably be faint, but is still worth keeping an eye on. The comet has an inclination of 87° (meaning its orbit is almost perpendicular to the ecliptic) and it will only be observable from the southern hemisphere. It reaches perihelion on February 12, and closest approach to earth on February 23, both at an elongation (comet-sun angle) of about 60°. Total magnitude (m1) measurements from back in May/June averaged around magnitude 16.5. There are some measurements from September that are fainter, but those are all nuclear or G-band measurements that should not be compared to total magnitudes. The comet is currently not observable within 40° from the sun. Using only the total magnitude measurements from May/June and a default slope parameter results in a very uncertain magnitude prediction of 13.5 - 14 in February. But nobody really knows how this comet is behaving now that it has come within 3 AU of the sun.

### [210P/Christensen](#)

Short-periodic comet 210P/Christensen will reach perihelion on April 7, probably around magnitude 11.5 - 12. The apparition is not very favourable though. The comet will only be observable after perihelion.

### [C/2017 T2 \(PANSTARRS\)](#)

Unless a surprise-comet shows up to steal the show, C/2017 T2 (PANSTARRS) will probably be the most observed comet of the year. Already at magnitude 9.7 at the beginning of January, it will reach perihelion on May 4 at or around magnitude 8.5, just enough for a good pair of binoculars under a dark sky. It will remain visually observable in amateur instruments well into the summer. Until August, it will be favourably positioned in the evening skies of northern hemisphere observers. Interesting DSO rendezvous occur before the end of January (Perseus double-cluster), May (M81, M82) and June (M106).

### [A/2019 U6](#)

This object was discovered on Oct 31, 2019 by the Mt. Lemmon Survey, and classified with an A/ prefix for probable comets that do not show cometary activity (yet). Just before the end of 2019 however, cometary activity *has* been observed and confirmed by yours truly, among others. At the current level of activity A/2019 U6 is expected to reach magnitude 14 at best, shortly after perihelion on June 18. If however the object would decide to become as active as an average comet (if such a thing exists) we might be looking at magnitude 12 instead.

### [2P/Encke](#)

As it does every 3.3 years, comet 2P/Encke will reach perihelion again in 2020, on June 25 to be precise. However, due to its low elongation at and before that time, it will only become observable from mid-July. Closest approach to earth will be on July 30, but it will already have faded beyond magnitude 9.5 by then. It is noteworthy that these conditions are quite similar to those of the year 1822, when the comet was first predicted to return.

### [249P/LINEAR](#)

Discovered in 2006, comet 249P/LINEAR is a bit of an odd one. Classified as an '*asteroidal near-earth JFC*', it is more like an active main-belt asteroid whose perihelion distance has been decreasing to less than 0.5 AU, causing it to (consistently) become more active for a period of about 20 days around perihelion. This year it will reach perihelion on June 29, at which time it may reach magnitude 11 or better. However, due to its proximity to the sun, this will be a very difficult object to observe. Those who want to give it a try should do so in the early mornings after July 7, when the object's elongation has increased to more than 30°.

### [115P/Maury](#)

115P/Maury is a Jupiter-family comet with a period of almost 9 years. Although it is faint, it is noteworthy because the 2020 apparition will be a very favourable one, with closest approach to earth (July 16) and perihelion (July 29) less than 2 weeks apart. The comet is expected to reach magnitude 15.5.

### [257P/Catalina](#)

257P/Catalina is another faint comet with a good 2020 apparition. The faint Jupiter-family comet will reach closest approach to earth on August 11, and perihelion on September 10. It is expected to get a bit brighter than magnitude 15.5.

### [88P/Howell](#)

88P/Howell is a Jupiter-family comet with an orbital period of about ~5.5 years. It has been well-observed during all apparitions since its discovery in 1981. For this apparition, it was already observed by PANSTARRS and the Mt. Lemon Survey back in February 2019. It will be observable from mid- and southern latitudes during the summer and autumn of 2020, reaching perihelion on September 26. Although the magnitude parameters published by the MPC produce a much fainter prediction, I expect it to reach magnitude 9 around perihelion based on observations at previous apparitions. (And Seiichi Yoshida being in agreement with a prediction is usually a good sign)

### [C/2017 Y2 \(PANSTARRS\)](#)

This distant, slowly moving comet will finally reach perihelion on November 4 at a large distance of 4.6 AU from the sun. It will be a bit brighter in July, when earth's distance to the comet is smaller. It is not expected to get brighter than magnitude 16.5 at any time though.

### [156P/Russel-LINEAR](#)

Although observed as cometary at its initial discovery in 1986, this object has appeared asteroidal ever since. The 2020 apparition is favourable, as the object will approach earth to 0.48 AU on October 23. The (cometary) magnitude parameters as published by the MPC would have it at magnitude 14.6 at that time, but it seems unlikely that it would get anywhere near this number. The object is nevertheless worthy of observation, since a close encounter with Jupiter in 2018 has reduced its perihelion distance from 1.58 AU to 1.33 AU, resulting in higher surface temperatures and possible activity around the time of perihelion, occurring on November 17.

### [11P/Temple-Swift-LINEAR](#)

A warning: The MPC has published magnitude parameters that would have this comet at magnitude 9 in November of 2020. As a result, many comet listings, planetarium programs and mobile apps will say it is, similar to what we saw in 2019 for 289P/Blanpain. Although the apparition is favourable compared to others and observations are always valuable, there is no reason to expect 11P/Temple-Swift-LINEAR will get anywhere near this brightness. During its 2014 apparition for example, it didn't get any brighter than magnitude 19!

### [C/2019 N1 \(ATLAS\)](#)

This near-parabolic Oort-cloud comet will reach perihelion on December 1<sup>st</sup> at about magnitude 11.5. However, at an elongation of just 35 degrees, this will not be a good time for observations. The comet will be best observed from the southern hemisphere, around closest approach on February 8, 2021. From the northern hemisphere, the comet is best observed in the early summer of 2020, although it will be of a fainter magnitude 13-14 at that time.

### [162P/Siding Spring](#)

This peculiar object is a minor planet with a diameter of 12-14km, that was classified as a comet based on the brief appearance of a tail in 2004, the year of its discovery, but it has appeared asteroidal ever since. The 2020 apparition of this object is quite favourable, so it will be a good opportunity to study this object, especially near its perihelion on December 7. However, the (cometary) magnitude parameters published by the MPC are very unrealistic. 162P/Siding Spring is not expected to get brighter than magnitude 15, even at closest approach on October 27.

### [141P/Machholz](#)

Shortly after periodic comet 141P/Machholz was discovered in 1994, another 4 components were also found indicating that the comet had recently broken up. Although component D was still observed in 1999, eventually only the brightest component A has remained observable. During the 2015 apparition however, yet another fragment was discovered and designated component H. The 2020 apparition of 141P/Machholz is expected to be quite a good one, with the A component reaching magnitude 11 or better at perihelion on December 15<sup>th</sup>. It will be interesting also to see whether the H component will be observable, or not. And perhaps we will be witnessing yet another breakup.

### [P/2009 Q4 \(Boattini\)](#)

Jupiter-family comet P/2009 Q4 (Boattini) has a period of 5.5 years. It was observed extensively following its discovery, eventually getting brighter than magnitude 14. It was last observed in May 2010. The 2015 apparition was very unfavourable, having the comet hiding behind the sun at all times, thus cleverly preventing recovery. But things will be different in 2020. With the dates of nearest approach (December 22) and perihelion (December 26) being just 4 days apart, this apparition will be even more favourable than that of 2009. Extrapolating from the comet's behaviour in 2009, we may expect it to reach magnitude 13.5 or better.

For up-to-date information on bright comets, see: [astro.vanbuitenen.nl/comets](http://astro.vanbuitenen.nl/comets)

For recently discovered comets, see: <http://astro.vanbuitenen.nl/newcomets>