

Why we include a preview of Halley's next apparition after our current comet show, *Comets and Discovery*

Many families attending our *Comets and Discovery* show this fall will include children who are likely to be present, as adults 48 years older than now, for the next appearance of Halley's Comet in 2061.

Why do we include a segment depicting the highlights of the 2061 apparition so far in the future? It provides parents, grandparents, and old timers including some of us in the planetarium profession an opportunity to share the experience with children and other young folks who will actually be around to view the next appearance of the storied Comet.

The case for including a preview of Halley 2061 could not be stated any more passionately than by a parent of an 8-year-old in the blog, "Dare to dream of Halley's Comet in 2061". Click the link to view:

<http://yourhub.denverpost.com/castlerock/dare-dream-halleys-comet-2061/3IOvrzHceKVLCh8jCrlFVJ-ugc>

We earnestly hope that our Digistar II demonstration depicting the appearance of the comet will help build excitement, anticipation, and appreciation of the far-off event.

On July 28, 2061 Comet Halley will be at perihelion (closest to Sun) and will shine brighter than magnitude zero, perhaps as bright as magnitude -1 .

Next day, on July 29, Comet Halley will pass closest to Earth. Although Halley in 2061 will get no closer than 0.48 a.u.*, compared to 0.42 a.u.* from Earth during the comet's previous approach on April 10, 1986, the 2061 apparition will be more impressive.

That's because when Halley passed perihelion on Feb. 9, 1986, it was on the far side of the Sun and hidden from our view. By the date of closest approach to Earth two months later on April 10, Halley had moved outside the Earth's orbit, and had faded and moved far to the south, barely above the horizon from latitude 40° N.

In 2061, Halley passes perihelion, inferior conjunction (nearly between Earth and Sun), and closest approach to Earth, all on July 28-29. In its inclined orbit, the Comet will then be north of, or "above" the plane or Earth's orbit and so will appear some 21° north of the Sun. On the nights of July 25-28, from latitude 40° N, the comet will even be seen twice each night, low in NNW to NW at dusk, and low in NE to NNE at dawn.

Since Halley is in a retrograde orbit, it will sweep very rapidly past Earth, as the two bodies move in opposite directions.

The approaching comet will brighten rapidly in the morning sky, from mag. 4 to mag. 0 or brighter from late June to late July. Then, as it departs, it will fade just as rapidly from mag. 0 to mag. 4 in the evening sky during August.

Here are some **highlights of the 2061 apparition of Halley's Comet**. Positions are for mid-U.S. at long. 90° W, lat. 40° N, in deep twilight (Sun 15° below horizon).

Comet Halley in Morning Sky, June-July 2061

June 20: Halley, 1 a.u. from Sun, near mag. 4, 7° up in ENE, just above the Pleiades.

July 4: Halley near mag. 3, 17° up in ENE, 6° left of Pleiades.

July 11: Comet Halley, mag. 2, approaching Earth at 3.6 million miles per day.

July 14: Comet Halley in gathering with old crescent Moon and Saturn.

July 16: Comet Halley at mag. 1 and highest in morning, 23° up, 30° N of E.

July 20: Comet still 21° up, within 7° lower right of Capella.

July 24: Comet, now near mag. zero, 15° up in NE, or 30° directly above Sun, gas tail pointing straight up, dust tail curving to right.

July 28: Halley last rises in dark sky, mag. between 0 and -1. Rises in twilight next two mornings. Passes perihelion later on July 28, 0.593 a.u.* (55 million miles) from Sun.

July 29: Comet Halley passes closest to Earth, at a distance of 0.477 a.u.* (44 million miles).

Comet Halley in Evening Sky, July-August 2061

July 24 or 25: Comet Halley begins to be seen in evening twilight very low in NNW. First sets in dark sky on July 27.

July 29: Comet, near mag. -0.3, about 5° up in NW in deep twilight. Earlier on same date, comet passed closest to Earth (distance 0.477 a.u.* or 44 million miles).

July 30: Comet 6° up in NW and 21° directly above Sun. Gas tail vertical and dust tail curving to right.

August 1: Comet near mag. zero, 30° N of W, 8° up, and 25° upper right of Venus.

August 3: Comet 9° up in WNW and 18° upper right of Venus.

August 5: Comet highest, 10° up, 15° N of W, and 13° upper right of Venus.

August 7: Comet some 10° up, 18° N of W, 10° upper right of Venus, and 1.5° below Beta Leonis.

August 11: Comet near mag. 1, nearly due west, 9° up and 7° upper right of Venus.

August 16: Comet Halley, faded to mag. 2, is receding from Earth by 3.5 million miles per day.

August 18: Comet in compact gathering with young crescent Moon and Venus.

August 19: Comet passes 0.054 a.u.* (5 million miles) from Venus overnight.

August 23: Comet near mag. 3, just 3° up, 7 degrees S of W, and about 1° (min. apparent dist.) upper right of Venus.

Aug. 27: Comet crosses ecliptic, descending through Earth's orbital plane, 38° E of Sun.

Aug. 30: Comet, near mag. 4, sets 8° S of W in deep twilight.

*One a.u., or astronomical unit, the mean distance from Sun to Earth, is the standard measuring unit used to express distances between objects within our solar system.

This summary of Halley's 2061 apparition is adapted from THOUGHTS ON COMET HALLEY 2061, presented by Robert C. Victor at the 2007 annual conference of the Great Lakes Planetarium Association.