



Voyager 1: Reaching One Light-Day Distance

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News Context: By November 2026, NASA's Voyager 1 is expected to become the first human-made object to reach a distance of one light-day from Earth—approximately 26 billion kilometers .

The Milestone: One light-day is the distance light travels in a single Earth day. At this range, a radio command sent from Earth takes 24 hours to reach the probe, and its response takes another 24 hours to return, making the "round-trip" communication time a full 48 hours.

- **Interstellar Mission:** Launched in 1977, Voyager 1 crossed the Heliopause (the boundary of our solar system) in 2012. It is currently traveling through the interstellar medium, studying cosmic rays and magnetic fields.
- **Wholistic Insight:** This mission demonstrates the limits of deep-space communication. As the probe's plutonium-powered generators (RTGs) continue to decay, NASA must selectively turn off instruments to keep the craft "alive" through the 2030s.