

Green comet appearing close to Earth after 50,000 years

January 25, 2023

In news— Green comet is appearing close to Earth after 50,000 years.

About the Green comet-

- The comet is **estimated to come closest to Earth around February 2**. Termed the C/2022 E3 (ZTF), the **comet was named to refer to those who first spotted it** – astronomers using the wide-field survey camera at the Zwicky Transient Facility (ZTF) in the US, in March 2022.
- NASA has said the comet could be **visible with telescopes and binoculars**, and might even be visible to the naked eye under a clear night sky.
- After approaching the sun in the middle of January, it is now moving away from it, along its own orbit.
- The orbit indicates it comes from the edge of our solar system, a distant reservoir of comets scientists call the Oort cloud.
- **The Oort cloud is thought to be a big, spherical region of outer space** enveloping our sun, consisting of innumerable small objects, such as comets and asteroids.
- NASA terms it **“the most distant region of our solar system” and “Home of the Comets”**.
- The green comet could be at a distance of 2.5 light minutes from Earth, meaning a “mere” 27 million miles.
- NASA stated that if this one continues its current trend in brightness, it’ll be easy to spot with telescopes, binoculars, and in some cases even to the unaided eye under dark skies.
- Observers in the Northern Hemisphere will find the comet in the morning sky, as it moves swiftly toward the northwest during January. It’ll become visible in the

Southern Hemisphere in early February.

- Coming under the category of long-period comets, which take more than 200 years to orbit the Sun, the green comet is not easily spotted.
- With a highly elliptical orbit, the comet will head back to the Oort cloud and make its next appearance roughly 50,000 years later.
- But given their orbits, it's not unique for comets to reappear close to Earth only after many, many years.

Reasons for its green colour-

- **Comets are frozen rocky or gas-filled objects** that are remnants of the formation of the solar system. Due to their composition, characteristics and the path they move in, they tend to leave a light "behind them".
- Here, **the comet itself is green (called the head of the comet) and emits a whitish light behind it (often called the tail of the comet).**
- Just like other bodies in space, comets also have orbits. They are sometimes pulled in close to the sun because of the sun's gravity acting on them.
- NASA explains that as they orbit near the Sun, They heat up and spew gases and dust into a glowing head that can be larger than a planet.
- The remains of dust following this burning up, from a distance, look like a trail of light to humans on Earth. Comets, therefore, have often been seen giving out blue or **whitish light, or even green.**
- **In this case, the green glow is thought to arise from the presence of diatomic carbon** – pairs of carbon atoms that are bound together – in the head of the comet. **The molecule emits green light when excited by the ultraviolet rays in solar radiation.**