Antarctic ozone hole 2026

Prelims: *Current events of national and international importance | Geography*

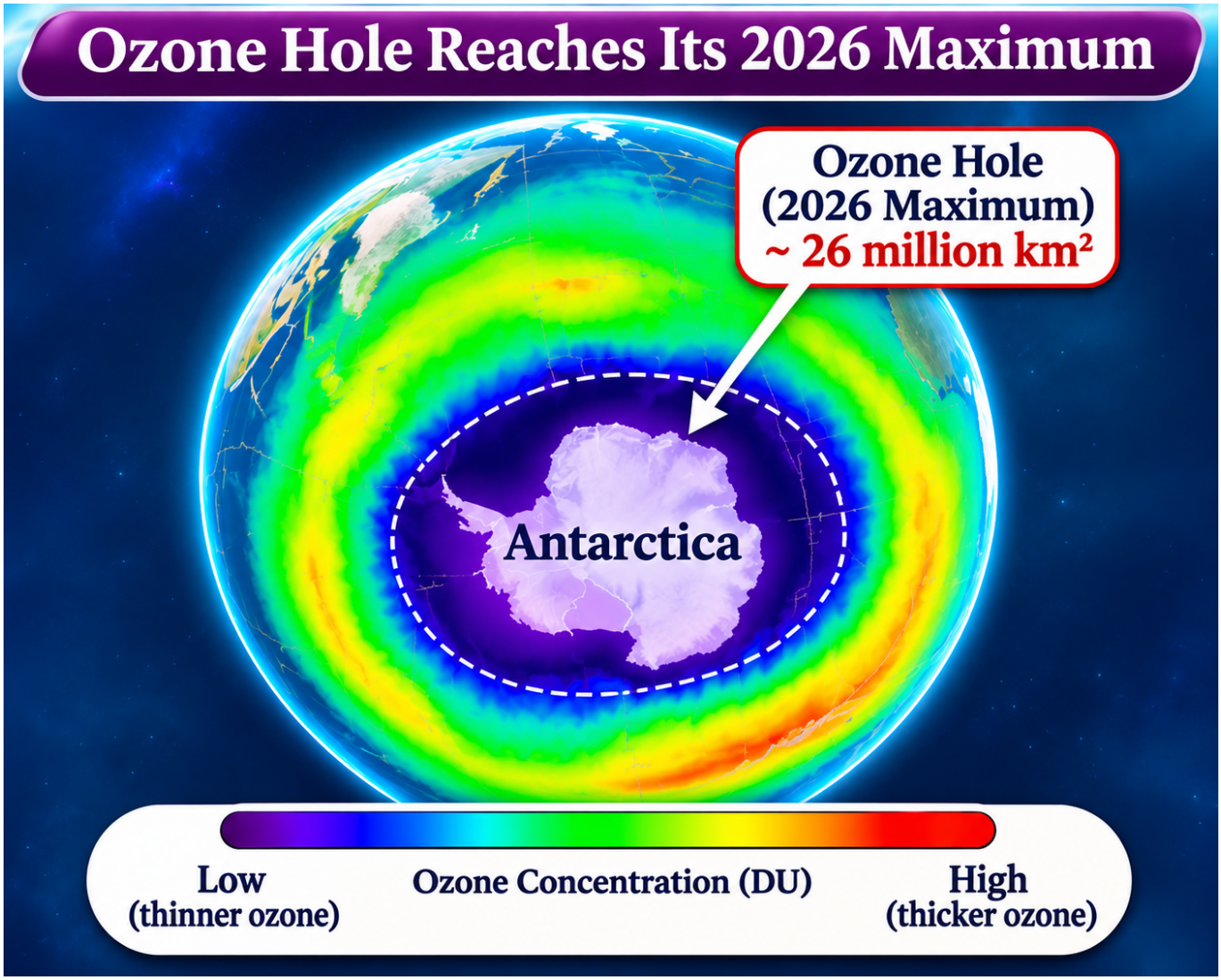
Why in News?

According to reports released by NASA and the National Oceanic and Atmospheric Administration (NOAA), the Antarctic ozone hole reached its 7th-largest size in 48 years of satellite monitoring.

- It is driven largely by meteorological conditions and an unusually powerful polar vortex, the seasonal average area reached approximately 25 million square kilometres.

Key Highlights

- **Maximum Extent-** At its peak on September 18, 2026, the ozone hole expanded to roughly **27.1 million square kilometres** nearly 90% of the largest ozone hole ever recorded in the year 2000.
- **Lowest Ozone Concentration -** NOAA scientists recorded the lowest ozone value directly overhead at the South Pole on October 17, 2026, dropping to **105 Dobson Units (DU)**.
- For context, the all-time lowest recorded value was 92 DU in October 2006.
- **Key Catalyst -** Polar Stratospheric Clouds (PSCs) which form at temperatures below -78°C and activate chlorine/bromine compounds.
- **Role of the Polar Vortex-** The unusually large extent was fueled by a powerful and stable stratospheric polar vortex.
- Weak planetary-scale weather systems in August and September kept strong vortex winds further from the South Pole, creating a larger area of frigid conditions ideal for ozone destruction.
- **Impact of the Montreal Protocol -** Despite its large physical size, scientists emphasized that the ozone hole could have been 1 to 2 million square miles larger if ozone-depleting substances (like CFCs) were as prevalent today as they were at their peak in 2000.
- Stratospheric chlorine levels have declined by about a third since their 1980s peak, proving that international regulations continue to drive long-term recovery.
- **Projected Recovery** - Expected to fully heal and return to pre-1980 levels by the 2070s.



Definition of Ozone Hole	• Any geographic region over Antarctica where total ozone drops below 220 Dobson Units (DU)
Dobson Unit (DU)	• The standard unit of measurement for ozone concentration. • One Dobson Unit refers to a layer of ozone that would be 0.01 mm thick if compressed under standard temperature and pressure at sea level (100 DU equals a thickness of 1 mm, roughly the thickness of a dime).
Montreal Protocol (1987)	• A landmark international environmental treaty designed to phase out the production and consumption of ozone-depleting substances (ODS) such as chlorofluorocarbons (CFCs) and halons.

Reference

NASA | Ozone Hole Reaches Its 2026 Maximum

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