

The **SOFIA** observatory and the confirmation of the existence of **water on the Moon**

Water on the moon may be more **abundant and accessible** than initially thought, a discovery by the SOFIA observatory that could be important for future lunar missions.

What were the SOFIA discoveries?

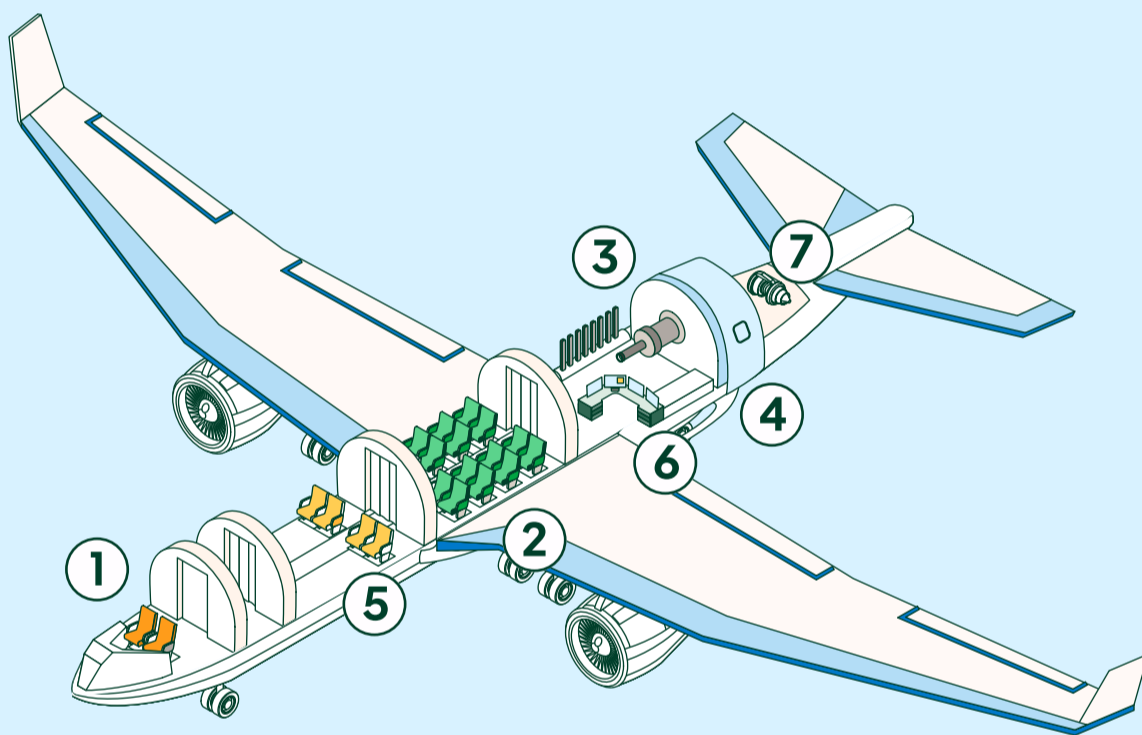


Molecular water unambiguously detected on the surface, trapped in **bubbles of lunar glass** or between **grains of impact debris**.



About **40,000 km²** of permanent shadows (or **cold traps**) could harbour hidden pockets of water in the form of ice.

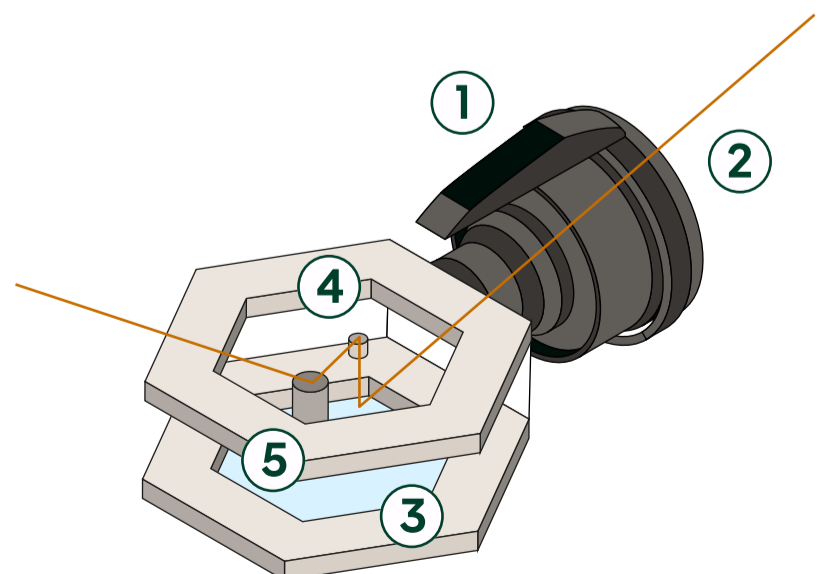
The **Stratospheric Observatory for Infrared Astronomy (SOFIA)** is a modified Boeing 747 that functions as a flying observatory:



- 1 Control cabin
- 2 Pressurised cabin
- 3 Scientific instrument (chamber)
- 4 Pressure bulkhead
- 5 Education and public outreach
- 6 Mission control and science operations
- 7 Fuselage door

The fuselage door opens to reveal a **telescope** in an unpressurised compartment and the aircraft's altitude allows infrared observation above the layer of water vapour that obscures the atmosphere.

- 1 Controls and instruments
- 2 Infrared light
- 3 Primary mirror
- 4 Secondary mirror
- 5 Tertiary mirror



Source: NASA and DLR (German Aerospace Center).