

# 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?

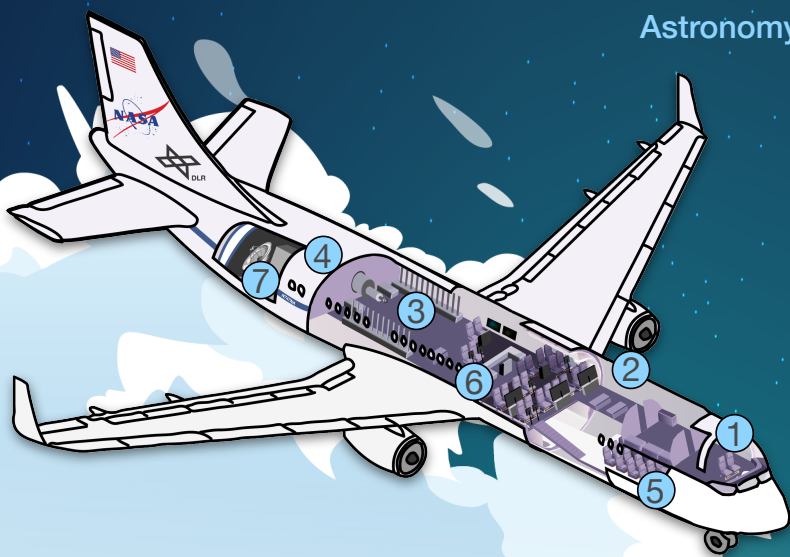
Molecular water unambiguously detected on the surface, trapped in bubbles of lunar glass or between grains of impact debris.

About 40,000 km<sup>2</sup> of permanent shadows (or cold traps) could harbour hidden pockets of water in the form of ice.



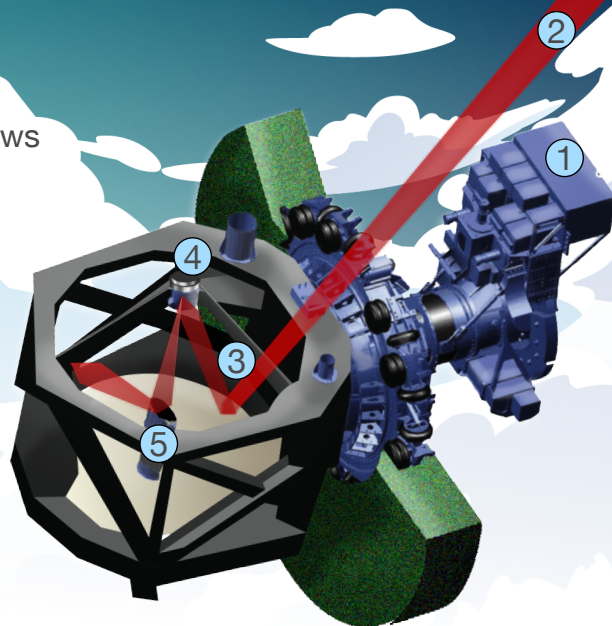
The Stratospheric Observatory for Infrared Astronomy (SOFIA) is a modified Boeing 747 that functions as a flying observatory:

- 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).