POSIDON
Pacific Oxidants, Sulfur, Ice, Dehydration, and cONvection experiment
A WB-57F high-altitude research science mission in Guam in October 2016

Science Mission Goals
• Investigate low ozone (O\textsubscript{3}) and evaluate the hypothesis of a minimum hydroxyl radical (OH) impacting very short-lived species (VSLS)
• Investigate the transport and chemistry of sulfur species
• Assess the validity of a global chemistry transport model projections of sulfur emissions on stratospheric sulfate aerosol
• Obtain measurements of the microphysical properties and water vapor content of anvil cirrus clouds

Anvil cirrus clouds regulate water vapor entering the stratosphere

http://espo.nasa.gov/POSIDON

Timing and location in Guam is ideal for the ozone/hydroxyl radical (O\textsubscript{3}/OH) study due to the deep convection, cold tropopause and low ozone
The WB-57 is a two-crewmember, high-altitude research aircraft that can reach altitudes of over 60,000 feet. 
http://jsc-aircraft-ops.jsc.nasa.gov/wb57/

**Instruments**
- DLH: Diode Laser Hygrometer - water vapor – G. Diskin (LaRC)
- Ice Habits: P. Lawson (SPEC)
- MMS: Meteorological Measurement System – P. Bui (ARC)
- NOAA CSD: – Ozone, water, sulfur dioxide, and particles– T. Thornberry (NOAA)
- PANTHER: PAN and Trace Hydrohalocarbon ExpeRiment – J. Elkins (NOAA)
- SID3: Small Ice Detector 3, 1-100 micron cloud probe – J. Ulanowski (Univ. of Hertfordshire)
- WAS: Whole Air Sampler – E. Atlas (Univ. of Miami)
- Balloonsonde – water vapor - D. Hurst – (NOAA)

**Management**
Project Science: E. Jensen (ARC) & R. Gao (NOAA)
Project Management: Marilyn Vasques, ESPO (ARC)
Aircraft Management: WB-57 Program (JSC)

This project is supported by the Atmospheric Composition Program: K. Jucks (NASA HQ)

Pilots wear a full pressure suit, similar to space shuttle astronaut suits, that weighs 31 pounds. The suits provide pressured oxygen equivalent to a sea level environment.

Helium-filled balloons carry sondes that relay data on pressure, temperature, ozone, humidity and particles. The balloon rises for 2 hours and bursts at 115,000 feet.