THE STRATOSPHERIC OBSERVATORY FOR INFRARED ASTRONOMY (SOFIA)

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The joint U.S. and German Stratospheric Observatory for Infrared Astronomy (SOFIA) is a 2.5- meter infrared airborne telescope in a Boeing 747-SP that began science flights in 2010. Flying in the stratosphere at altitudes as high as 45,000 feet, SOFIA can conduct photometric, spectroscopic, and imaging observations at wavelengths from 0.3 microns to 1.6 millimeters with an average transmission of greater than 80 percent. SOFIA is staged out of the NASA Dryden Flight Research Center aircraft operations facility at Palmdale, CA and the SOFIA Science Mission Operations Center (SSMOC) is located at NASA Ames Research Center, Moffett Field, CA. SOFIA's first-generation instrument complement includes high speed photometers, broadband imagers, moderate resolution spectrographs capable of resolving broad features due to dust and large molecules, and high resolution spectrometers suitable for kinematic studies of molecular and atomic gas lines at km/s resolution. About 100 eight to ten hour flights per year are expected by 2014, and the observatory will operate until the mid 2030's. We will review the status of the SOFIA facility, its initial complement of science instruments, and the opportunities for advanced instrumentation.