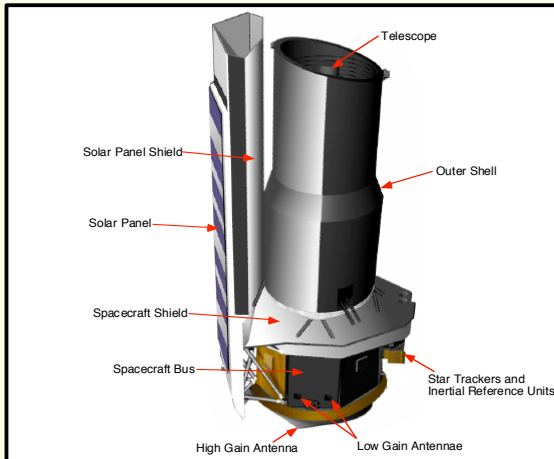
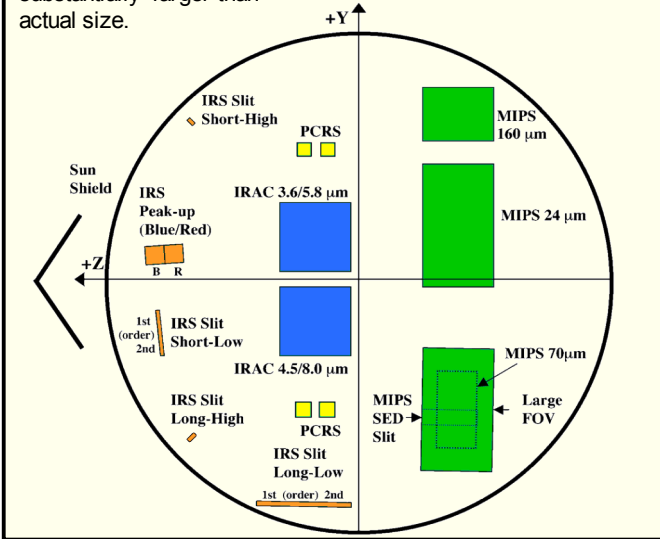




For details and updated information, see the Spitzer Observer's Manual at <http://ssc.spitzer.caltech.edu> or contact the Spitzer Helpdesk at [help@spitzer.caltech.edu](mailto:help@spitzer.caltech.edu)

Schematic of the Spitzer focal plane looking down the telescope boresight at the focal surface where the pick-off mirrors for each instrument are located. This view is mirror-flipped around both the horizontal and vertical axes for the projection of the apertures onto the sky. Because the spacecraft does not rotate about the line of sight, the solar vector (+Z) is fixed relative to the focal plane on the sky. The nominal field-of-view radius is 16 arcminutes. Widths of the IRS slits are shown substantially larger than actual size.



Basic external view of Spitzer. One of Spitzer's unique features is its "warm launch" mission design, which allows its operational lifetime goal (~5 years) to be reached with a small, light cryostat (~360 liters of superfluid helium). The observatory is ~4 m tall and ~2 m in diameter, and has a mass of ~900 kg. Spitzer is operated autonomously for periods of 12–24 hours, interspersed with short periods (30–60 minutes) of ground contact. During routine science operations, Spitzer typically executes a pre-planned week-long schedule of science observations, calibrations, and routine engineering activities, which has been uploaded in advance and stored on board the spacecraft.

Spitzer's heliocentric, Earth-trailing orbit for a 5-year mission, projected onto the ecliptic plane and viewed from ecliptic North. "Loops" occur at ~1-year intervals when Spitzer is at perihelion.

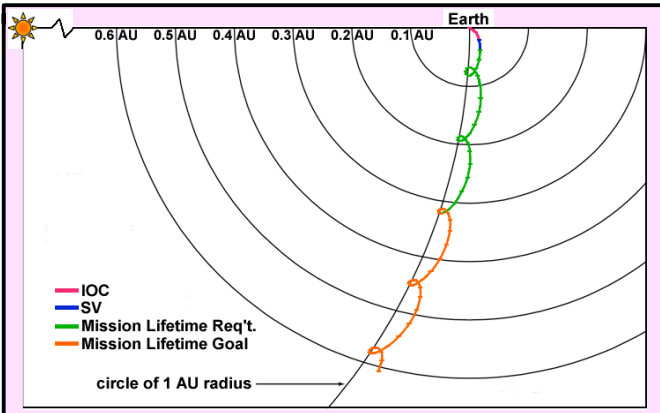
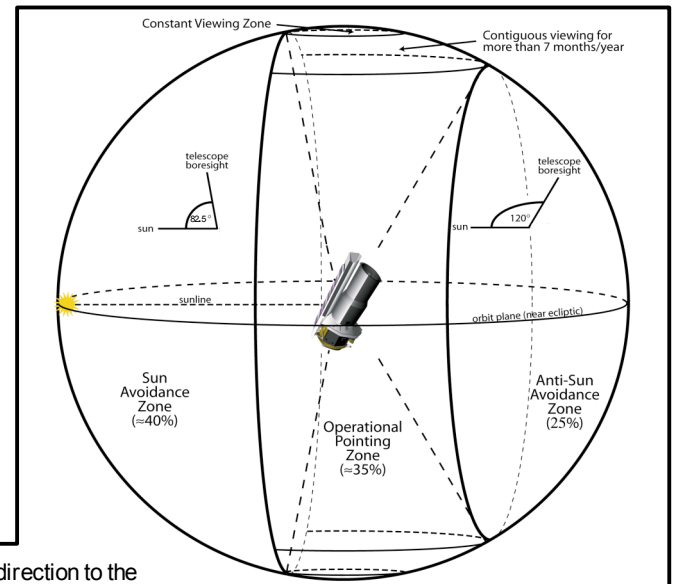


Table 1: Summary of Spitzer Characteristics

Aperture (mirror diameter)	85 cm
Orbit	Solar (Earth-trailing)
Cryogenic Lifetime	~5 years
Wavelength Coverage	3.6–160 μm (imaging) 5.2–38 μm (spectroscopy) 51–106 μm (SED)
Spectroscopic Resolving Power	64–128, 600 (IRS) 15–25 (MIPS SED)
Diffraction Limit	5.5 μm
Image Size	1.5" at 6.5 μm
Pointing Stability (1-sigma, 200 s, when using star tracker)	<0.1"
As-Commanded Pointing Accuracy (1-sigma radial)	<0.5"
Pointing Reconstruction	<1.0"
Field-of-View (imaging arrays)	~ 0.5' x 5' at 160 μm ~ 1' x 1' at 13–26 μm (IRS PUI) ~ 5' x 5' in other bands
Telescope Minimum Temp.	~5.6 K
Maximum Tracking Rate	1.0 "/sec



Spitzer's Operational Pointing Zone (OPZ) is defined by the constraint that the angle between the telescope boresight and the direction to the Sun may never be less than 82.5° or more than 120°. Some bright objects (e.g., Earth+Moon) are normally avoided to prevent degradation of observations due to direct exposure or stray light, but this is not a strict OPZ constraint. The definition of the OPZ precludes observing Mercury or Venus. A second-order effect on the OPZ is produced by the limited roll angle of Spitzer around its boresight axis, which is restricted to ±2° in order to maintain optimum position of the sun shade and solar panels relative to the Sun.