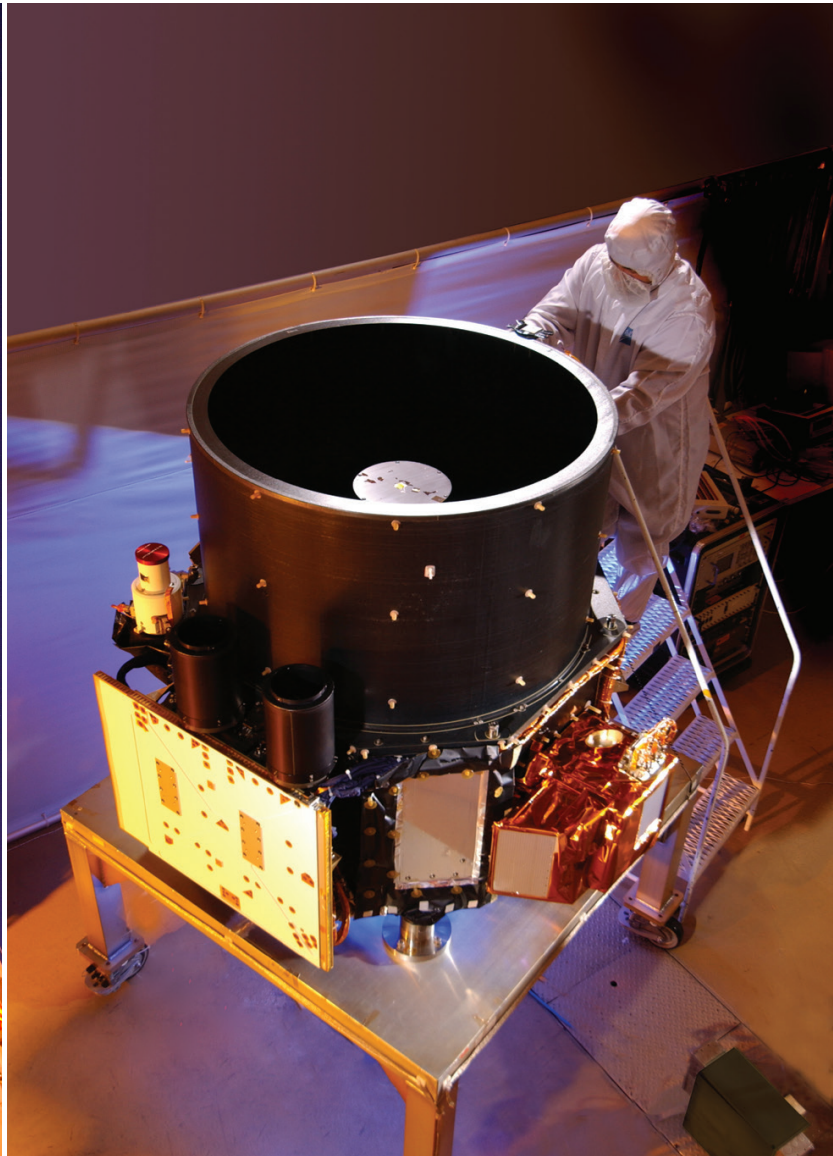
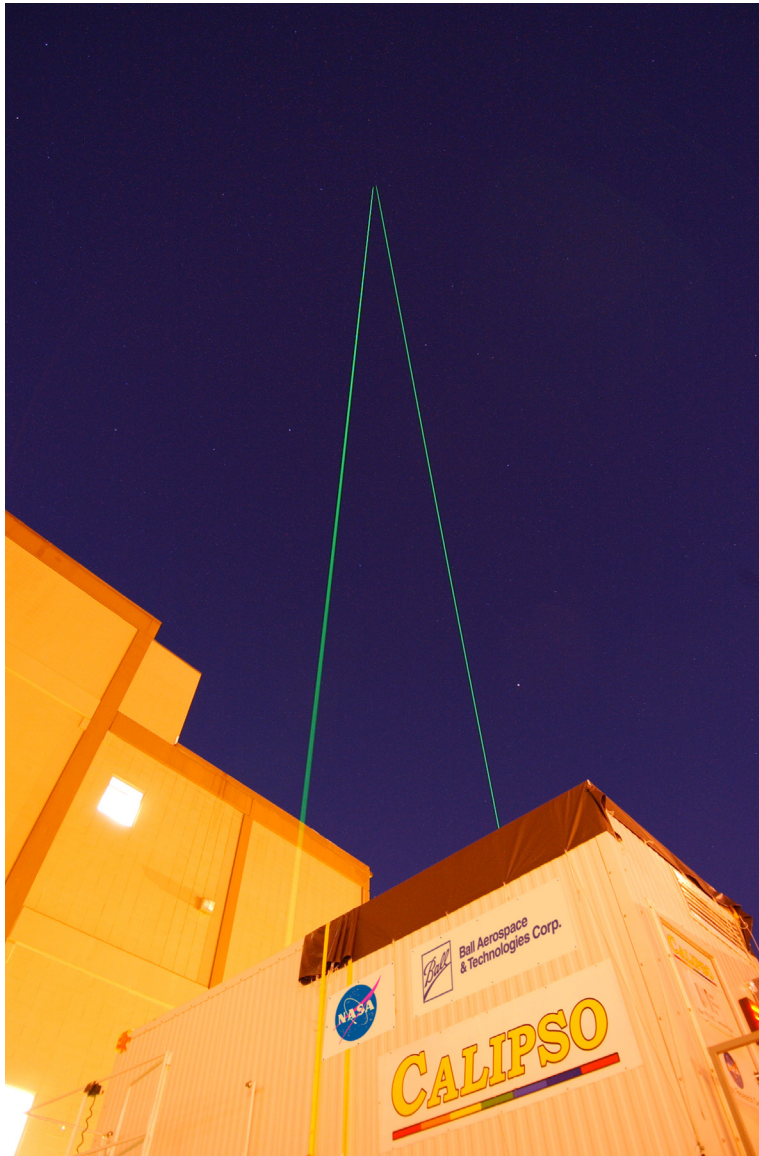


CALIPSO



GO BEYOND WITH BALL.®

The Cloud-Aerosol Lidar and Infrared Pathfinder Spaceborne Observations (CALIPSO) is expected to give the worldwide science community a better understanding of clouds and atmospheric particles, natural and man-made, which influence Earth's climate. Data from CALIPSO are expected to improve worldwide climate change predictions and allow scientists to better understand how aerosols released in the Earth's atmosphere affect our overall environment.

OVERVIEW

The primary instrument on CALIPSO is a three-channel polarization lidar (light detection and ranging instrument) that will provide unique information on clouds and aerosols. Current satellite instruments are “passive.” They observe scattered sunlight or emitted heat and try to infer the altitude and properties of aerosols and clouds. CALIPSO uses a laser to actively sense where they are located, similar to the way that radar works.

OUR ROLE

Ball Aerospace was responsible for the scientific instrument and communications suite for CALIPSO that includes the lidar and wide-field camera.

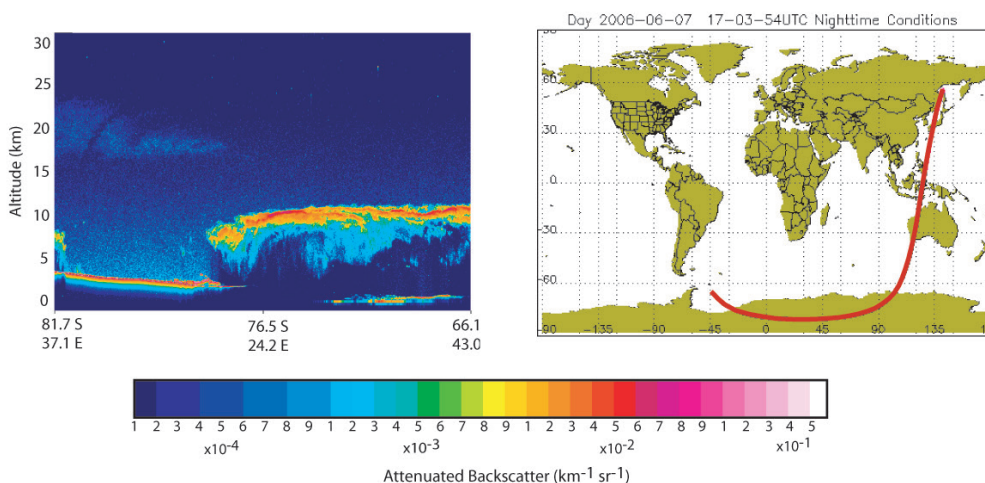
The CALIPSO lidar is a two-wavelength (532 nm and 1064 nm) polarization-sensitive lidar that provides high-resolution, vertical profiles of aerosols and clouds. The lidar instrument has three receiver channels: one measuring the 1064-nm backscattered intensity, and two channels measuring orthogonally polarized components (parallel and perpendicular to the polarization plane of the transmitted beam) of the 532-nm backscattered signal.

The Wide-Field Camera (WFC) is a modified version of the commercial, off-the-shelf Ball CT-633 star tracker camera. It is a fixed, nadir-viewing imager with a single spectral channel covering the 620-670 nm region. The WFC is operated in a push-broom mode, collecting images with 125-meter (78 mile) spatial resolution over a 61-km (37 mile) cross-track swath centered on the lidar instrument’s footprint.

Launch of the satellite took place April 2006 at Vandenberg Air Force Base in California.

QUICK FACTS

- Shared launch aboard a Delta II rocket with the Ball-built Cloudsat — a satellite that uses radar to measure cloud properties from space
- Part of a constellation of Earth-observing satellites including Aqua, PARASOL, and Aura — collectively known as the “A-Train”
- Managed by NASA Langley Research Center, Hampton, Va., for the NASA Earth System Science Pathfinder program
- A collaborative effort with the French space agency Centre National d’Etudes Spatiales, Ball, Hampton University, and the Institut Pierre Simon Laplace in France



CALIPSO “first light” lidar measurements release June 2006. Courtesy of NASA Langley Research Center.