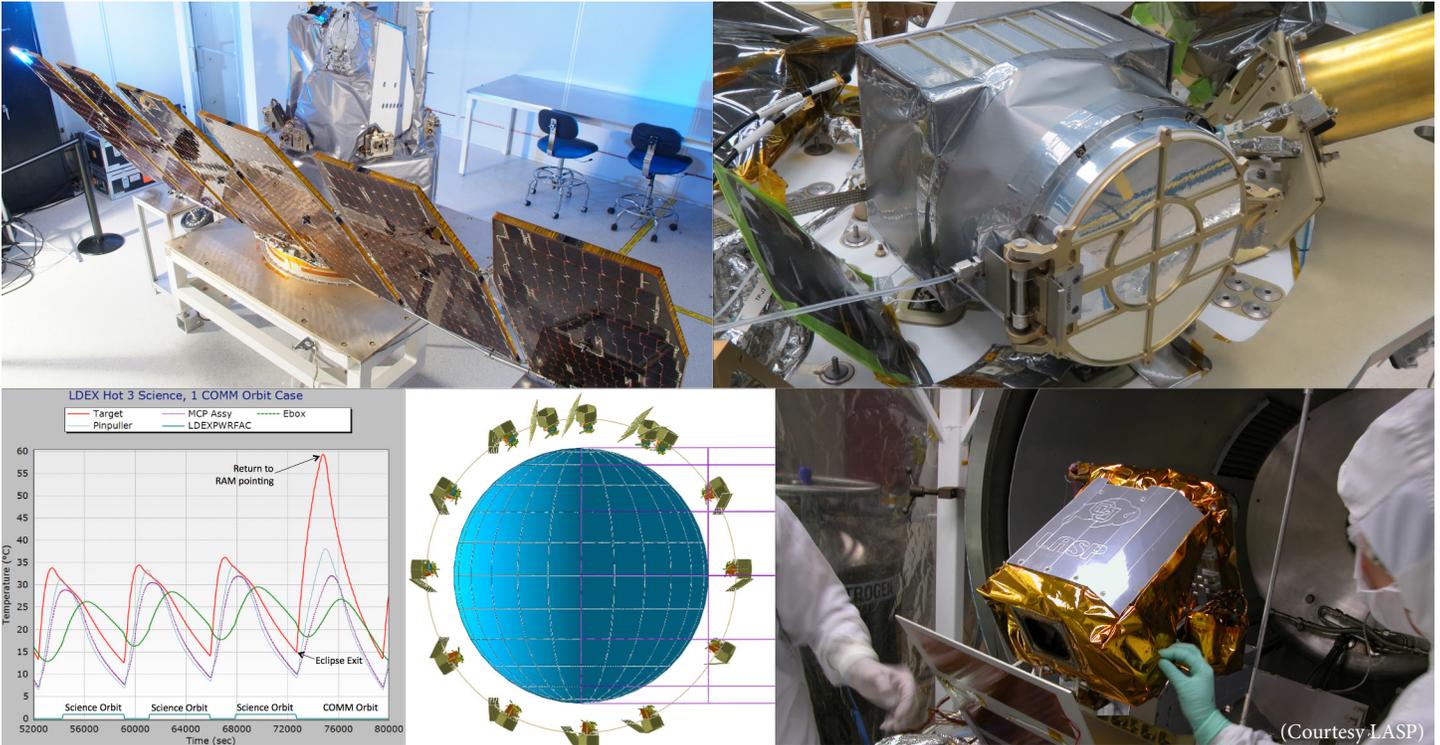


# Thermal Engineering Group



LASP's Thermal Engineering Group is involved in all phases of a project. Participation begins at the proposal and conceptual design level, and continues through the detailed design phase, including hardware procurement, integration, and thermal qualification of the component, as well as on-orbit trending and operations planning.

## Design Experience

The Thermal Engineering Group has experience with a broad range of spaceflight missions including LEO, GEO, and interplanetary environments. We have implemented solutions to a range of thermal design challenges such as:

- Cooled CCD detector systems down to 150K
- 2-axis gimballed systems with variable heat loading
- Lightweight components subject to high thermal transients
- Optical systems requiring better than 0.5°C/orbit stability

## Thermal Systems Engineering

The group has formulated general thermal design and thermal interface requirements documents for Explorer class missions. We have performed observatory-level thermal analyses using the detailed models from multiple organizations.

## Thermal Analysis

The Thermal Engineering Group has a strong analytical background and offers the following capabilities:

- Experience with observatory level, payload level, and electronics component level analysis
- Thermal Desktop and SINDA/FLUINT software with extensive import/export capabilities
- Provide quick turn-around trade study results that help expedite the design process
- STOP (Structural, Thermal, and Optical Performance) analyses of optical systems

## Thermal Balance/Vacuum Testing

Testing is performed at in-house facilities, and engineers are familiar with NASA testing standards (GEVS, Gold Rules).

Thermal engineer responsibilities include:

- Pre-test analyses
- Procedure generation
- Test conduct
- Post-test thermal model correlation
- Requirements verification

For more information about LASP thermal engineering, visit <http://lasp.colorado.edu/home/engineering/>, or contact Bret Lamprecht at 303-492-0882 or [bret.lamprecht@lasp.colorado.edu](mailto:bret.lamprecht@lasp.colorado.edu).

*The Laboratory for Atmospheric and Space Physics (LASP) combines all aspects of space exploration through our expertise in science, engineering, mission operations, and data management. As an institute at the University of Colorado Boulder, LASP includes students throughout our activities. Learn more at <http://lasp.colorado.edu>.*