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 gimbaled 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.