Instrument Integration Begins on TIMED Spacecraft

by Kristi Marren

The first spacecraft to conduct a global study of a critical region of Earth’s atmosphere is taking shape at APL. The TIMED (Thermosphere, Ionosphere, Mesosphere, Energetics and Dynamics) spacecraft will study the influences of the sun and humans on the least explored and understood region of Earth’s atmosphere – the Mesosphere and Lower Thermosphere/Ionosphere (MLTI).

On May 11, the Global Ultra-violet Imager (GUVI), one of four instruments comprising the spacecraft’s payload, was integrated onto the TIMED spacecraft. “GUVI’s measurements will establish a firm research-oriented base for our understanding of the MLTI region,” says APL’s Larry Paxton, GUVI project scientist.

“The instrument will play a vital role in understanding changes within the MLTI atmospheric region and predicting their effects on radio communications, satellite tracking, spacecraft lifetimes, reentry of piloted vehicles and degradation of spacecraft materials.”

Technology transfer played a large role in GUVI’s development. APL applied its expertise gained during a DoD project – the Air Force’s Defense Meteorological Satellite Program (DMSP).

“To date APL has built five instruments similar to GUVI for DMSP satellites,” says APL’s Tom Pardoe, then GUVI project manager. “GUVI’s design was based on an instrument we developed for the DMSP program,” says Pardoe. “This sort of technology transfer to TIMED’s basic research activity will save a lot of money for both programs. We’ll also learn things with the GUVI instrument that we’ll be able to use to improve the performance of future DMSP instruments.”

APL and the California-based Aerospace Corporation jointly manage the GUVI project. “APL’s role has been to bring the entire instrument together while working with a team split between two coasts,” says Pardoe. “We’ve brought a lot of scientific and data analysis expertise to the project.” Despite the geographic distance between the two companies, Pardoe says working with the Aerospace team has been “a smooth and easy management interface and one I would welcome again in the future.”

For the latest information about launch of the TIMED spacecraft, click here.