TIMED Spacecraft Shipped to Vandenberg for Upcoming Launch

by Kristi Marren

“This is a big moment for TIMED. We’re on our way,” shouted a smiling David Grant, APL TIMED project manager, over the roaring engines of the C-17 military cargo plane taxiing down an Andrews Air Force Base runway on May 30. With cheers from an APL team standing on the tarmac, the colossal plane lifted off, transporting the TIMED spacecraft, its ground-support equipment and key personnel to Vandenberg Air Force Base, Calif., in preparation for its upcoming launch this fall.

Although shipment of the spacecraft is a significant milestone for the mission, APL’s TIMED team has achieved several engineering accomplishments since the project’s development phase began in 1996.

One of the engineering achievements making this spacecraft different from others built by APL is the four-panel solar array system built specifically for the TIMED spacecraft by Steve Vernon, TIMED’s chief mechanical payload engineer, and a team from the Space Department. TIMED’s solar arrays – each measuring nearly 17 feet long – are the largest and most complex that APL has ever designed and integrated onto a spacecraft.

“Our solar array system design has put us in the league with other major companies, such as Loral and Boeing, in the development of large, free-deployment, multiple-panel solar array systems,” says Vernon. “Now that we’ve developed this technology, we can create larger power systems for future space missions on demand without having to rely on technology developed by other companies.”

Space Carpoools

Unlike most other APL cooperative space missions, TIMED will be launched aboard a Delta II rocket with another spacecraft – an arrangement that’s providing APL with unique and invaluable engineering experience. To launch these space carpoools, a special mechanism, known as a dual payload attach fitting, had to be developed to hold both payloads in place during launch.

“This is a relatively new thing for APL, Boeing and NASA,” says Vernon. “We’ve worked closely with NASA’s Kennedy Space Center and Boeing representatives to develop this mechanism specifically for our mission. This experience has reinforced the APL image within the space industry as a ‘can do’ organization that’s willing to work the details while keeping the bigger picture in perspective.”

With construction, testing and shipment of the spacecraft now complete, Grant says his team is moving to the next phase of activities. “Our focus now is to get the spacecraft launched and working in orbit,” he says. “We’re very excited about being the first to globally explore a portion of our atmosphere.”

The 2-year TIMED (Thermosphere, Ionosphere, Mesosphere, Energetics and Dynamics) mission will study the effects of the sun and human-induced activities on the least explored and understood portion of Earth’s atmosphere, known as the Mesosphere and Lower Thermosphere/Ionosphere (MLTI) – a gateway between Earth’s environment and space. Employing advances in remote-sensing technology, the TIMED spacecraft will be the first to conduct a global study of this region and will establish a baseline for future studies.

TIMED is the initial mission in NASA’s Solar Terrestrial Probes program, part of NASA’s initiative to lower mission costs and provide more frequent access to space to systematically study the sun-Earth system.

The TIMED mission is sponsored by NASA’s Office of Space Science in Washington, D.C., and managed by NASA’s Goddard Space Flight Center, Greenbelt, Md. APL designed, built and will operate the spacecraft and lead the project’s science effort during the mission.

To view images of the spacecraft and its journey to Vandenberg Air Force Base, click here.

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