

CYGNSS hurricane satellite mission passes key review milestone

September 19 2013

The Cyclone Global Navigation Satellite System (CYGNSS) recently passed NASA's Systems Requirements Review and Key Decision Point-B and can now move into the next phase of development.

NASA's program assessments, consisting of a Standing Review Board of independent reviewers, help ensure technical objectives, cost and schedule are in line with the mission requirements.

Weather models help forecasters accurately predict the path of hurricanes and cyclones, but are unable to reliably predict their intensity. The CYGNSS mission, which was conceived at the University of Michigan, will place a constellation of eight microsattellites into low-Earth orbit. Using GPS signals to measure ocean surface properties, moist atmospheric thermodynamics, radiation and convective dynamics, CYGNSS will determine how a tropical cyclone forms and if and by how much it will strengthen, thereby helping to advance forecasting and tracking methods.

"The hurricane forecast community is very excited about the improvements that are possible with CYGNSS," says Dr. Chris Ruf, CYGNSS principal investigator and professor of atmospheric, oceanic and space sciences at the University of Michigan, Ann Arbor. "This mission, being the first of its kind to use reflected GPS signals for Earth science, also opens the door to a host of other new applications in oceanography, hydrology and studies of the cryosphere."

Southwest Research Institute leads development and integration of the eight microsatellites.

"During the next phase, we'll be working out the details on the design of the mission leading up to the mission Preliminary Design Review," says John Scherrer, CYGNSS program manager and program director in the SwRI Space Science and Engineering Division. "We will also start to see our first engineering model hardware in preparation for defining our flight development, which is really exciting."

CYGNSS is the second award, and first award for space-based investigations, in the Earth Venture-class series of rapidly developed, cost-constrained projects for NASA's Earth Science Division in the Science Mission Directorate in Washington. The Earth Venture missions are part of NASA's Earth System Science Pathfinder program. The small, targeted science investigations complement NASA's larger research missions. NASA's Langley Research Center, Hampton, Va., manages the Earth System Science Pathfinder program.

Provided by Southwest Research Institute

Citation: CYGNSS hurricane satellite mission passes key review milestone (2013, September 19) retrieved 25 April 2024 from

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