

NASA selects low cost, high science Earth Venture space system

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NASA has selected an ocean wind study proposal led by the University of Michigan from among 19 submitted to the agency's Announcement of Opportunity for small spaceflight investigations of the Earth system. The proposed mission will make accurate measurements of ocean surface winds throughout the life cycle of tropical storms and hurricanes, which could help lead to better weather forecasting.

The competitively-selected proposal, the Cyclone Global [Navigation Satellite System](#) (CYGNSS), is led by Principal Investigator Dr. Chris Ruf of the University of Michigan, and includes partnerships with the Southwest Research Institute of Texas, Surrey Satellite Technology of Colorado and NASA Ames Research Center.

It 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. The award will be funded during the next five years for \$151.7 million. The cost includes initial development, launch, deployment and data analysis.

The mission will use a constellation of small satellites that will be carried to orbit on a single [launch vehicle](#). The CYGNSS data will enable scientists, for the first time, to probe key air-sea interaction processes that take place near the inner core of the storms, which are rapidly changing and play large roles in the genesis and intensification of hurricanes. The CYGNSS measurements also may provide information to the hurricane forecast community.

Once in orbit, CYGNSS's eight micro-satellite observatories will receive both direct and reflected signals from [Global Positioning System](#) (GPS) satellites. The direct signals pinpoint CYGNSS observatory positions, while the reflected signals respond to ocean surface roughness, from which

wind speed is retrieved.

"The CYGNSS mission is both a scientific and a programmatic advance for NASA's Earth science and applications program," said John Grunsfeld, NASA's Science Mission Directorate associate administrator in Washington. "CYGNSS will provide vital science data on tropical cyclones, and the CYGNSS team will advance our ability to obtain high-quality Earth science data through smaller, more affordable space systems."

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. In 2007, the National Research Council recommended NASA undertake these types of regularly solicited, quick-turnaround projects. The previous Earth Venture award was for five airborne investigations all of which are progressing well with initial data being collected. The first Announcement of Opportunity in the Earth Venture-Instruments series was issued earlier this year, and proposals are now under review.

Provided by NASA

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