

## **CYGNSS: Early Launch Engineering and Science Commissioning**

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The Cyclone Global Navigation Satellite System (CYGNSS) is a new NASA Earth science mission scheduled to be launched on November 21<sup>st</sup> 2016. Its main focus will be on the study of tropical cyclones (TC) and tropical convection. A constellation of eight equally spaced microsattellites will be deployed in a low inclination (35°) circular orbit. Such an orbit maximizes coverage and sampling in the tropics. This mission will use a technique based on bistatic quasi-specular reflections of the Global Positioning System (GPS) signals from the ocean surface. Each CYGNSS spacecraft is equipped with a 4-channel bistatic L-band radar receiver that measures the scattered signal using two nadir left-hand circularly polarized antennas. The receiver performs cross-correlation of the scattered signal with a replica of the direct GPS signals and generates delay-Doppler maps (DDM) of the surface reflected power. These maps represent bistatic scattering cross section images in the vicinity of the nominal specular point on the Earth's surface as a function of time lag and Doppler shift. The distribution of the power in the DDMs depends on the mean-square slope of the rough ocean surface, which, in turn, is related to the surface wind.

This presentation will summarize the early orbit engineering commissioning efforts of the eight CYGNSS satellites and early operations and a first look at the data generated by the science instrument.