CASE STUDY: Monitoring Irma with GPM

Hurricane Irma was the strongest Atlantic basin hurricane ever recorded outside the Gulf of Mexico and the Caribbean Sea. NASA GPM’s Microwave Imager (GMI) and Dual-Frequency Precipitation Radar (DPR) instruments were used to help understand the locations and intensity of heavy precipitation within Irma. Specifically, imagery from GMI was provided to NOAA’s National Hurricane Center through NASA’s Short-term Prediction Research and Transition (SPoRT) Center to understand the state of Irma on September 8, 2017 as it moved north of Cuba. GMI observations documented an eyewall replacement cycle, which impacts the intensity and development of the storm. The 3D view of Irma from September 5th revealed powerful storms in Irma’s eyewall with estimates rates of 10.8 inches per hour.

Images (top left) show rainfall analysis that was derived from GPM’s GMI data on Sept. 8 as Irma moved north of Cuba. GPM’s DPR uncloaked precipitation that was falling at a rate of more than 10.8 inches (274 mm) per hour in the solid ring of powerful storms within Irma’s eye wall (bottom).