

2015 NOAA SHOUT Science Objectives



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NOAA SHOUT 2015

Overall Goal

- Demonstrate and test prototype UAS concept of operations that could be used to mitigate the risk of diminished high impact weather forecasts and warnings in the case of polar-orbiting satellite observing gaps

Objectives

- Conduct data impact studies (track & intensity)
- Observing System Experiments (OSE) using data from UAS field missions
- Observing System Simulation Experiments (OSSE) using simulated UAS data
- Investigate processes in the TC inner core, boundary layer, and upper-level environment that impact intensity change

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Science Goals

1. Utilize adaptive aircraft sampling strategies for improving real-time TC track and intensity forecasts
 - *80 member HWRF/GFS ensemble*
2. Investigate TC upper-level warm core evolution & links to intensity change
3. Investigate TC boundary layer structure & its relationship to TC upper-level structure and intensity change
4. Investigate the TC diurnal cycle and thermodynamic/outflow variability of the TC cirrus canopy

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Science Goals (cont'd)

4. Identification of long-term UAS targeting strategies to optimally sample TCs for their entire lifecycles
5. Investigate importance of model resolution in the optimization of TC aircraft targeting
6. Identification of how effectively targeted UAS observations can compensate for the satellite data gap that is expected in 2016 and beyond
7. Investigate how effectively various existing and proposed UAS instruments and aircraft contribute to improving TC forecasts at various stages of their lifecycles

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Project Assets

- NASA/NOAA Global Hawk (AV-6);
- Numerical simulations to optimize sampling strategies & aircraft instrument platforms to improve TC forecasts (OSEs, OSSEs, ensemble-based targeted observations);
- HRD forecasting team, federal/university/ONR TCI mission scientist team, HRD aircraft track design software, real-time mission monitoring (NASA MTS), data analysis team;
- Collaborations (NOAA IFEX, ONR TCI)

SHOUT 2015 Deployment

- Atlantic Hurricane focus
- Single Global Hawk (AV-6) deployed at NASA Wallops Flight Facility
- Potential to shift to west coast if no activity
- Dry Run: 10-19 August
- 5 week deployment period
 - 25 Aug - 27 Sept
- 10 science flights
 - Tempo to support 2-3 flights/wk
 - ~24-hr duration flights
- Possible extended Science ops
 - 28 Sep – 14 Oct

