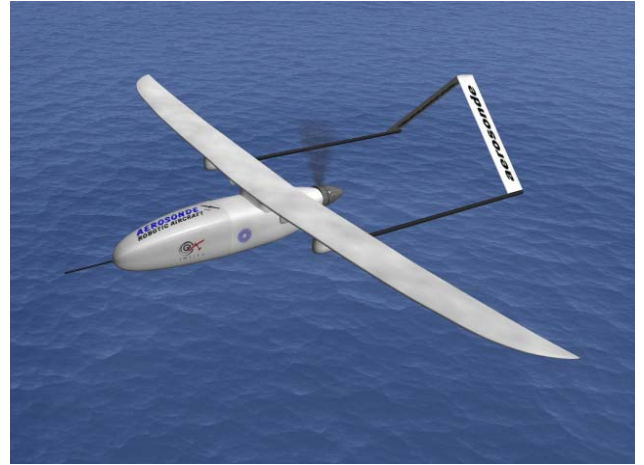


## Application of Aerosondes for CAMEX-4

Principal Investigators:

Greg Holland,  
Peter Webster  
Judith Curry

*University of Colorado  
Aerosonde Robotic Aircraft*



### Mission concept:

This project uses small long-endurance robotic aircraft (Aerosonde) in extended missions in hurricanes deemed too hazardous for manned aircraft.

The scientific objectives for Aerosonde missions during CAMEX are to:

- Document and analyze the mesoscale circulations that occur inside mesoscale convective systems embedded within the tropical cyclone.
- Provide comprehensive horizontal analysis of the boundary-layer structure in the high wind region
- Examine the impacts of the mesoscale convective systems on their larger-scale environment

### Platform description:

Aerosonde robotic aircraft has the following physical characteristics and capabilities:

- weight: 13.5 kg
- wingspan: 2.9 m
- speed: 25-32 m/s; climb: 2.5 m/s
- range: 3000 km
- duration: 30 hr
- payload: 1-2 kg with full fuel load

During CAMEX-4, the Aerosonde will measure:

- atmospheric pressure, winds, temperature and humidity
- sea surface temperature (pyrometer)
- altitude using GPS

Communications with the Aerosonde are conducted via UHF radio and low Earth-orbiting satellite and data are relayed in real time to a ground commander. Within UHF line of site (ranges < 150 km), the Aerosonde operator is in constant communication with the UAV. Outside of UHF range, the Aerosonde operator switches the communication mode to satellite communications. The update rate for monitoring the UAV downlink and sending commands is a function of LEO satellite coverage and in practice can vary from minutes to an hour.

Further information on the Aerosonde is found at [www.aerosonde.com](http://www.aerosonde.com)

### Contact Information

Judith Curry  
Department of Aerospace Engineering Sciences  
C.B. 429  
University of Colorado  
Boulder, CO 80309  
Phone: 303 492 5733  
Fax: 303 492 2825  
Email: [curryja@cloud.colorado.edu](mailto:curryja@cloud.colorado.edu)