

# US ATOMIC effort

- Observational assets
  - Ship
  - Aircraft
  - Drifting buoys and UAV/UAS
- Modeling research
  - Stratocumulus - Shallow convection
  - Data assimilation
  - Stochastic parameterization
  - Air-sea interaction
- NOAA/EMC
  - Collaborate on advances in operational models

# suggested NOAA Observational Assets\*

<b>Ship-based observations</b>			
<b>Ship</b>	<b>System</b>	<b>Group</b>	<b>PI</b>
Ron Brown	Air-sea flux	PSD	Blomquist
I	Sondes	PSD	DeSzoeke
I	Ocean mixing	UW/APL & OSU	Thomson, Edson
I	Cloud radar/microwave	U Miami/PSD	Zuidema, Fairall
I	Doppler Lidar	CSD	Brewer
I	Aerosols	PMEL	Quinn
I	X-band radar	CSU	Chandra

\*NOAA process for requesting aircraft and ships.

Have made requests for

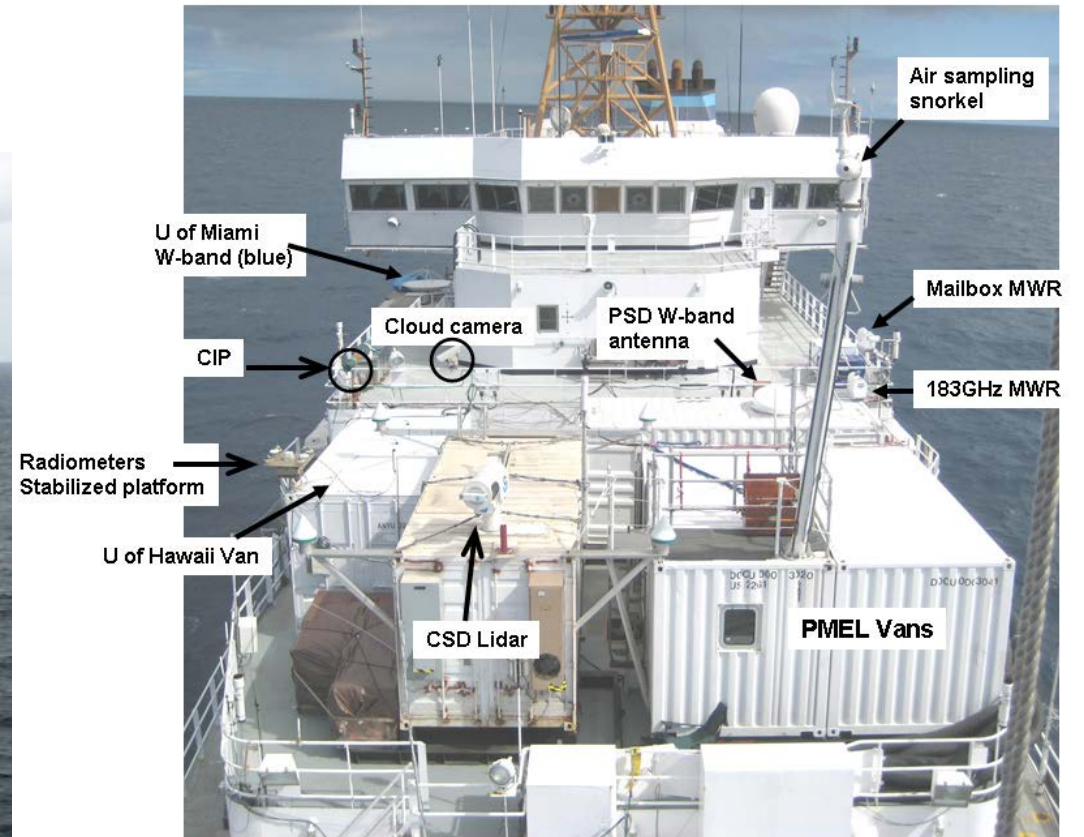
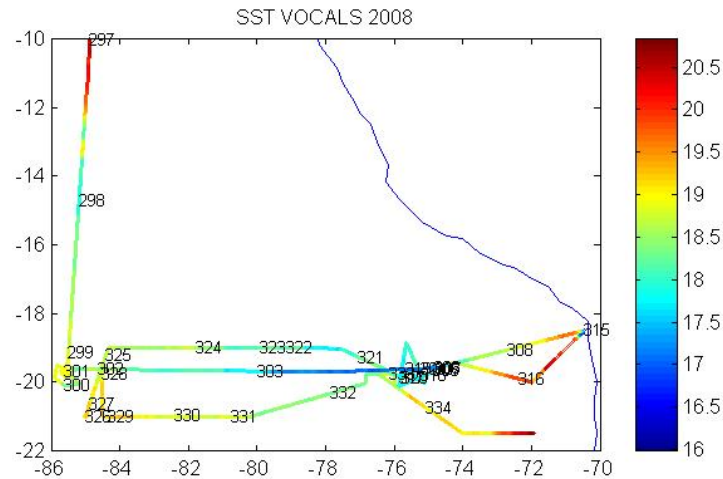
- Ronald H. Brown
- G-4 aircraft
- P-3 aircraft

groups and PI's are proposed

<b>Aircraft-based observations</b>			
<b>Aircraft</b>	<b>System</b>	<b>Group</b>	<b>PI</b>
P-3	TDR	AOML/PSD	C. Williams
P-3	AXBT	NRL/PSD	Shinoda
P-3	Cloud microphysics	PSD	Feingold
P-3	Drop Buoy	PSD	De Boer
G-4	Dropsonde	AOML/PSD	Bariteau/Barsugli
G-4	TDR	PSD	C. Williams

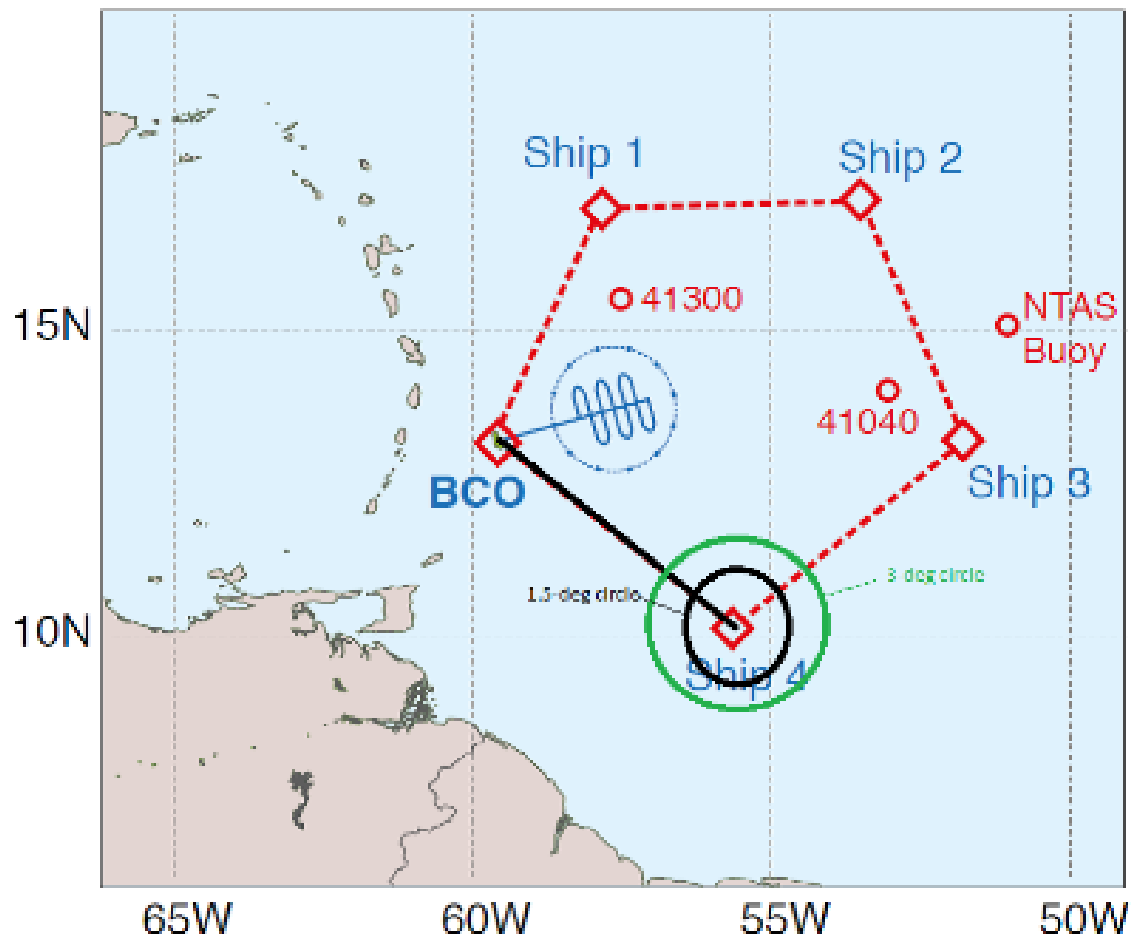
# NOAA Ship Ronald H. Brown

For this study, the Brown fielded one of the most comprehensive sets of observing systems ever assembled on a research vessel. The ship is festooned with 6 seatainer laboratories and all manner of instruments including five meteorological radars, a Doppler Lidar, four different ocean profiling systems, and a variety of chemical, aerosol, and biological measurements (Fig. 1). Some 40 scientists from have participated in two deployment legs. The science party includes representatives from three NOAA labs, 13 Universities, and three research laboratories in Chile and Peru.



# ship location SST feature

8 hr flight, 60 degrees total



<b>Instrument</b>	<b>measurement</b>	<b>sampling frequency</b>	<b>spatial range</b>
microwave radiometer	column water vapor and liquid	20 seconds	10 km profile
Doppler W-band radar	clouds, precipitation, vertical velocity	3 Hz	7 km profile
Doppler Lidar (VSHRDL)	Vertical velocity turbulence and aerosol backscatter intensity	3 Hz	8 km profile through ABL
ceilometer	cloud base height, cloud fraction	20 seconds	8 km
surface m meteorology	air temperature, humidity, pressure, SST, wind	1 minute	in situ
solar and IR radiometers	surface downwelling radiative fluxes	1 minute	in situ
surface turbulent fluxes	surface sensible heat flux, evaporation, wind stress vector	10 minutes	in situ
surface wave spectrum	surface wave altimeter time series	10 minutes	in situ
NOAA HQ-55 UAS with <i>miniFlux</i> sensor package	Ta, qa, U, fluxes momentum and heat, SST, IR sky temperature	800 Hz	3 km profile, 10 km horizontally
rawinsondes (de Szoeke)	atm. pressure, temperature, humidity, and wind	3 hour (8 per day)	20 km profile
Hyperspectral IR (Zuidema)	SST, profiles Ta and qa	10 minutes	5 km profile