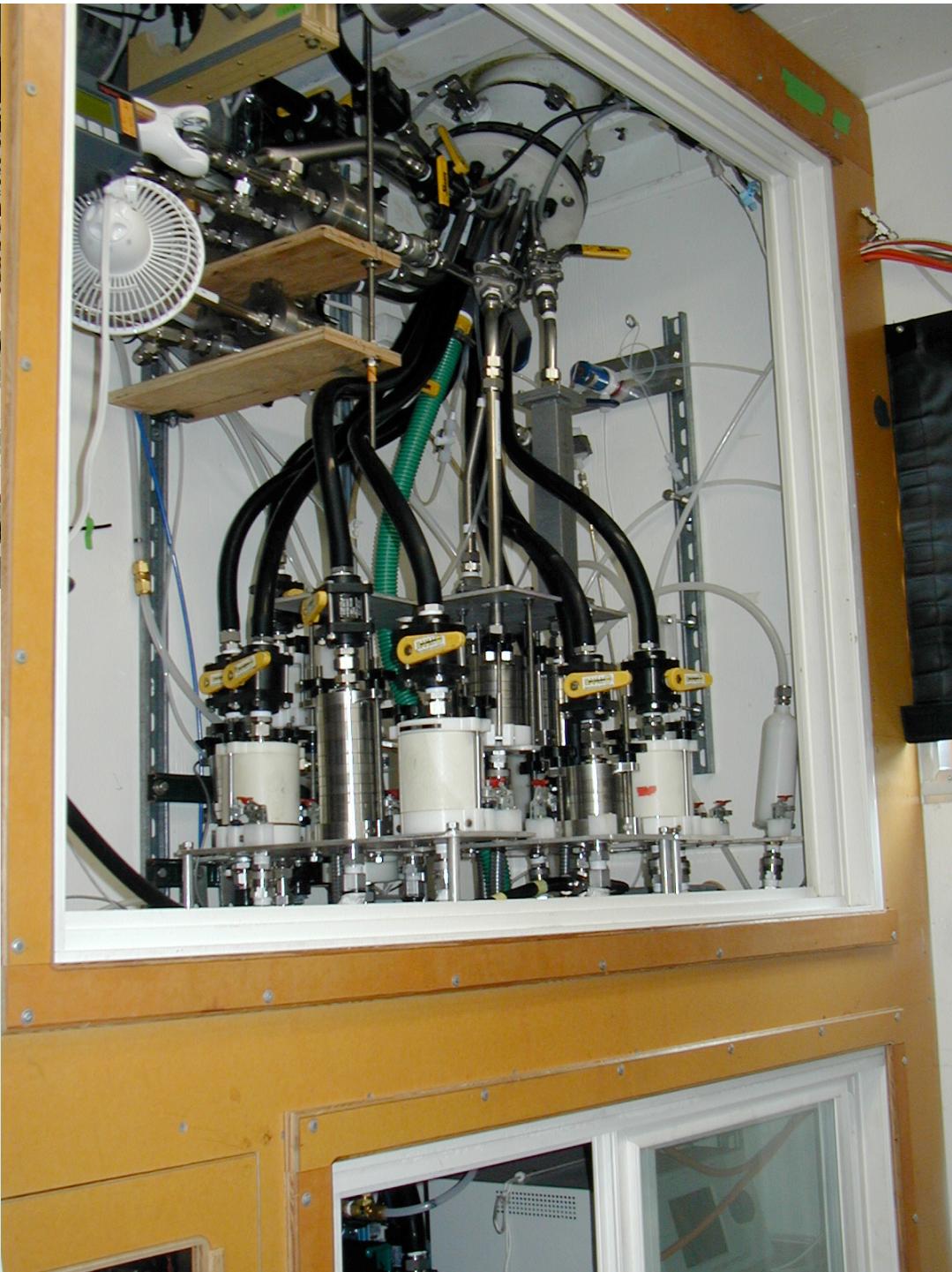
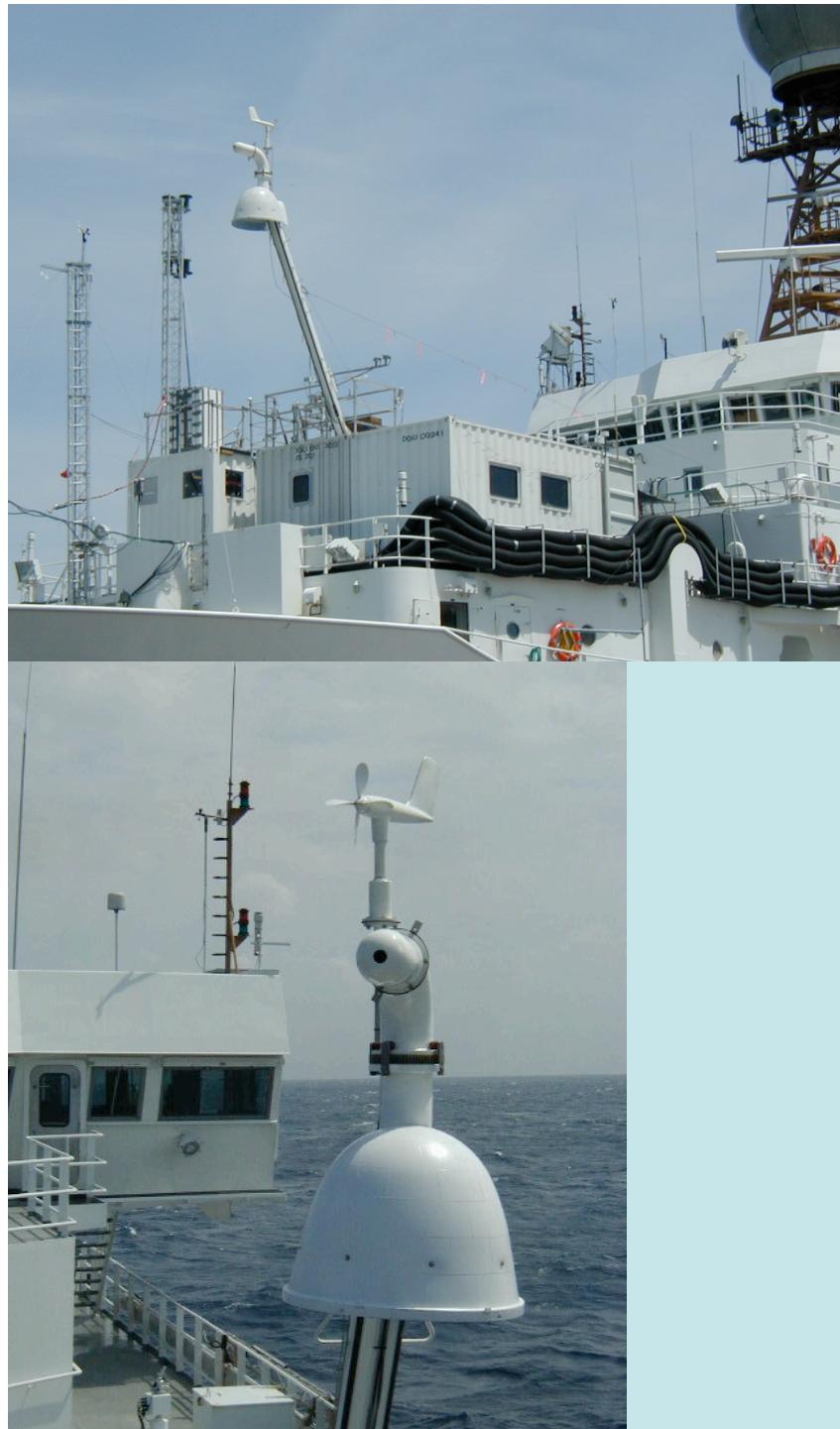


# Shipboard Measurements of Aerosol Physical, Chemical, Optical and Cloud- Nucleating Properties

Extramural Proposal to NOAA –CPO  
from  
JISAO – PMEL  
Dave Covert, Trish Quinn, Tim Bates







# Proposed Measurements

- Aerosol Chemical Properties
  - Ions, trace metals, OC/EC, total gravimetric mass using 2 stage (sub/super micron) & 7 stage impactors at 60% RH (IC, XRF, OC/EC thermal/optical) several hour time resolution for 2 stage, 12 hour for 7 stage.
  - Ions & WSOC, sub-micron, PILS-IC, PILS-TOC, 15 min time resolution.
- Aerosol Physical Properties
  - Number size distribution (DMA and APS; 20nm to 10 $\mu$ m)
  - Aerosol total number (CNC – TSI 3010, 3025, 3786)

# Proposed Measurements

- Aerosol Optical Properties
  - Total and sub-micron aerosol scattering and backscattering (450, 550, & 700 nm) at 60% RH (TSI 3563 nephelometers).
  - Total and sub-micron filter based aerosol absorption (467, 530, 660 nm) dry (two PSAPs).
  - Aerosol light scattering hygroscopic growth (two TSI 3653 nephelometers at 25 and 85% RH).
- Aerosol Cloud-Nucleating Properties
  - CCN measurements at 5 supersaturations (0.22, 0.44, 0.50, 0.65, 0.84%) (DMT)

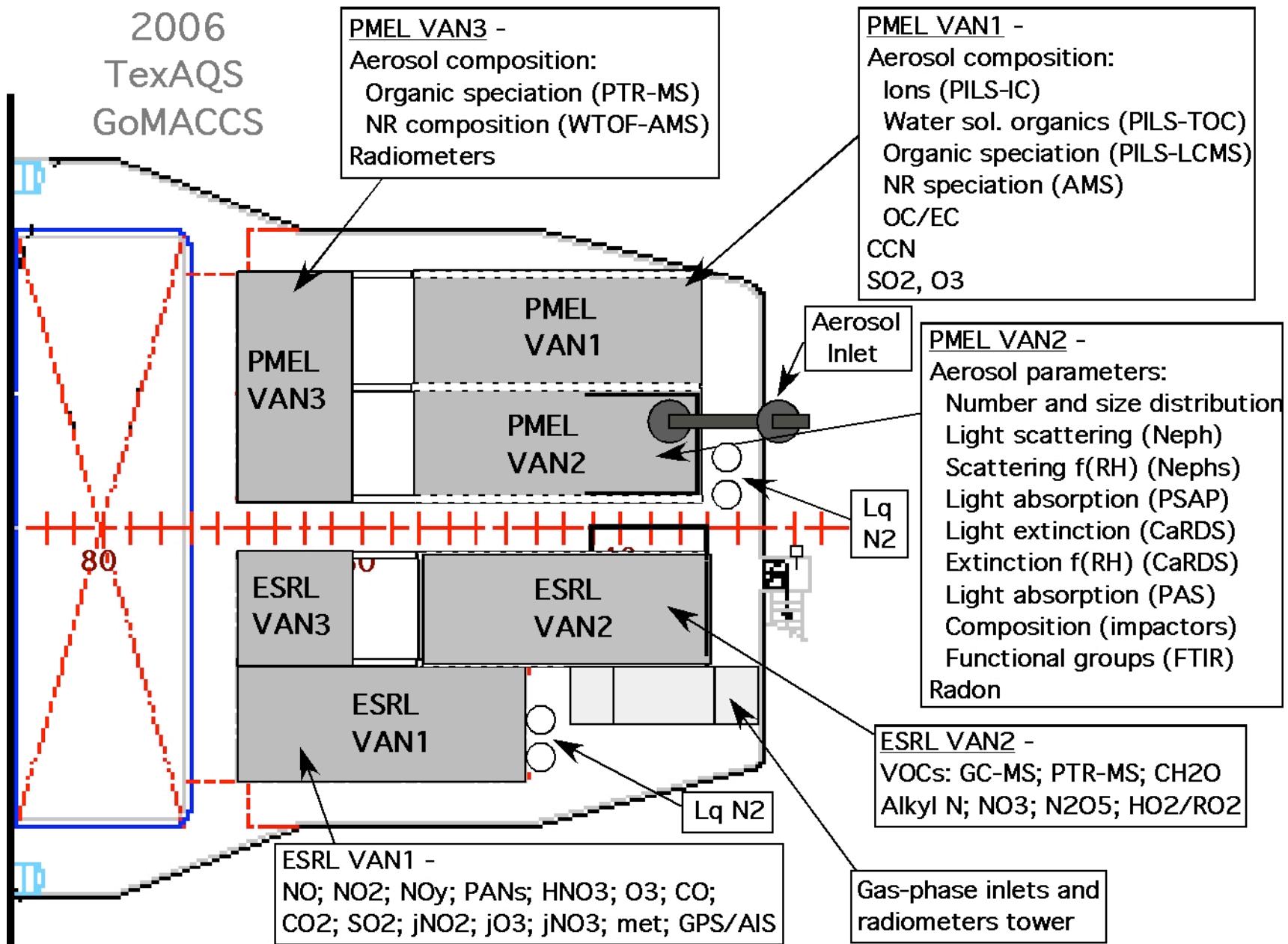
# Proposed Measurements

- Seawater
  - DMS (GC chemiluminescence detector)
- Atmospheric gases
  - Sulfur dioxide (pulsed fluorescence)
  - Ozone (UV absorbance)
  - Radon (radon gas decay)

# Issues

- Three 20' containers (two on O2 deck forward, one on O1 deck port side). Is there room for an additional container aft?
- Three berths
- Venting exhaust on O2 deck
- Loading frames

2006  
TexAQS  
GoMACCS



# Not Currently in Proposal

- AMS
- MANTA
  - 2 additional berths
  - Space for launcher, net capture, hanger van.
  - Vertical distributions of T, RH, CN, O<sub>3</sub>, aerosol size

