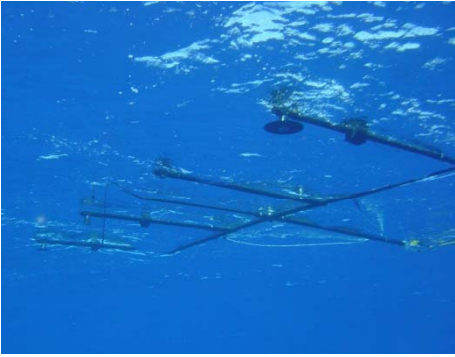


# Research Questions

## Sept 4, 2012

- Confirm Resonon stability
  - On-board LEDs (integrate Y. Zong's with 2" sphere w SMA output port)
  - Calibrate Es and compare to Mike O and modeled atmosphere
  - Repeat radiometric calibrations (every few days; use OL420 on boat?)
- Data to confirm Jim's model
  - Overhead sun will show the greatest effect (very little effect beyond 60deg)
  - Es w/ occultation to get the actual distribution at the surface (validation)
  - Sampling of the homogeneity of the water during the day (depth and lat/long)
  - Quantification of the short term radiometric fluctuations (to toss out outliers) (20 samples at a minimum)
  - Chl, IOP data will help (need to confirm pure water for calibration)
- Benefits of simultaneous sampling – finish off New Build story
  - Aka the SPIE paper (with the Mini Mo) to confirm SNR & instrument performance
  - Need these studies to set our integration times etc



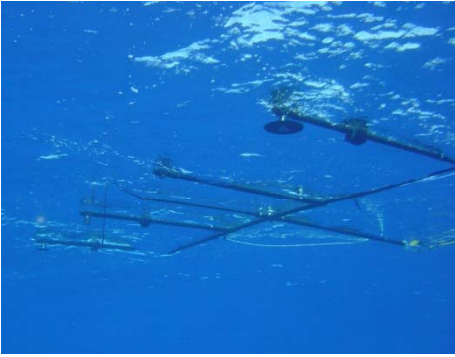
# Resonon Issues

## Sept 4, 2012

- Channel assignment
- Integration times, iris settings, etc
- LED choice (spend more time with Coolwhite or try something else?)
- Es absolute calibration (Yes)
- FOV measurements (back illuminate fiber now, can be mapped later)
- Integration time characterization
- Shutter correction (probably will not be using these really short times)
- Cross track stray light (need data sets with all channels on, then all off but one)

What has to be done Now and what can Wait?

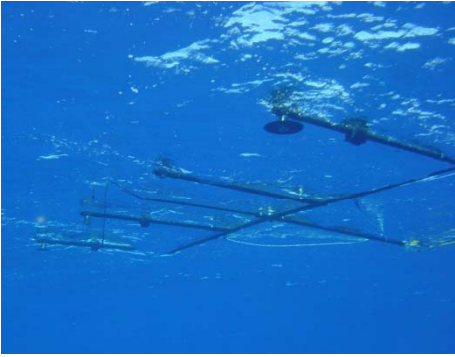
Go over tests



# Tasks at Sea

## Sept 4, 2012

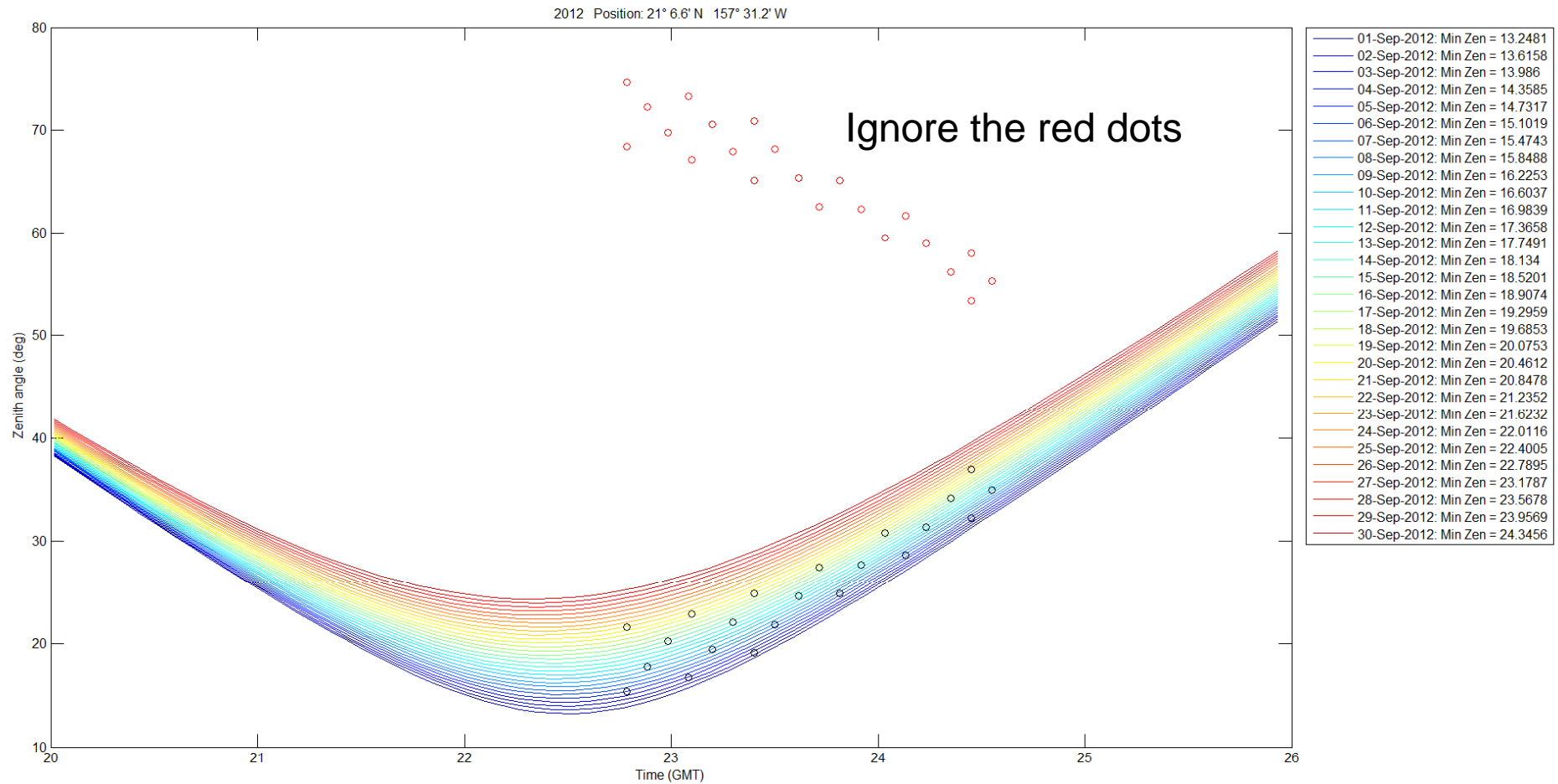
- Time sync all computers; draw up log sheets
- Transit to station; station determined by:
  - With the sun overhead (local noon +/- ~1.5h), we need clear sky, calm conditions, steady wind
  - For VIIRS matchups we need conditions to remain favorable after local noon (~22:30 to 24:30 GMT)
- On station, proposed sequence is:
  - First, profiles with the HyperPro to see how deep the mixed layer is
  - Next, profiles with the CTD (how deep depends on where the mixed layer is)
  - Set the CTD to soak
  - Deploy the fork
  - During the entire station:
    - ac-s running
    - Es collecting continuously, with frequent (XX/h) occultations of direct beam
    - Sky radiance camera (will be one-half second time series; Do we need High Res ?)
    - Mike O can be profiling off the bow (if the winds are favorable)
    - sea state photographs (will have to use iPhone or camera; several cycles of waves)
    - Water samples
    - Wind speed, direction, visibility ? (we need to look for instruments)



# Schedule & Tasks

## Sept 4, 2012

- Lab tests
  - Resonon characterization & calibration
- Dry Dock Tests
  - Color tiles (get bigger ones from Home Depot?)
  - Deploy fork or fiber jig off dock?
  - Intercompare fibers at dock (in bundle?)
- Fork Shake out Tests
  - At sea, but no disc on any arm
  - Collect Es data & LED stability data
  - Cross track tests



We have contracted for 8 sail days ( $\leq 8$  h at sea); 2 no work days, and 6 days that we can work on the boat at the dock. In the following schedule, we have drafted times. We are flexible within the boat contracted days.

# September Schedule Pt a - actual

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
2 Sun 13deg min zenith	3 Turn around BUOY. Carol, Steph, Darryl fly	4 Mike O fly.	5 Sandy gone Boat delivered	6 Mike O setting up. FOV meas. Integrate A/D and DIO	7 VIIRS overpass day)	8
9 MODIS day	10 cal 6 fork Lu tracks with OL420; remove fibers to move to boat	11 boat power problem; fix; sail at noon. No Red spec data. Bare fibers on all channels using fork SAIL DAY 1	12 disks on fork. Fix instrument shutter, PS issues. After sail, cal on deck with grey plaque	13 Fiber/track question. Kind of cloudy. Headed to Diamond Head SAIL DAY 2	14 ac-s on boat. Evening cal'd Es and did wavecal SAIL DAY 3	15 adjusted fiber tips to be flush with water side of disks. Winds down, clearer SAIL DAY 4



# September Schedule 2/2

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
16 Sunny & clear cleaned fibers, track 13 (F7) had gunk. Started using spare Thorlabs LED post sail as aystem level check SAIL DAY 5	17 Mike O moved his Es collector . Not as clear today. SAIL DAY 6	18 VIIRS day Partly cloudy. Evening cald Lu of the HyperOCR-R using OL455; repeated Resonon fiber cals with OL455 SAIL DAY 7	19 unload boat move Resonon to tent w/o breaking fibers	20 Tent cal of Resonon Es	21	22 Carol flies
23	24 BUOY SWAP	25 BUOY SWAP	26 BUOY SWAP	27 BUOY SWAP	28 BUOY SWAP	29 sun 24deg min zenith