

Measurements from FLIP:

Measurement	Location	Sampling Frequency	Point of Contact	Requirements
1. 2x Scanning Lidar 2. 2.4 GHz Comms 3. IR, Video camera, laser altimeter w/ pan & tilt 4. Momentum and heat flux w/ sonic Licor, rel humidity, T, P, motion package, pyranometer, pyregeometer 5. 2 Video cameras 6. 2 Polarized cameras (sky and water) w/ motion package 7. Stereo camera (water)	1. Starboard boom (15x15m) 2. Mast 3. Starboard boom [O(few m)] 4. Starboard boom 5. Starboard boom and Mast 6. Starboard boom (1x1m) 7. Starboard boom (1x1m)	1. 18 hr/day @ 75 Hz 2. When necessary 3. Intervals @ 10-100 Hz 4. 20 min sampling interval @ variable rates 5. Intervals @ 20 Hz 6. Daylight @ 60 Hz 7. Daylight @ 60 Hz	1. Russel 2. Russel 3. Chris 4. Chris 5. Johannes 6. Howard 7. Howard	1 rack, 1/2 day dock prep time
1. IR, Video camera, laser w/ motion package, CO ₂ laser 2. 2x Scanning Lidar 3. MET mast w/ momentum and heat 4. Light source w/ motion package 5. 4 Hydrophones 6. 2 Dopbeams 7. Video camera 8. ADCP (w/ waves)	1. Port Boom [O(m)] 2. Port Boom (10x10m) 3. Port Boom (2 heights) 4. Port Boom 5. Port Boom (suspended) 6. Port Boom (suspended) 7. Mast 8. Hull	1. 20 min/hr, 24/7 2. 20 min/hr, 24/7 3. Continuously, 24/7 4. Nighttime 5. Episodic 6. Episodic 7. 20 min/hr, 24/7 8. Continuously, 24/7	Ken M. or Luc	1 rack, 1/2 day dock prep time
1. Underwater radiance and irradiance 2. Sky irradiance and total irradiance in air	1. Starboard and Port Boom (suspended to 20-30 m or 100 m) 2. Mast	1. 5-10 min Daylight @ 500-1000 Hz 2. Continuously during daylight	Dariusz	3 ft rack, 1/2 day dock prep time
Polarized radiance	Starboard and Port	2 min during	Ken V.	3 ft rack, 1/2

distribution in water and air	Boom (suspended) or tethered ROV	Daylight		day dock prep time
1. CTD 2. a_{pg} , b_p , c_{pg} (~90 wavelengths; acs) 3. a_g , c_g (9 wavelengths; filtered ac9) 4. b_b (9 wavelengths; bb9) 5. Chlorophyll fluorescence (FLNTU) 6. Turbidity (FLNTU) 7. Near forward VSF (LISST-100C)	1-7. Face boom	1-7. Once per hour to 200 m	Francesco	3 ft rack, 1/2 day dock prep time
1. CTD (WQM) 2. Chlorophyll fluorescence (WQM) 3. Turbidity (WQM) 4. Dissolved Oxygen (WQM) 5. a_{pg} , b_p , c_{pg} (~90 wavelengths; acs) 6. b_b (3 wavelengths; bb3)	1-6. Mounted on hull (5 m)	1-4. Once per hour 5. Once every 20 min 6. Once every 10 min	Frank and Grace	None
1. Directional wave field 2. Bubble size distribution 3. CTD 4. Turbulence (coherent Doppler) 5. Void fraction 6. Video camera (w/ light source) 7. Thermistor string 8. ADCP (300 kHz)	1. Sonars on hull 2-5. Blue boom 3. 1 m depth 6. On deck between booms 7. Starboard from davit (25m) 8. On hull	Continuously, 24/7 @ multiple sampling rates	David or Svein	1 rack, 3 days dock prep time
Directional wave spectra (WAMOS)	Mast	Continuously, 24/7	Linwood	N/A