

232 hub. In another variant developed by UCSB for the BTM, self-contained, battery operated data acquisition systems at three depths combine acoustic telemetry with ARGOS satellite data telemetry for near real-time data transmission.

The systems used on the GoMOOS bio-optical moorings are a blend of the examples described above. Each GoMOOS mooring is controlled by a Campbell Scientific CR10X control system. The Campbell system controls the power and sampling for all of the meteorological sensors, the current (Aanderra and RDI ADCP) and hydrographic (SeaBird SBE37 and SBE16 temperature and conductivity) sensors, as well as the wave sensor. The Campbell system also controls the mooring to shore transmissions of the data, which are mainly done using hourly cellular phone communications. Most moorings also utilize GOES transmissions as a backup method to transmit data to shore in case of cellular phone problems. Because of limitations of the Campbell data logger in terms of storage space and data resolution, it was necessary to utilize a separate data logger to collect, store and pre-process the bio-optical data. The data logger was developed with WETLabs for implementation on the GoMOOS moorings. The data logger has a microprocessor and firmware to control the power and sampling to 4 externally connected sensors. The data logger has 4 serial (RS232) input ports, one RS232 output port and a power port that can be connected to a battery power supply. The GoMOOS implementation of the data logger firmware controls the sampling period and power to each of the 4 serial input ports. The GoMOOS optics data logger can either be set up to run in autonomous mode, or can be controlled externally via RS232 communications. The optics data logger records all of the raw data onto an on board flash disk for later retrieval and processing. The data logger is programmed to average each of the input data streams from each instrument, and outputs the averages and diagnostics to the output RS232 serial port.

**Table 3.3 (Part 1 of 2):** Radiometric, bio-optical and ancillary measurements and instruments on selected moored bio-optical buoys; see Table 3.1 and Figures 3.1 and 3.2 for information on the location, buoy type and mooring configuration of each.

Moored Buoy Array:		MOOS	TAO (EP1 & EP2)		PIRATA (Lambaba)
Variable	Sensor	z (m)	z (m)	z (m)	z (m)
$E_s(\lambda)$	PRR-620	~ +4	+3		+3
	HR3	~ +4	+2.8		
	MiniSpec-I			+0.5	
	OCR504 ICSA				
$E_d(z, \lambda)$	PRR-600	-10, -20	-20		
	HR3	-10, -20	-10		
	OCI100				
	OCI200				
	OCR504 ICSW			-2,-4,-8,-12	
$L_u(z, \lambda)$	PRR-600	-10, -20	-20		
	HR3	-10, -20	-10	2	
	OCR100	-1.5	-1.5		-3.6, -9.6
	OCR200				
	MiniSpec-R			-0.5	
	OCR507 R10W				
$E_u(z, \lambda)$	PRR-600	-10, -20	-20		
	HR3	-10, -20	-10		
Chl <i>a</i> Fluorescence	WETStar	-1.5	-1.5		-9, 40
	DFLS				
	HS2	-1.5	-1.5		
$b_b(z, \lambda)$	HS-2, 4 or 6	-1.5	-1.5		
	VSF				
$c(z, \lambda)$	ac9	-1.5	---		