

NC State University Mooring Operations

Cruise Report 0504

5 – 8 June 2005

Research Vessel: R/V Savannah

Project: COMRP and Caro-COOPS

Activities: Deployment of ILM02 and ILM03, recovery and deployment CAP2, and CAP3 weatherpak replacement

Personnel: John Bichy, Steve Hall, Dan Kennedy, Jeff Kinder (Operations Chief), Jay Souza, Ben Speckhart, Billy Sweet, and Dave Wells

Guests: Peter Clay, of Mooring Systems Incorporated

Objectives:

The primary objective for cruise 0504 is to deploy two real-time moorings off of Wilmington, NC for the Coastal Ocean Research and Monitoring Program (CORMP). This will be the first deployment of a real-time mooring system at these sites. Following the successful deployments of CORMP moorings, CTD casts will be conducted at various Caro-COOPS moorings for QA/QC reasons. We plan to recover and re-deploy the Caro-COOPS CAP 2 mooring and switch out the weatherpak on CAP3.

CORMP Mooring Specifications:

Each CORMP mooring consists of a MSI G-2000 buoy anchored by a 4-stack railroad wheels (3500 lbs.) and a science frame (3000 lbs.). The buoy well stuffing tubes were upgraded for better a seal and signage was bolted to the tower to discourage buoy tampering.

Bottom water temperature, conductivity, pressure (high resolution digi-quartz sensor), and fluorescence (Wetlab Inc. fluorometer) are measured every 15 minutes from a Seabird 16IM-plus Seacat located within the science frame on each mooring. Current direction and velocity throughout the water column and wave direction, period, and height are measured with a bottom mounted RDI 600-khz ADCP located within the science frame. In addition, the science frame holds a pop-up float for mooring recovery operations and a Seabird Underwater Inductive Modem for transfer of ADCP data to the inductive communication system.

Surface water temperature, conductivity, pressure, and fluorescence (Wetlab Inc. fluorometer) are measured from a Seabird 16IM-plus Seacat mounted directly to

the G-2000 buoy at the 30 meter ILM 03 site only. In the future a Seacat will be mounted at the 17 meter ILM 02 site. A Coastal Environmental Weatherpak mounted on the buoy tower is used to measure air temperature, solar radiation, wind speed, wind direction, humidity, and barometric pressure on each mooring every 2hours.

Every two hours data will be transferred to University of South Carolina in Columbia, SC for real-time display.

Cruise Activity Log:

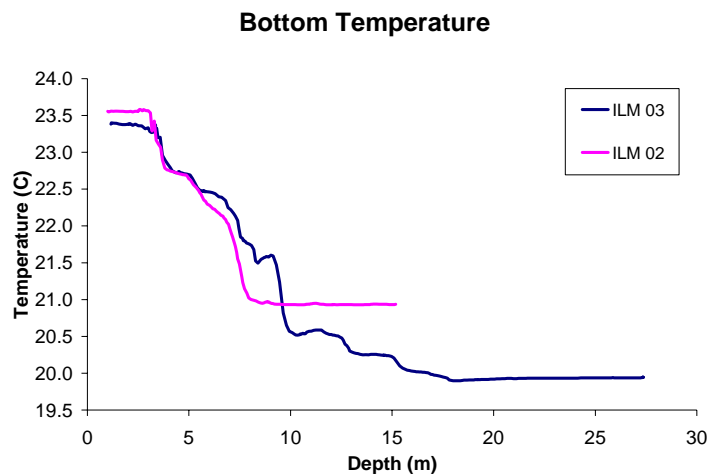
ILM 03 deployment

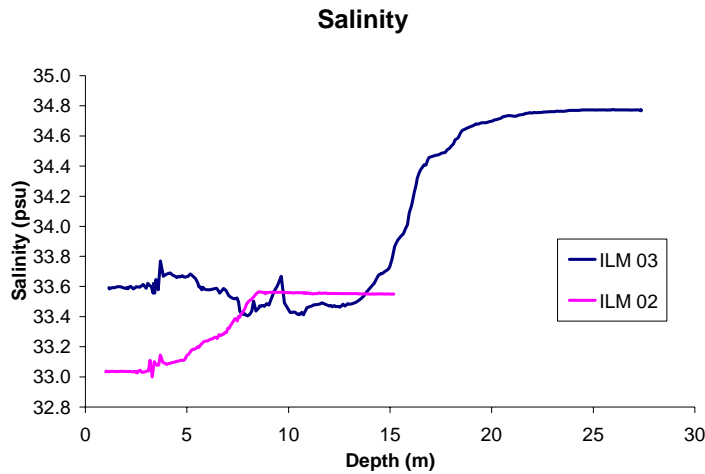
ILM03 deployment 1 (ILM03-01) was successfully deployed on 6 June 2005 by 1140. A CTD cast was made following the deployment.

ILM 02 deployment

The ILM02 deployment was observed and filmed by CORMP personnel, other UNC-Wilmington personnel, and journalist/film crew from the Wilmington Star aboard the RV Cape Fear. The RV Savannah arrived on station ahead of the RV Cape Fear. While we waited for the RV Cape Fear to arrive we conducted a CTD cast. ILM02 deployment 1 (ILM02-01) was successfully deployed on 6 June 2005 by 1540. Following the deployment, CORMP personnel on the RV Savannah offloaded onto the RV Cape Fear.

CTD profiles at both ILM 03 and 02 are shown below.





CAP 02 turnaround

Communications with CAP02-04 was lost on 4 June 05. We successfully recovered CAP02-04 on 7 June by 1100. After the recovery a CTD cast was made. Data from the bottom mounted Seacat indicate that temperature and conductivity sensor drift was minimal during the 116 day deployment.

	<u>UTC</u>	<u>Temp</u>	<u>Salinity</u>
Deployed Seacat (116 days)	7 Jun 1429	23.5	33.8
CTD cast	7 Jun 1453	23.6	33.8

The next day on 8 June we deployed a completely new buoy system at CAP 02 (CAP02-05).

CAP3 Weatherpak replacement

Wind data from CAP03 weatherpak (WP) failed days before our cruise. We replaced CAP03 WP following the recovery of CAP02-04 on 7 June. A CTD cast was made following the WP replacement. The bottom and surface mounted Seacats had minimal temperature and conductivity drift during the current deployment of 50 days.

	<u>UTC</u>	<u>Temp</u>	<u>Salinity</u>
Deployed Seacats (50 days)	7 Jun 1659	25.8 <i>sfc</i>	33.5 <i>sfc</i>
		22.0 <i>bot</i>	35.1 <i>bot</i>
CTD cast	7 Jun 1751	25.3 <i>sfc</i>	33.7 <i>sfc</i>
		22.0 <i>bot</i>	35.6 <i>bot</i>

Station Log:

Station	Date	Time	Lat	Long	Activity
ILM03-01	6/6	0940	N 33 59.47	W 77 21.56	Mooring deployment
CTD 01	6/6	1130	N 33 59.44	W 77 21.65	CTD cast at ILM03
CTD 02	6/6	1406	N 34 08.54	W 77 42.82	CTD cast at ILM02
ILM02-01	6/6	1445	N 34 08.41	W 77 42.89	Mooring deployment
CAP02-04	6/7	0910	N 32 48.66	W 79 37.88	Mooring recovery
CTD 03	6/7	1053	N 32 48.72	W 79 37.68	CTD cast at CAP02
CAP03	6/7	1340	N 32 30.03	W 79 19.38	WP replaced
CTD 04	6/7	1351	N 32 30.05	W 79 19.36	CTD cast at CAP03
CAP02-05	6/8	1115	N 32 48.41	W 79 37.38	Mooring deployment
CTD 05	6/8	1216	N 32 48.48	W 79 37.45	CTD cast at CAP02
CTD 06	6/8	2230	N 32 16.60	W 80 24.95	CTD cast at FRP02

Weather:

Deck operations were not affected by the weather. In general seas were small, winds light, clear skies, hot temps.

5 June – P. cloudy, showers, 85F and humid, light SW wind, seas 2-3ft

6 June – Sunny, light SW wind seas calm to 2-3 ft.

7 June – Sunny, hot, light SE wind seas 2-3 ft

8 June - Sunny, hot, 10-15knt SE wind, 2-4 ft

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