September 5th | 2010

Ryan Chouest daily data transmission and report

Period covered: *1809 hrs* 09/04/2010 – *0920 hrs* 09/05/2010

98.464 - Nautical miles covered

Vessel science party:

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Cruise notes:

The *Ryan Chouest* followed the planned cruise 14 route leaving Port Fouchon and heading towards the first CTD test deployment site and then onward to the second CTD deployment site (Figures 1 and 2). The underway pump was deployed after reaching open sea outside Port Fouchon using the modified deployment setup. Two CTD test casts were executed.

Science results and preliminary interpretation:

Fluorometry results

The Chelsea and Trios sensors generally indicate low levels of inferred hydrocarbons concentrations through the reporting period (Figures 3 and 4). Slightly enhanced response can be observed from both sensors in areas close to the mouth of the Mississippi river.

Surface Observations

There were sightings of schools of fish and occasional small jellyfish during the CTD test cast.

EK-60 Echosounder results

No echosounder contacts were observed during this report period.

CTD Casts

Two CTD test casts were completed during this report period (Figure 2). CTD test cast #1 in 147 m of water and CTD cast #2 in 1363 m of water. The Chelsea flourometer and a methane sensor were also attached to the CTD carousel to provide real time chemical information. The objective of cast#1 was to test the functionality of the CTD deployment system and data acquisition of all incorporated sensors. Two water samples were collected at 50m as the CTD moved along the water column in both directions.

GCMS analysis of the samples will help to assess the potential contamination caused by the grease on the CTD winch cable.

Cast#2 was performed at N28 08.699, W 088 51.373, with the aim to decide the existence of deep water HC plume. At ~1100m depth a PAH fluorometer maximum and a dissolved oxygen minimum peaks were shown in the vertical profiles, which may suggest the existence of the deep water hydrocarbons. Water samples were collected at 1353, 1250, 1160, 1130 and 1020m for further GCMS analysis to decide the concentration of the PAH they may contain.

Planned route for cruise 14:

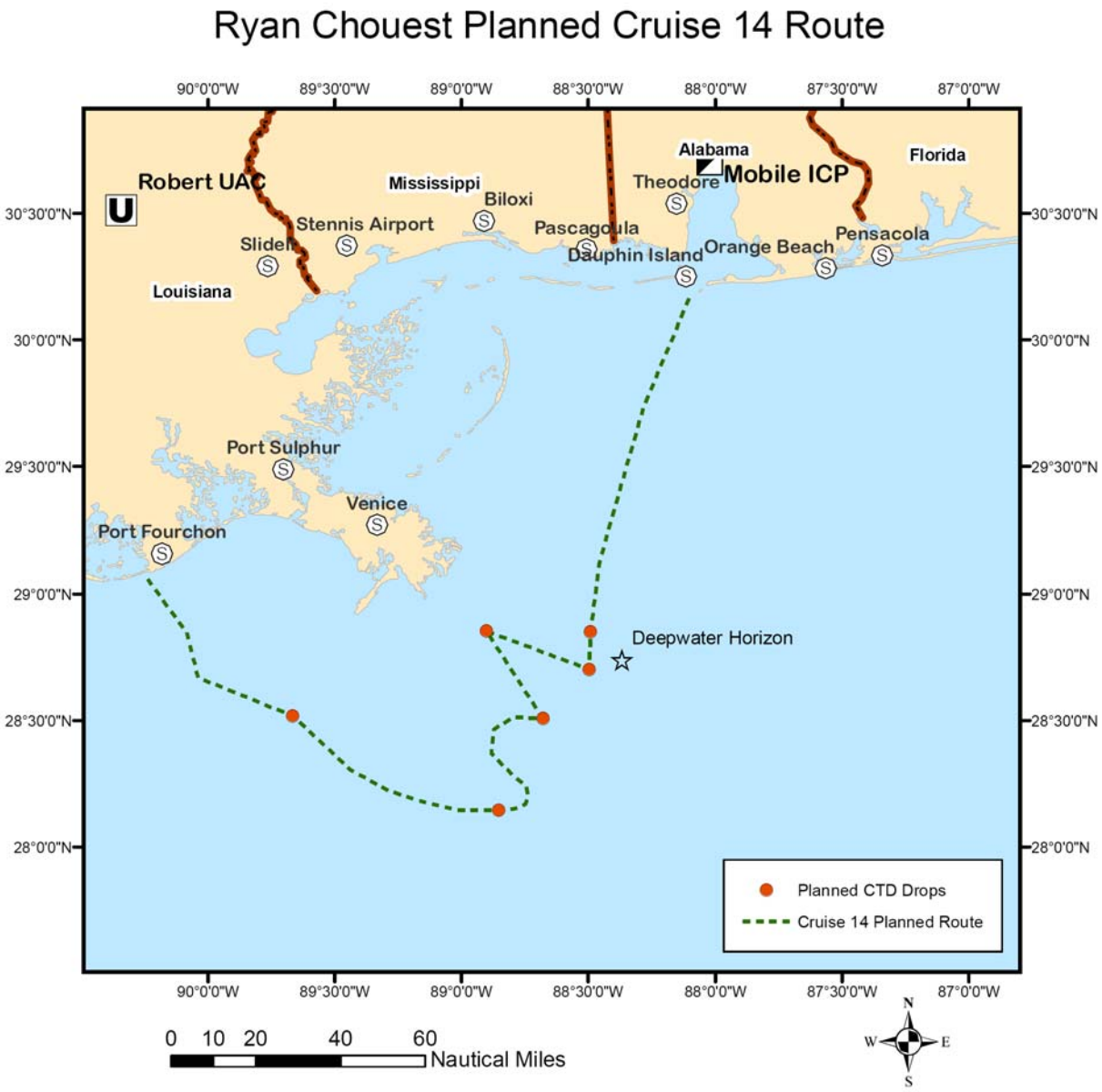

Figure 1: Planned route for cruise 14 from 09/04/2010 – 09/08/2010.

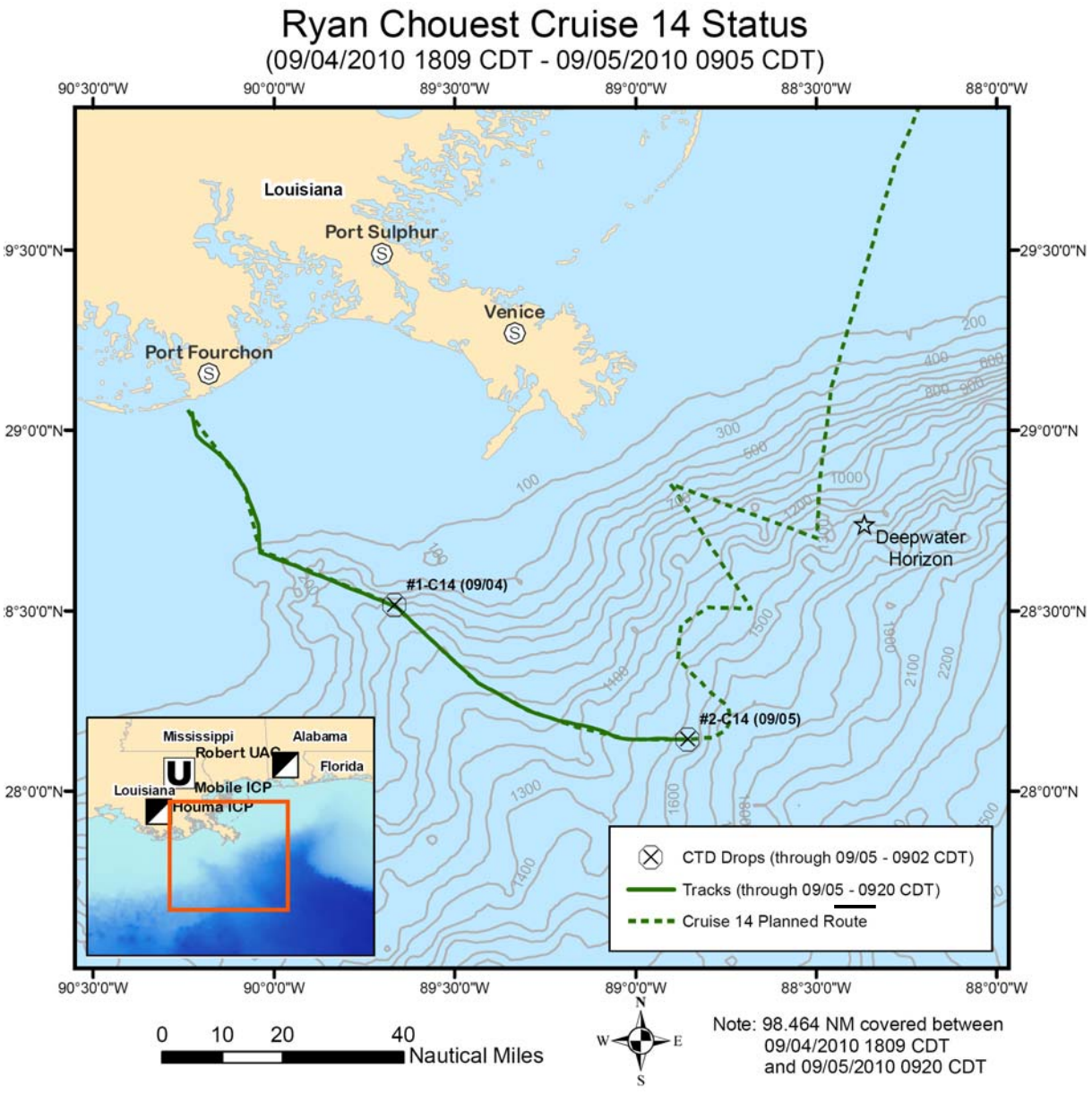

Figure 2: Track through planned route for cruise 14 from 09/04/2010 – 09/05/2010.

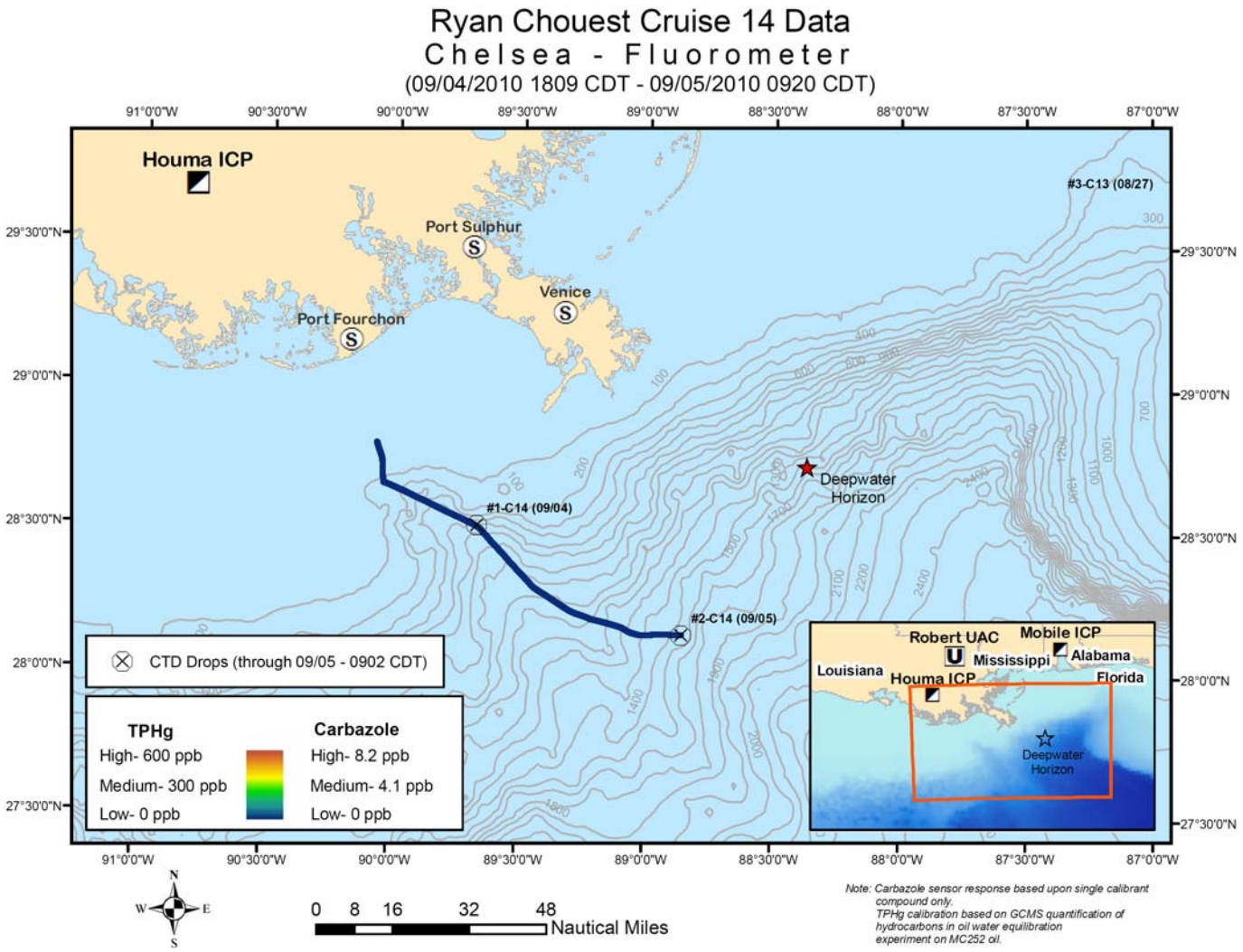

Figure 3. Chelsea fluorometer results plotted with location on cruise track 14. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

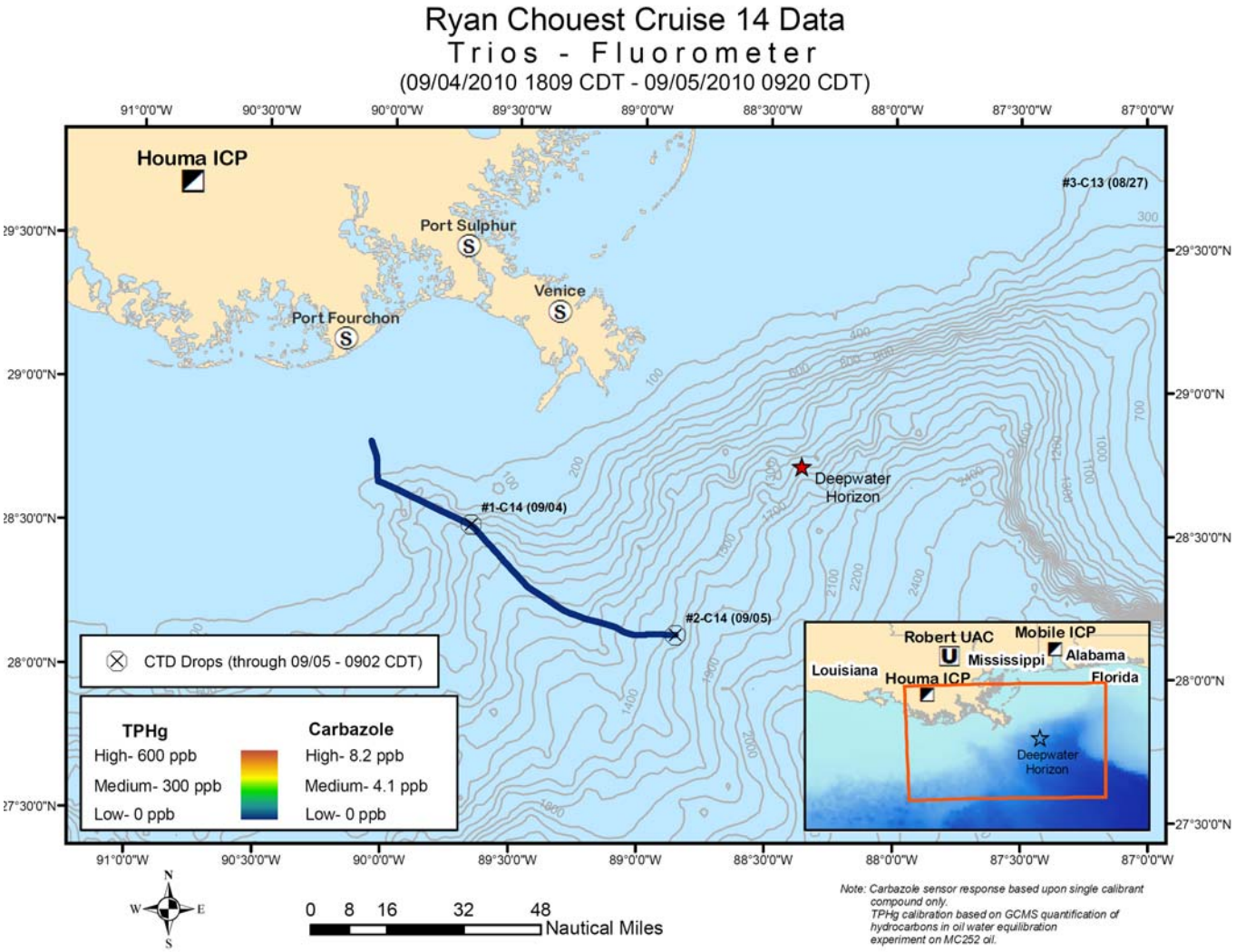

Figure 4. Trios fluorometer results plotted with location on cruise track 12. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

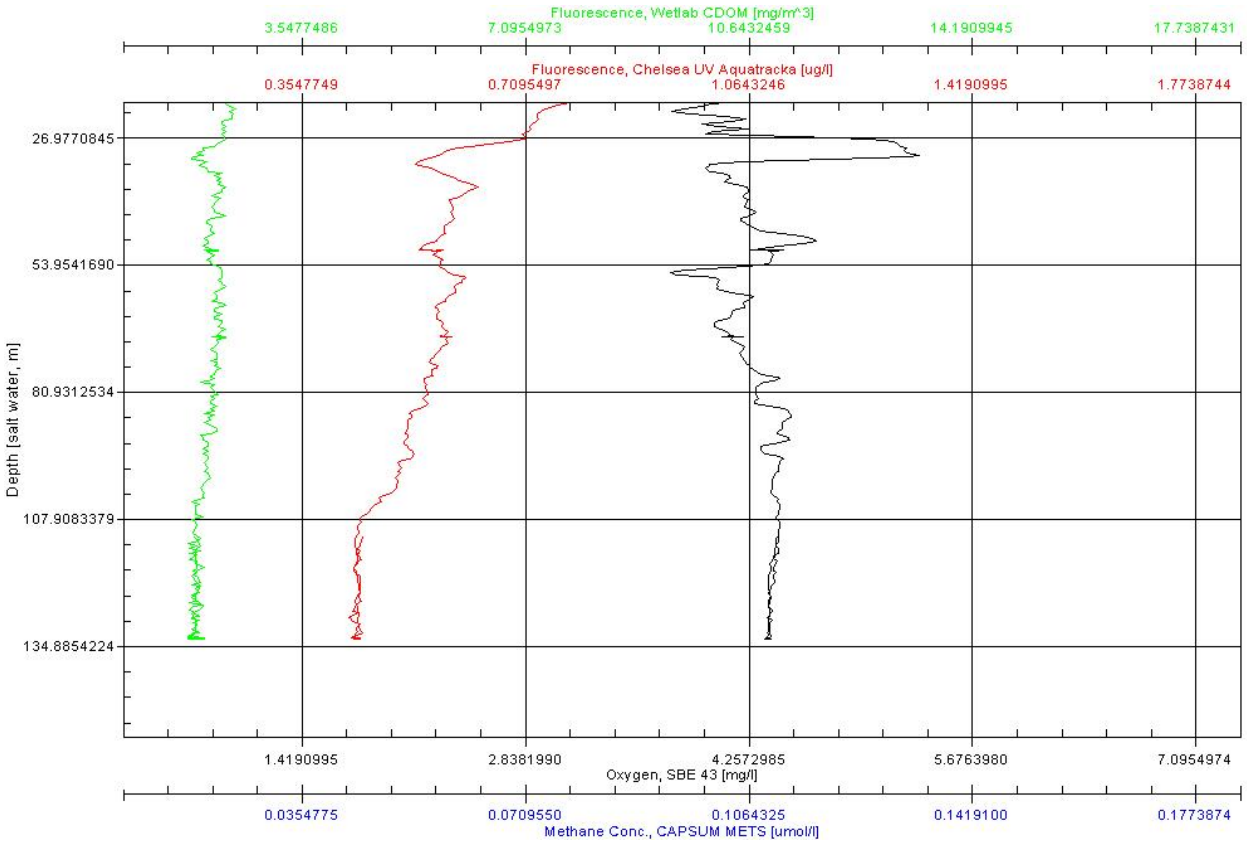

Figure 5. CDOM fluorescence, PAH fluorescence, dissolved oxygen, and methane concentration profiles. The results were obtained for Cruise 14 CTD cast 1 down to 140 m. Water samples were collected at 55m and 66m. Temperature, conductivity and water depth measurements were also recorded from a SBE 19+ system.

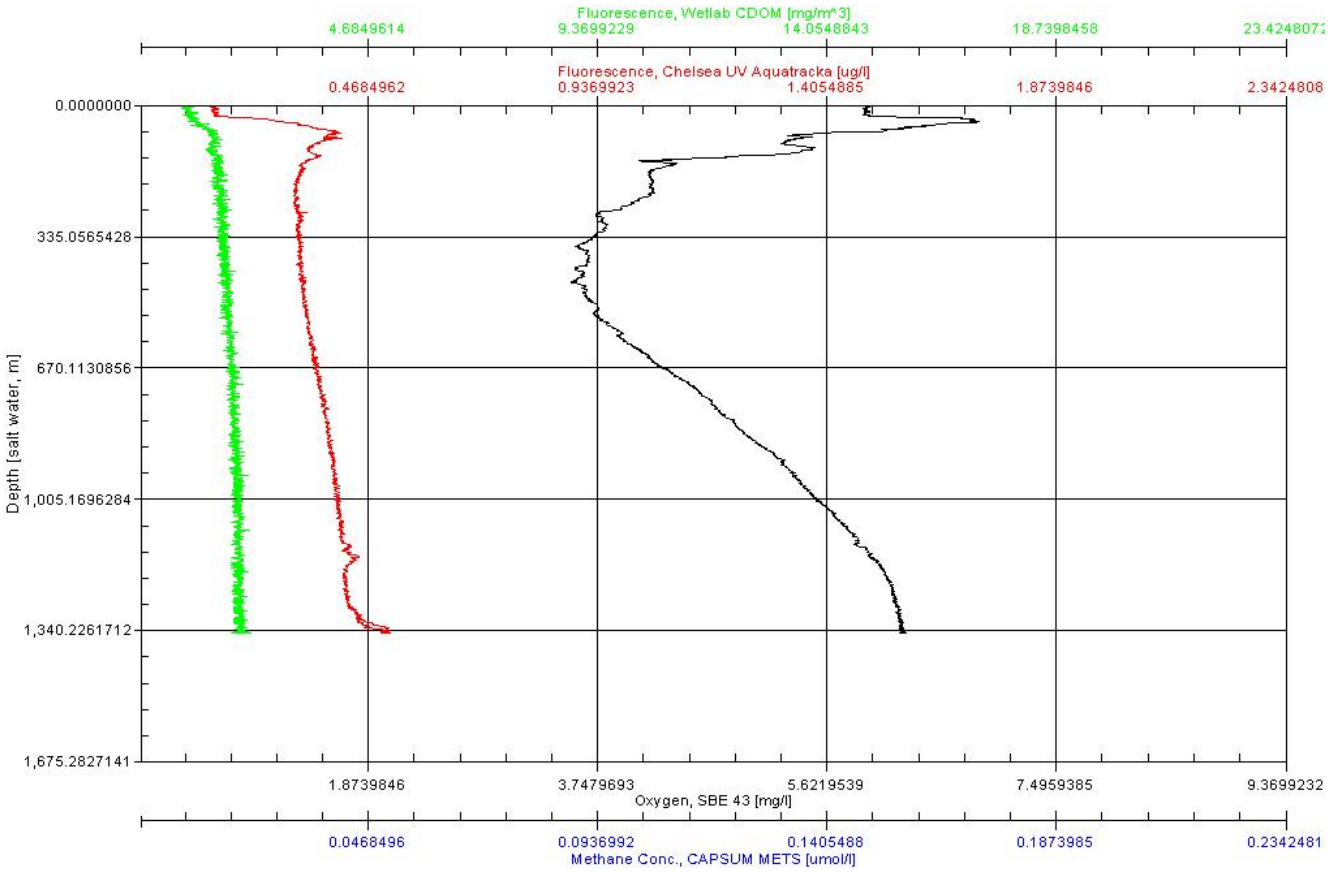

Figure 6. CDOM fluorescence, PAH fluorescence, dissolved oxygen, and methane concentration profiles. The results were obtained for Cruise 14 CTD cast 2 down to 1300 m. Water samples were collected at 1353m, 1250m, 1160m, 1130m and 1020m. Temperature, conductivity and water depth measurements were also recorded from a SBE 19+ system.

Science Operations:

Observations of sea-surface conditions were made throughout. CTD cast data was collected from two completed casts including one test cast in 147 m water depth. The EK-60 echo sounder is continuously collecting data to evaluate the seabed and water column for possible seeps. GC column was replaced and analysis of the water samples left from the last cruise has started.

Problems/operational issues:

Grease was found on the CTD winch cable. A quick test showed that deionised water in contact with the grease collected from the winch cable could trigger a higher response in the Chelsea fluorometer. A sample of the grease was also taken for GCMS analysis in order to make further assessment of potential contamination issues.

The Contros methane sensor cannot be integrated with the CTD system because of its high power requirement at start up. We are seeking to purchase additional battery with higher current output. A

semiconductor type of Methane sensor is in use now, however has not given valid values during the last vertical casts.

Selected Photographs:

Photo 1. CTD Rosette deployment deck and A-frame

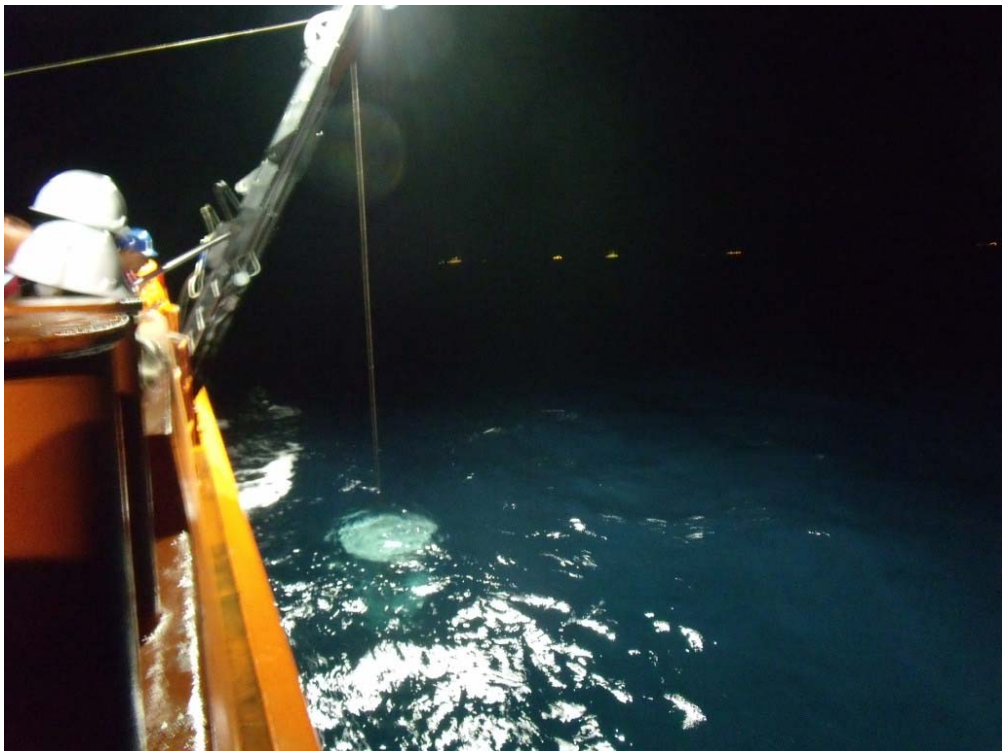

Photo 2. CTD deployment at test cast location # 1.

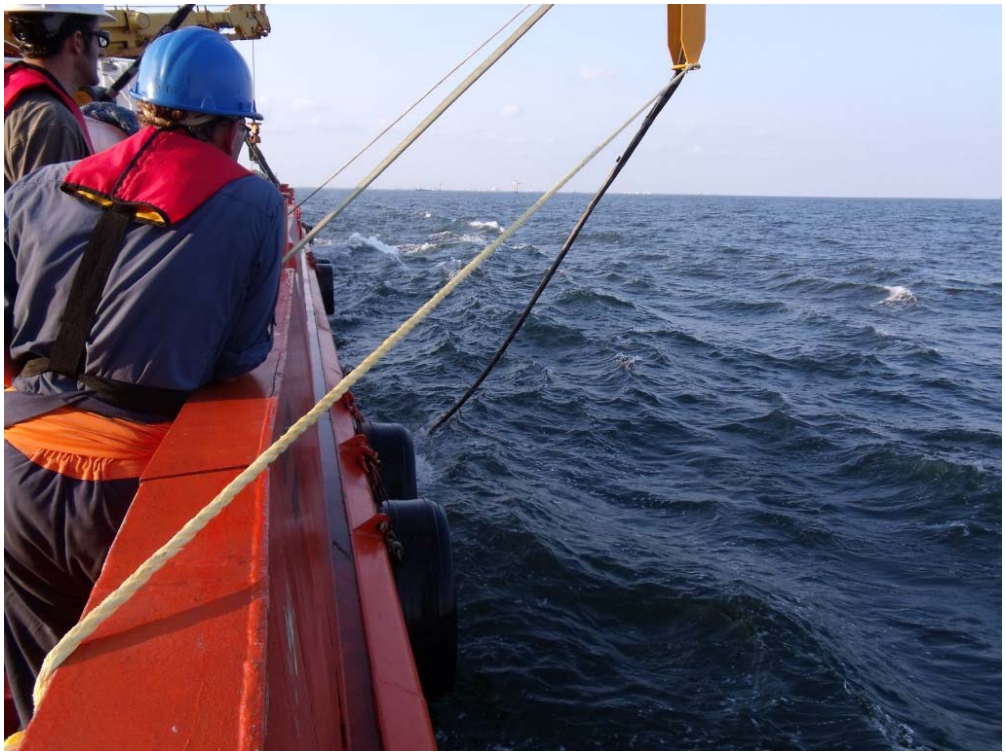

Photo 3. Revised underway pump deployment setup.

Planned activities for next 24 hours:

The Ryan Chouest will continue on its cruise 14 track towards CTD cast location # 3 and then onward towards CTD cast location # 4 located at the eastern end of area D from cruise 11 in order to re-establish contact with the seep (SC-D6). The "clover leaf" pattern will be used to establish the predominant direction of the seep plume using the echo sounder. A few vertical CTD casts will be attempted over the seep and along the seep plume.

Full Crew List:

Rebecca Tedford	BP	William Smith	MASTER
Eric Houston	BP	Brian Corley	Mate
Brett Bundick	C&C	Mark Harmon	A/B
Mathew Baham	C&C	Ricky Matherne	A/B
Bobby Patrick	C&C	Robert Thompson	ENG
Tim MacEwen	C&C	Patric Cousin	A/B
Craig Smith	C&C	Trever Dorics	A/B
Emily Burke	C&C	Kevin Hartley	Qmed
Xiubin Qi	CSIRO	Jason Bednarski	A/B/Cook
Charlotte Staivies	CSIRO	Steve Morgan	O/S
Andy Revill	CSIRO	Josh Chauffe	Crane Op
Stephane Armand	CSIRO	Larry Luke	Crane Op
Curtis Walker	Entrix		
Collen Fanelli	NOAA		