

HOT-36: Chief Scientist Report

Chief Scientist: C. WINN

HOT-36 Cruise Report

4/15/92 - 4/20/92

We left Snug Harbor on schedule on Wednesday the 15th. We arrived at Kahe Point at approximately noon, and departed at approximately 1700. We deployed the sediment traps at 02:00. The traps were recovered after an approximately 72 hour deployment. Stations 3, 4 and 5 were occupied after station Aloha and we arrived at Snug Harbor at 07:00 on Monday the 20th.

The weather was excellent during the entire cruise making operations relatively simple. As a result we had very few problems on this cruise.

In general CTD operations went smoothly on HOT-36, and we had only a few problems. At Kahe Point the transmissometer and the fluorometer cable connections were reversed. This was corrected upon arrival at station Aloha. However, it was not possible to display the transmissometer data in real time during HOT-36. Apparently, the configuration files were not set up properly for the transmissometer. Also, at Kahe Point the CTD was left on during the test cast. Although this did not cause any problems at Kahe Point, the CTD was again left on while the system was being re-terminated at Station Aloha. As a consequence, the Wecoma Marine Technician received an electrical shock during the re-terminated process. The practice of leaving the CTD on between casts in order to keep the oxygen sensors powered requires that special care be used to ensure that the CTD turned off when minor adjustments are made to the system. Fernando made a small sign to place on the CTD when it is on deck and turned on. This seemed to be a reasonably good way to avoid problems with the CTD being powered up while on deck. In the long run however, it would probably be best to avoid leaving the system powered up on deck as much as possible.

The JGOFS sediment trap and primary production measurements were made without problems on HOT-36, however one primary production depth was lost because of a problem with a Go-Flo bottle. In addition, the WOCE 36 hour burst sampling was completed and all chemical samples were obtained at all of five stations. XBT's were dropped during transit from station 3 to station 5. The shipboard ADCP was run during the entire cruise, and the 300 m isobath was followed between station five and Kaena Point in order to provide for ADCP calibration.

A few minor repairs and documentation updates should be made before the next HOT cruise. One of the Go-Flo bottles did not close properly during the primary production cast. This bottle should be repaired before HOT 37. The other Go-Flo bottles should probably be inspected for problems. The documentation for the in situ sedimentation array should be updated to reflect the new spar buoy design. We almost

deployed the spar with too much bottom weight because the sediment trap array drawing were not clear. In addition, the HOT cruise prospectus should be modified to include the definition of Station Aloha as a 10 km radius around the nominal HOT site coordinates. There was some confusion on the part of the ship's crew regarding the size of the area that we define as station Aloha.

We encountered a small accumulation of *Trichodesmium* sp. in the surface waters for a brief period on HOT-36. This occurred in the afternoon of the 17th, after surface winds were extremely light for an extended period. Bucket samples showed that the surface waters appeared to be enriched in *Trichodesmium* sp., colonial radiolarians, copepods etc. This surface manifestation seemed to disappear after the winds picked up in the late afternoon and evening. There was no obvious evidence of this feature on the morning of the 18th.

Station 2 casts 1, 16 & 17:

Regarding the deep salinity offset from HOT-36: My suspicion is that one of two things happened to cause this. Either the salinity cell was allowed to dry out during the transit between Kahe Point and ALOHA, or else some biological fouling occurred somewhere on the downcast of cast 1. Things to do: Check with people on the cruise about the first possibility. Plot the deep theta-s versus our historical theta-s from HOT. Is it really the first cast that is off, or are the two later casts somehow offset? Casts 16 & 17 look very consistent with each other, but that does not make them right. Final thing is, if you are convinced that cast 1 is offset, check the bottle salts and their difference from the CTD for evidence of a shift somewhere during the downcast.

We will just have to make some cast-by-cast adjustments for salinity on HOT-36. My guess is that casts 15&16 will have the same adjustment which is due to the slow drift of the calibration of the c-cell, but that cast 1 will require a special offset. I don't know about oxygen, but it sounds similar to a problem we had on a previous cruise. Jef and I will have to look at it. (rbl)