CSIRO MARINE RESEARCH

Processing Notes

SS 11/2004

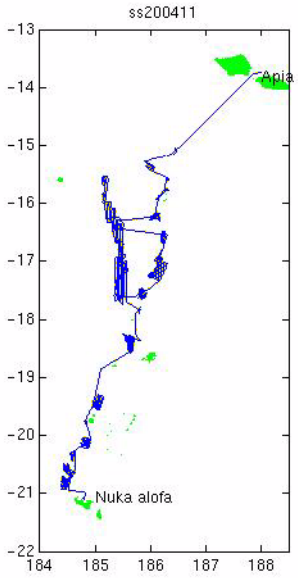
27 October 2004 Nuku'alofa - 15 November 2004 Apia

(Local times)

Data processing completed by
Bernadette Heaney, December 2004

1. Summary

These notes relate to the production of quality controlled (QC-ed), position, depth and metero-logical and thermosalinograph data from RV Southern Surveyor voyage 11/2004.



Position data was acquired using the Seapath 200 position and motion reference unit. Depth data was acquired with the Simrad EA500. The Divisional Data Librarian can assist with information regarding all other sensors.

2. Voyage details

"NOTOVE-2004 (Northern Tonga Vents Expedition) Submarine hydrothermal plume activity and petrology of the northern Tofua Arc, Tonga"

2.1 Principal Investigators

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3. Processing Notes

3.1 Background Information

A combined underway file for the entire voyage, consisting of 10 second values of position, depth, meterological and thermosalinograph variables was remade on 22 November 2004 - by reading data from hourly files returned from the voyage. (Time range 20:59:50 26-Oct-2004 - 16:37:00 15-Nov-2004).

Position data - bad positions were reported by the bridge during the voyage. On examining the .gpd files (which record the full resolution GGA and VTG strings) some strange data was seen!

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eg ss04313f00.gpd

08-Nov-2004 050128.10 ...

then 063813.67 - a jump of over 1 hour in time -

Could these gps problems be related to the increased solar activity experienced 7-12 November?

There were other instances of status “6” which is dead reckoning mode and status “0” which gave zero values for latitude and longitude! Some “jumps” in position were noticed when the position went from dead reckoning back to status “1” (16:20 14-Nov-2004).

Where gps status was 0 data was set to NaN, and flagged bad, none, hardware error; where status was 6 data was flagged good, none, recording. UwyLogger produced spikes which were set to NaN (05:03:20 08-Nov-2004).

The water depth was “repicked” using echoview software. The depth data was interpolated to 10 second values. The new depths were read back into the netcdf file.

The sounder is usually time synchronised with the acquisition system. But on this voyage it was noticed a time difference. The time difference varied through the voyage.

Time corrections made

start of voyage - 08:44 31-Oct-2004 as recorded

08:44:10 31-Oct-2004 - 14:43 13-Nov-2004 (70 second adjustment) - flag - good, manually adjusted, recording anomaly

14:43:10 13-Nov-2004 - 11:24 15-Nov-2004 - (set to NaN) - flag suspect, none, recording anomaly

The meteorological data consists of air temperature, humidity, light, atmospheric pressure, wind speed and direction and maximum wind gust.

The thermosalinograph data consists of water temperature and water salinity. Spikes greater than 0.2 were filtered out of the salinity data (bad, none, data out of range or bad, none, first difference out of range). No salinity calibration was done during the voyage.

On examining the plots of salinity data and water temperature data the both had an “event” and looked noisier after 01:39:40 09-Nov-2004. But there weren’t any notes made during the voyage of any instrument problems.

4. Other

The navigation, depth, meteorological and thermosalinograph data will be entered into the data warehouse. Position, depth and meteorological and thermosalinograph data extracted from the underway file is available online.

5. References

Pender, L., 2000: Data Quality Control Flags. http://www.csiro.marine.au/datacentre/ext_docs/DataQualityControlFlags.pdf

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