data
summary

Southern Surveyor Voyage ss2012_v01

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ss2012_v01

Title

 "Sustained Monitoring of the East Australian Current: Mass, Heat and Freshwater Transports"

Principal Investigators

Mr. Ken Ridgway – CSIRO Marine and Atmospheric Research

Phone: 03 62325226

Email: ken.ridgway@csiro.au
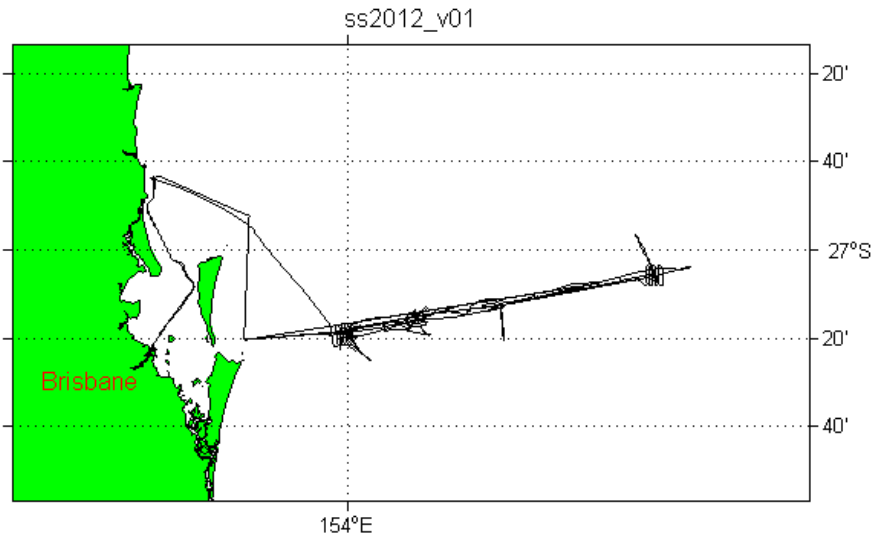
Ports

Original schedule (local time):
Depart: Brisbane 1600hrs Friday 20 April 2012
Arrive: Brisbane 0800hrs Monday 30 April 2012

Date

20-Apr-2012 00:02:45 to 29-Apr-2012 05:48:50 (UTC)

Voyage Track

Underway Data

Navigation data is acquired using the Seapath 200 position and reference unit, which is also differentially corrected by data from the FUGRO DGPS receiver.

The Meteorological data consists of 2 relative humidity and temperature sensors; a barometer, wind sensor, and licor light sensor.

Thermosalinograph data is acquired with a Seabird TSG and remote temperature by SBE 3T. Data from a flow meter is also recorded.

Digital depth data is recorded from a Simrad EK60 sounder.

Data from "IMOS" (Integrated Marine Observing System) sensors are also included. The sensors are port and starboard radiometers and pyranometers, wind speed and direction; rain and rainrate.

See Electronics report for this voyage for instruments used and their serial numbers.

Navigation, meteorological, thermosalinograph, IMOS and depth data are preliminary quality controlled by combining all data from hourly recorded files to 5 second values in a netCDF formatted file. The combined data is referred to as "underway data".

A combined file was made on 30 August 2012 by running a Java application, written by Lindsay Pender of CMAR, UwyMerger version 1.8.0 with data time range of 20-Apr-2012 00:02:45 to 29-Apr-2012 05:48:50 (UTC).

Completeness and Data Quality

Navigation data (latitude and longitude, speed over ground, ship heading and course over ground); meteorological data (port and starboard air temperature, port and starboard humidity, wind direction and speed, maximum wind gust, light, atmospheric pressure, uncorrected wind direction, rain and speed) and IMOS data (port and starboard radiometers, port and starboard pyranometers, derived wind direction and speed, uncorrected wind direction and speed, rain and rain rate), thermosalinograph (salinity and water temperature) data were evaluated and quality controlled.

Processing Comments

A number of minor discrepancies between the port and starboard air temperature sensors were noted (max differences of about 1.3 degrees, otherwise both sensors gave very close reading with the mean absolute difference of about 0.037 degrees). These occurred usually during periods of rapid temperature increase or decrease. Investigation of these indicated that they have usually occurred when the ship was stationary with little wind or during/following periods of rainfall. This phenomenon has probably come about due to the rapid warming of air due to the ship becoming stationary or cooling of the air temperature due to the evaporation of the rain water around the sensor housing. It is unclear as to why there should be a notable temperature differential between the port and starboard temperature sensors.

A similar discrepancy (max differences of about 8.21%) between the port and starboard humidity sensors was observed. It should also be noted that the starboard humidity sensor appears to consistently give a higher humidity reading with the mean absolute difference of about 0.44%. The recorded values appear to be within instrument tolerance.

No port/stbd AirTemp & Humidity recorded between 20-Apr-2012 09:34:20 to 21-Apr-2012 01:09:50 and 21-Apr-2012 15:51:15 to 16:30:15, similarly no port AirTemp & Humidity data was recorded between 21-Apr-2012 16:30:15 to 23:12:25. The reason is most likely due to a Metstation software fault (see voyage electronic report).

The courseOG values when the ship is stationary are not true values as the ship is not travelling a course however this is a feature of the current acquisition system. The QC flags have been set as good however this feature should be noted if the values during the stationary periods are to be used.

No IMOS wind data between 20-Apr-2012 00:07:55-09:46:05 due to Metstation software fault (see voyage computing report).

Due to a Metstation software fault some IMOS hourly rain data was incorrect. These were manually set to NaNs and their QC flag set to {'bad','none','operatorFlagged'}.

It was noted that IMOS starboard Radiometer recordings was on average about 2.1 (W/m^2) greater than the port Radiometer recordings throughout the voyage.

IMOSPortPyranameter had been recording negligible negative values at night time, however as it closely matched the recording from IMOSStbdPyranameter during the day time it has been QCed as good.

Between 27-Apr-2012 08:12:15 to 28-Apr-2012 07:14:45 there had been no TSG flow and therefore the Salinity/Water Temp/sensorTemp values for this period were manually set to NaNs and their QC flag set to {'bad','none','operatorFlagged'}.

The CTD calibration data for the primary sensor was obtained from the voyage CTD processed file ss2012_v01007Ctd (i.e. CTD offset and scale factor = 0.000303966343491867, 0.999702041273216). This data was then used to derive the TSG salinity calibration against the calibrated CTD data. Using CTD/TSG calibration run in CTD deployment ss2012_v01003Ctd.nc and ss2012_v01020Ctd.n with a TSG conductivity lag of 32 seconds, an averaged salinity scaling factor of 1.000535213338116 was calculated for the primary CTD conductivity cell. This scaling factor along with the lag of 32 seconds was applied to the TSG salinity data and the thermosalingraph salinity QC was set to {'good' ,'manually adjusted','no error'}.

Note: Depth data is no longer processed, however, non QCed data is still available in the underway data set. QCed depth data can be obtained from processed Swath dataset for this voyage.

Final Underway Data

The navigation, meteorological, thermosalinograph, IMOS and depth data will be entered into the CMAR divisional data warehouse. All data timestamps are in UTC.

Filename	Parameters	Resolution
ss2012_v01uwy10.csv	latitude, latitudeQC, longitude, longitudeQC, speedOG, speedOGQC, courseOG, courseOGQC, shipHeading, shipHeadingQC, uncorrWindDir, uncorrWindDirQC, uncorrWindSpeed, uncorrWindSpeedQC, waterDepth, waterDepthQC, portAirTemp, portAirTempQC, stbdAirTemp, stbdAirTempQC, portHumidity, portHumidityQC, stbdHumidity, stbdHumidityQC, windSpeed, windSpeedQC, maxWindGust, maxWindGustQC, windDir, windDirQC, PAR, PARQC, atmPressure, atmPressureQC, waterTemp, waterTempQC, salinity, salinityQC, IMOSStbdRadiometer, IMOSStbdRadiometerQC, IMOSStbdPyranometer, IMOSStbdPyranometerQC, IMOSRainRate, IMOSRainRateQC, IMOSRain, IMOSRainQC, IMOSWindSpeed, IMOSWindSpeedQC, IMOSWindDir,IMOSWindDirQC, IMOSPortRadiometer, MOSPortRadiometerQC, IMOSPortPyranometer, IMOSPortPyranometerQC, IMOSUncorrWindSpeed,MOSUncorrWindSpeedQC, IMOSUncorrWindDir,IMOSUncorrWindDirQC	10 seconds

	rain, rainQC	
ss2012_v01uwy5min.csv	Ditto 10 second data	5 minutes

References

Subversion repository version of DPG Matlab generic tools 3427
Pender, L., 2000. Data Quality Control flags.
http://www.marine.csiro.au/datacentre/ext_docs/DataQualityControlFlags. Pdf

Processed by: A Sarraf , CSIRO Marine and Atmospheric Research, Hobart, Tasmania, Australia