



PS80 processing log ***Ship navigation data***

a) Original data

The original navigation data was extracted from the DSHIP data base on board of R/V "Polarstern" in 1 second interval.

These data sets contain:

- Position from MINS
- Speed from MINS
- Heading from MINS
- Depth from deep water sounder

b) Processing

I. Processing steps:

1. Extraction of source data from DSHIP data base
2. Validation of erroneous positions by reviewing speed, time and distance jumps
3. Removing of invalid positions
4. Conversion of data to daily files of 1 and 10 second resolution

II. Processed data:

Result of the processing is the verified navigation in 1 second and in 10 second interval, held in ASCII table files (tab delimited) with the following format:

- Column 1: Latitude [decimal degree]
- Column 2: Longitude [decimal degree]
- Column 3: Date [Format: DD.MM.YYYY HH:MM:SS]
- Column 4: Flag (see below)
- Column 5: Speed [knots]
- Column 6: Heading [degree]
- Column 7: Depth [metres]

The flag string consists of four digits with the following meaning:

Digit 1:

- [0]: No position available
- [1]: Position based on sensor Seapath 200 INS
- [2]: Position based on sensor Leica DGPS

Digit 2:

- [0]: Position is not pitch corrected
- [1]: Position is pitch corrected

Digit 3:

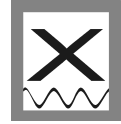
- [0]: Position is not roll corrected
- [1]: Position is roll corrected

Digit 4:

- [0]: Centering is based on heading from GPS data (less accurate)
- [1]: Centering is based on heading from Motion-Reference-Unit

III. Statistic

Data volume 1-second-interval data:	345 MB
First data set:	02.08.2012 09:00:00
Last data set:	06.10.2012 23:59:59
Total number of 1s positions after processing:	5668176
Number of positions missing (DSHIP error values)	0



c) Cruise plot

