



Processing log ARK-XIX/4 navigation data

a) Original data

Original navigation data were held on PODAS data base. Raw data are:

- GPS positions from sensor Trimble 1
- GPS positions from sensor Trimble 2
- Roll from sensor MINS
- Pitch from sensor MINS
- Heading from sensor MINS
- Speed from sensor MINS
- Depth from sensor System

b) Processing steps

1. Extraction of source data from PODAS data base
2. Roll/pitch correction of GPS data (Matlab)
3. Azimuth calculation from heading or from GPS data (Matlab)
4. Centering of GPS data to ships centre (Matlab)
5. Automatic filtering of erroneous positions (Matlab)
6. Manuel cleaning of navigation (Caris HIPS)

c) Processed data

Result of the processing is the corrected and verified navigation, held in an ASCII table (tab delimited) with the following format:

- Column 1: Latitude
- Column 2: Longitude
- Column 3: Date [Format DD.MM.YYYY HH:MM:SS]
- Column 4: Flag
- Column 5: Speed [kn]
- Column 6: Course [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 GPS Position of sensor Trimble 1
- [2]: Position based on GPS Position of sensor Trimble 2

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 gyro

d) Statistics

Data volume 01 seconds interval: 348 798 kB
Data volume 10 seconds interval: 37 890 kB
First data: 10.08.2003 00:00:00
Last data: 13.10.2003 08:00:00

Total number of positions after processing: 5 558 075
Total number of Trimble 1 data: 5 536 959 (99.62 percent)
Total number of Trimble 2 data: 21 116 (0.38 percent)
Total number of invalid GPS data: 355 (0.01 percent)
Total number of positions without roll correction: 14 680 (0.26 percent)
Total number of positions without pitch correction: 14 683 (0.26 percent)
Total number of heading calculation from GPS data: 14 637 (0.26 percent)