**PS80 processing log**

**OFOS (Ocean Floor Observation System) Navigation data**

*a) Original data*

The original navigation data was measured by an IXSEA Posidonia USBL positioning system. The data was provided from the raw data telegram files created by the IXSEA Abyss software.

These data sets contain:

- USBL position from IXSEA Posidonia
- Timestamp
- Immersion

*b) Processing*

I. Processing steps:

1. Extraction of raw position data from NMEA telegram stream
2. Manual validation of erroneous positions by reviewing speed, time and distance jumps
3. Removing of invalid positions
4. Smoothing of the track using a Gaussian/9 filter (using ADELIE GIS)
5. Linear interpolation of positions to get a 1 second interval navigation track
6. Conversion of data to 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 1: Position measured by acoustic positioning system (USBL)
  0: No position from USBL, position is interpolated
- Column 5: Immersion [metres]

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<table>
<thead>
<tr>
<th>Station Number</th>
<th>Start time</th>
<th>End time</th>
<th>Number of 1 s Positions</th>
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<td>05.08.2012 20:21</td>
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<td>4261</td>
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</tbody>
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*c) Station maps*
PS80/206-1 OFOS
RV "Polarstern", ARK-27/3

31□14'E
81□27.6'N

PS80/228-1 OFOS
RV "Polarstern", ARK-27/3

31□25'E
84□0.5'N