



MSM 13/3 processing log **Navigation data**

a) Original data

The original navigation data from the DSHIP data base on board of RV "Maria S. Merian" was provided in 10 second interval.

These data sets contain:

- GPS position from DGPS1
- Speed from Seapath 200 INS
- Heading from Seapath 200 INS
- Depth from Multibeam echo sounder (EM120/1002)

b) Processing

I. Processing steps:

1. Manual validation of erroneous positions by reviewing speed, time and distance jumps
2. Removing of invalid positions
3. Conversion of data to daily files in 10 second resolution

II. Processed data:

Result of the processing is the verified navigation 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
- Column 5: Speed [knots]
- Column 6: Heading [degree]
- Column 7: Depth [metres]

The flag string (column 4) consists of four digits with the following meaning:

Digit 1:

- [0]: No position available
- [1]: Position based on sensor DGPS1
- [2]: Position based on sensor DGPS2

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 10-second-interval data:	12,7	MB
First data set:	25.10.2009 08:00:00	
Last data set:	18.11.2009 09:59:50	



MSM 13/3 processing log **Sediment echosounder data (Atlas Parasound)**

a) Survey overview

The following Parasound echosounder survey stations were performed:

Table 1: Survey stations

StationNo	DateFrom	TimeFrom	DateTo	TimeTo	LatitudeFrom	LongitudeFrom
MSM13-3/897-1	26.10.2009	23:24:00	27.10.2009	03:00:00	32.503327	30.263872
MSM13-3/901-1	28.10.2009	00:37:00	28.10.2009	04:13:00	32.500967	30.262058
MSM13-3/904-1	28.10.2009	15:38:00	29.10.2009	03:49:00	32.567981	30.370853
MSM13-3/907-1	29.10.2009	07:59:00	29.10.2009	13:27:00	32.366095	31.713439
MSM13-3/931-1	01.11.2009	03:48:00	01.11.2009	06:59:00	32.365558	31.713866
MSM13-3/935-1	02.11.2009	03:09:00	03.11.2009	07:09:00	32.395802	31.656185
MSM13-3/942-1	04.11.2009	22:12:00	05.11.2009	03:52:00	32.36952	31.707176
MSM13-3/945-1	06.11.2009	22:41:00	07.11.2009	04:31:00	32.385263	31.708238
MSM13-3/949-1	08.11.2009	02:05:00	08.11.2009	05:12:00	32.366095	31.694834
MSM13-3/954-1	08.11.2009	22:20:00	09.11.2009	02:42:00	32.364745	31.701688
MSM13-3/955-1	09.11.2009	03:03:00	09.11.2009	07:00:00	32.394443	31.662664
MSM13-3/960-1	09.11.2009	23:06:00	10.11.2009	04:30:00	32.374007	31.731539
MSM13-3/964-1	11.11.2009	04:27:00	11.11.2009	08:27:00	32.364394	31.707299
MSM13-3/973-1	14.11.2009	02:34:00	14.11.2009	07:42:00	32.548259	30.387167
MSM13-3/979-1	15.11.2009	22:36:00	16.11.2009	06:15:00	32.498996	30.186322
MSM13-3/981-1	16.11.2009	19:43:00	17.11.2009	10:12:00	32.535179	30.188244

b) Original data

The following Atlas Parasound data types were recorded:

- PHF (primary high frequency, ~20 KHz) as ASD for the whole water column and as PS3/SGY for a window range from seafloor to approx. 500 m above for gas flare observation
- SLF (secondary low frequency, ~4 KHz) for the sediment layer as ASD and PS3/SGY

c) Navigation

The file headers of Atlas Parasound ASD- and PS3-files contain the original navigation recorded at expedition time. No further processing was made.

d) Processing

The ASD, PS3 and SGY files are published as TAR archives each containing the data for one survey station.

e) Data visualization with SeNT

SeNT (Se suite for Windows NT, from Universität Bremen, Hanno Keil) was used to create plots of the Parasound PS3 data.

The data of each profile and each frequency (PHF, SLF) was plotted by distance (200 m per cm) and saved as PNG image file.