



MSM 13/4 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 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
- 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 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:	11,8 MB
First data set:	21.11.2009 15:00:00
Last data set:	13.12.2009 23:59:50



MSM 13/4 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
MSM13-4/991-1	24.11.2009	21:32:00	25.11.2009	01:53:00	35,315339	30,248855
MSM13-4/991-2	25.11.2009	02:08:00	25.11.2009	03:54:00	35,340533	30,267017
MSM13-4/991-3	25.11.2009	04:03:00	25.11.2009	05:02:00	35,336653	30,269506
MSM13-4/1013-1	29.11.2009	21:30:00	30.11.2009	01:21:00	35,335755	30,294331
MSM13-4/1013-2	30.11.2009	01:45:00	30.11.2009	04:21:00	35,320312	30,243641
MSM13-4/1015-1	30.11.2009	15:28:00	30.11.2009	16:57:00	35,332831	30,266556
MSM13-4/1023-1	02.12.2009	00:35:00	02.12.2009	04:16:00	35,336807	30,255651
MSM13-4/1028-1	02.12.2009	23:47:00	03.12.2009	03:02:00	35,38317	30,216839
MSM13-4/1029-1	03.12.2009	03:14:00	03.12.2009	06:25:00	35,378908	30,234474
MSM13-4/1031-1	03.12.2009	12:40:00	03.12.2009	15:05:00	35,393115	30,198237
MSM13-4/1039-1	04.12.2009	23:22:00	05.12.2009	01:14:00	35,403787	30,200938
MSM13-4/1039-2	05.12.2009	01:17:00	05.12.2009	06:56:00	35,339863	30,248917
MSM13-4/1039-3	05.12.2009	07:05:00	05.12.2009	08:50:00	35,33543	30,256795
MSM13-4/1045-1	06.12.2009	01:50:00	06.12.2009	05:26:00	35,471566	30,260115
MSM13-4/1046-1	06.12.2009	07:30:00	06.12.2009	08:34:00	35,428495	30,55843
MSM13-4/1047-1	06.12.2009	08:47:00	06.12.2009	09:02:00	35,441934	30,557918
MSM13-4/1052-1	10.12.2009	04:00:00	10.12.2009	07:23:00	32,55135	30,337802
MSM13-4/1055-1	11.12.2009	02:22:00	11.12.2009	06:57:00	32,497736	30,280479
MSM13-4/1055-2	12.12.2009	05:21:00	12.12.2009	07:19:00	32,467793	30,278963
MSM13-4/1062-1	12.12.2009	12:02:00	12.12.2009	15:38:00	32,470685	30,21285
MSM13-4/1063-1	12.12.2009	15:50:00	13.12.2009	09:00:00	32,439314	30,209421

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.