MSM 16/2 processing log
Sediment echosounder data (Atlas Parasound)

a) Surveys

The objective of all Parasound surveys during this cruise was the detection and mapping of gas flares in the Håkon Mosby Mud Volcano area. Therefore 20 fixed parallel survey profiles were arranged in the area with a line spacing of ~70 m in east-west direction. All profile names in the further data and data processing correspond with these profiles, also shown in the following map figure 1.

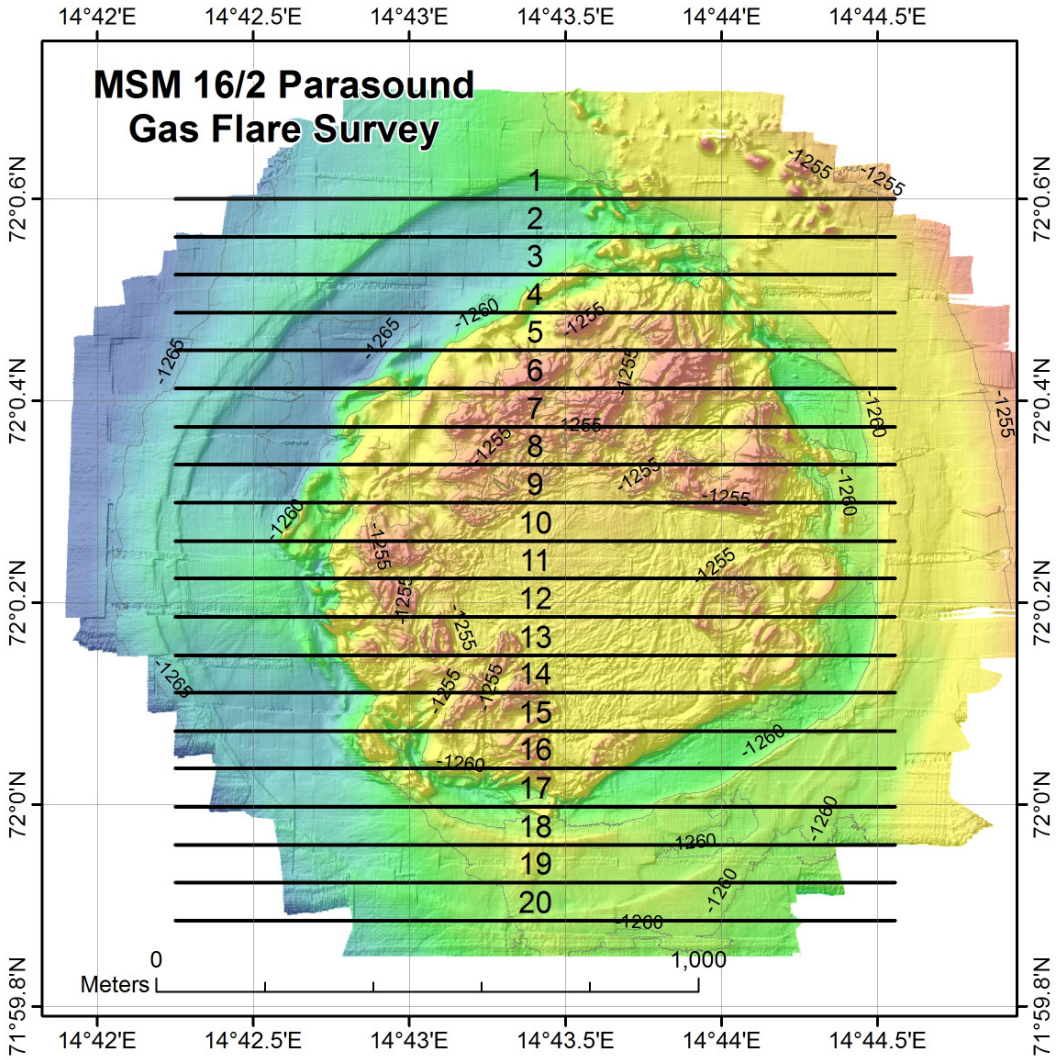

Figure 1: Planned survey profiles for gas flare survey

The following Atlas Parasound surveys have been performed during this cruise. All surveys were run with a vessel speed of ~1 knot.

Survey	Begin	End	Profile
MSM16-2_816-1	27.09.2010 02:40	27.09.2010 03:08	Profile01
	27.09.2010 03:18	27.09.2010 03:48	Profile02
	27.09.2010 03:53	27.09.2010 04:21	Profile03
	27.09.2010 04:33	27.09.2010 05:02	Profile04
	27.09.2010 05:09	27.09.2010 05:41	Profile05
	27.09.2010 05:46	27.09.2010 06:22	Profile06
	27.09.2010 06:26	27.09.2010 07:00	Profile07

MSM16-2_816-2	28.09.2010 02:30	28.09.2010 03:00	Profile08
	28.09.2010 03:09	28.09.2010 03:48	Profile09
	28.09.2010 03:59	28.09.2010 04:31	Profile10
	28.09.2010 04:36	28.09.2010 05:08	Profile11
	28.09.2010 05:19	28.09.2010 05:49	Profile12
	28.09.2010 05:57	28.09.2010 06:30	Profile13
	28.09.2010 06:43	28.09.2010 07:13	Profile14
MSM16-2_816-3	29.09.2010 00:10	29.09.2010 00:59	Profile14
	29.09.2010 01:05	29.09.2010 01:53	Profile15
	29.09.2010 01:57	29.09.2010 03:06	Profile16
	29.09.2010 03:17	29.09.2010 03:47	Profile17
	29.09.2010 03:58	29.09.2010 04:38	Profile18
	29.09.2010 04:53	29.09.2010 05:25	Profile19
MSM16-2_816-4	29.09.2010 23:00	29.09.2010 23:52	Profile20
MSM16-2_834-1	30.09.2010 01:13	30.09.2010 01:56	Profile01
	30.09.2010 02:14	30.09.2010 02:59	Profile02
	30.09.2010 03:15	30.09.2010 04:02	Profile03
	30.09.2010 04:15	30.09.2010 05:17	Profile04
	30.09.2010 05:32	30.09.2010 05:55	Profile05a
	01.10.2010 05:48	01.10.2010 06:32	Profile05b
	01.10.2010 06:37	01.10.2010 07:21	Profile06
	01.10.2010 07:31	01.10.2010 08:14	Profile07a
	02.10.2010 05:08	02.10.2010 05:38	Profile07b
	02.10.2010 05:42	02.10.2010 05:55	Profile08a
	03.10.2010 09:29	03.10.2010 10:17	Profile08b
	03.10.2010 10:24	03.10.2010 11:09	Profile09
	04.10.2010 19:15	04.10.2010 19:57	Profile10
MSM16-2_859-1	04.10.2010 20:18	04.10.2010 21:04	Profile05a
	04.10.2010 21:09	04.10.2010 21:51	Profile06a
	04.10.2010 22:00	04.10.2010 22:41	Profile07a
	04.10.2010 22:54	04.10.2010 23:36	Profile08a
	04.10.2010 23:46	05.10.2010 00:31	Profile09a
	05.10.2010 00:39	05.10.2010 01:22	Profile10a
	05.10.2010 01:49	05.10.2010 02:32	Profile05b
	05.10.2010 02:43	05.10.2010 03:31	Profile06b
	05.10.2010 03:35	05.10.2010 04:27	Profile07b
	05.10.2010 04:32	05.10.2010 05:18	Profile08b
	05.10.2010 05:24	05.10.2010 06:08	Profile09b
	05.10.2010 06:14	05.10.2010 06:57	Profile10b
MSM16-2_865-1	05.10.2010 20:42	05.10.2010 22:01	Profile04
	05.10.2010 22:08	05.10.2010 22:56	Profile05
	05.10.2010 23:05	05.10.2010 23:48	Profile06
	05.10.2010 23:58	06.10.2010 00:44	Profile07
	06.10.2010 00:51	06.10.2010 01:38	Profile08
	06.10.2010 01:48	06.10.2010 02:29	Profile09
	06.10.2010 02:34	06.10.2010 04:05	Profile10
	06.10.2010 04:10	06.10.2010 04:53	Profile11

b) Original data

The following Atlas Parasound data types were recorded:

- PHF (primary high frequency, ~20 KHz) in ASD/PS3/SGY formats at a window range from seafloor to approx. 1000 m above (for gas flare observation)
- SLF (secondary low frequency, ~4 KHz) for the sediment layer in ASD/PS3/SGY formats

c) Processing

The file headers of Atlas Parasound ASD- and PS3-files contain the original navigation recorded at expedition time. No further navigation processing was made.
The ASD, PS3 and SGY files are published as TAR archives each containing the data for one survey profile.

d) 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 survey and each frequency (PHF, SLF) was plotted by distance (100 m per cm) and saved as PNG image file. See example plots below.

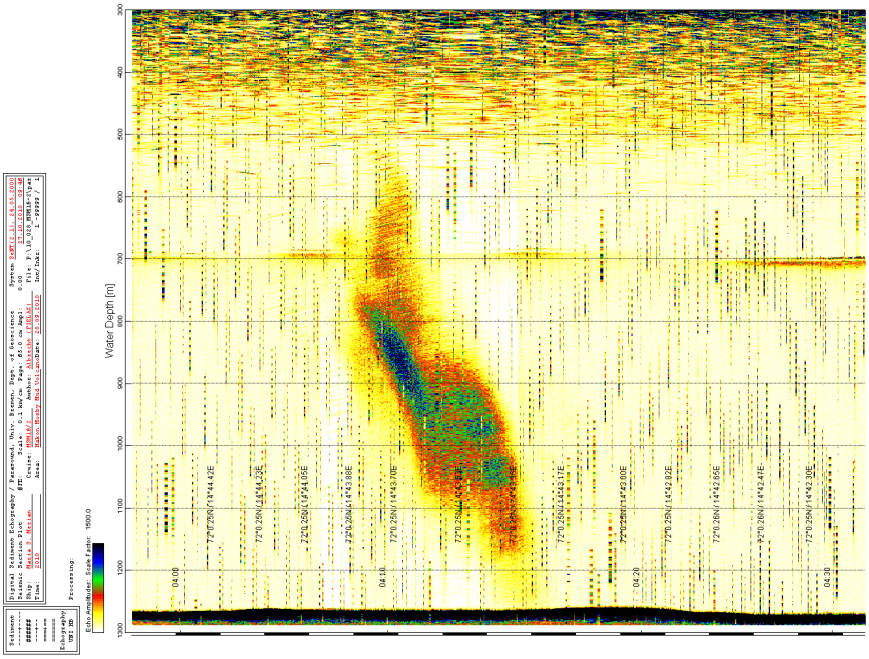

Figure 2: Sample plot of profile 10, high frequency 20 kHz

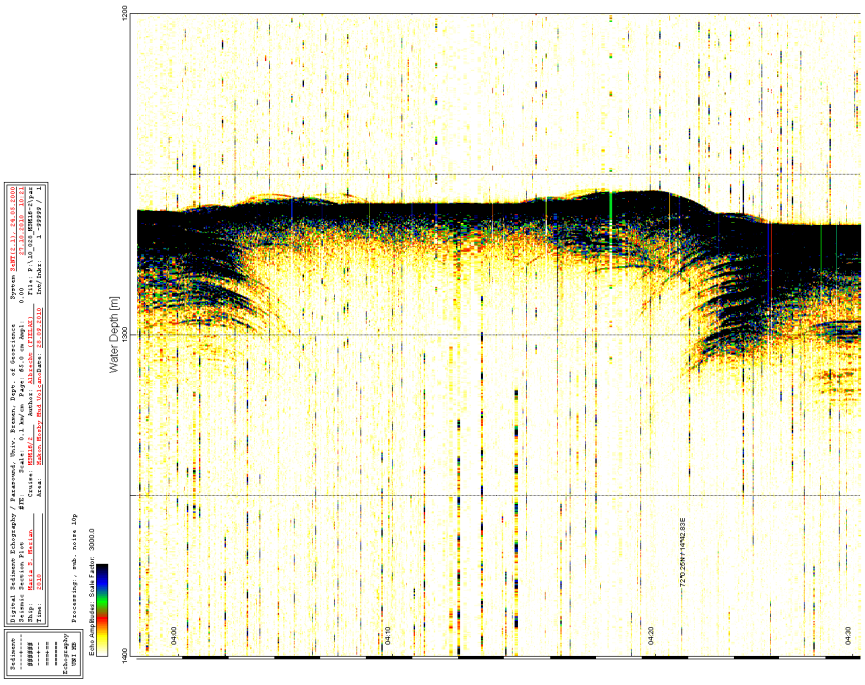

Figure 3: Sample plot of profile 10, low frequency 4 kHz