ARK-XXII/1processing log
Multibeam echosounder data

a) Original data

The original data is held on hard drive on the data recording computer on board of R/V "Polarstern". The data was recorded using the Atlas Hydromap Online software, the time period of each raw data file depends on water depth and varies between 0.5 h and 10 h.

Data from the following sensors are included in the multibeam raw data:

>
> Bathymetry data: Atlas Hydrosweep DS-2
> Position (GGA): Trimble MS750 GPS
> Heading: MINS ringlaser gyro
> Speed: MINS ringlaser gyro
> Heave: TSS HS-50 heave sensor
> Pitch/Roll: MINS ringlaser gyro
> Sound velocity water column: CTD profile or automatic cross-fan calibration
> Sound velocity at transducer: sound velocity sensor

The data set contains 146 raw data files of the sonar system Atlas Hydrosweep DS-2 (approx. 3.6 GB), a total time period of approx. 814 hours and a total track length of approx. 12900 nm. Compressing the data reduces the data volume approx. to one third of the size. Several data gaps are caused by echosounder shutdowns during acoustic underwater positioning work with the Posidonia USBL system (e. g. for ROV dives or gravity cores) and stationary work, while the ship is not moving or turning for hours.

b) Processing

The data set contains unprocessed raw data.

c) Data visualization

The GMT (Generic Mapping Tool) program version 4.1.4 was used to automatically create maps of the multibeam data. The multibeam data was not arranged to sets but every single data file was mapped separately. The format of the maps is PNG (Portable Network Graphic) format, see one example in Fig. 1. For naming the maps the same name as the raw data was used but with a different file name extension. The map was created out of blunder eliminated data to get a better overview of the bathymetry, not disturbed by rude erroneous data.
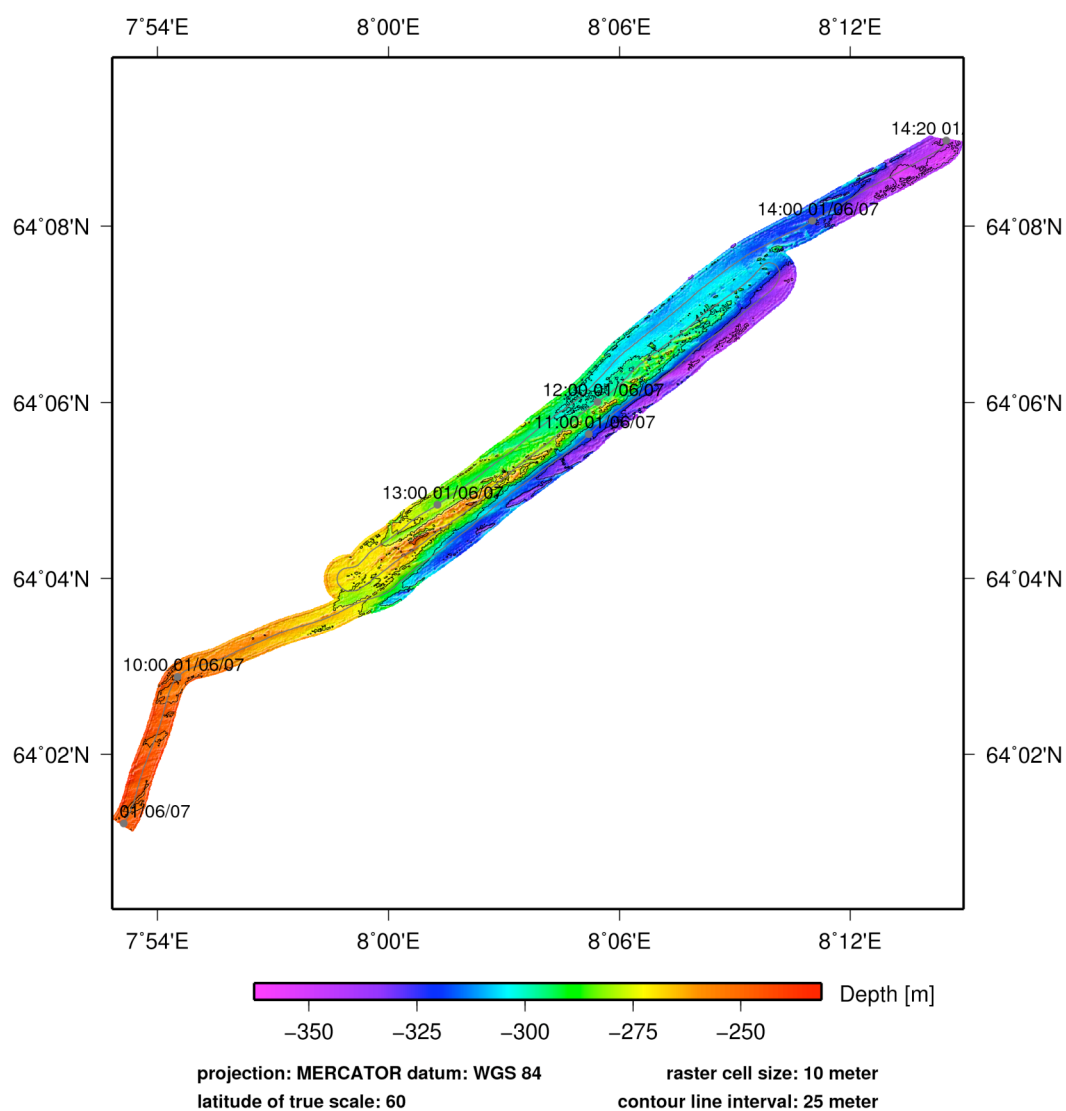
Swath Sonar Bathymetry Map
– Cruise ARK–XXII/1 –

Alfred Wegener Institute for Polar and Marine Research (Bremerhaven, Germany) in 08/2007

data sources

survey platform:	**R. V. POLARSTERN**
sonar system:	**Atlas Hydrographics Hydrosweep DS2**
data set name:	**152_ark22–1_60F30706010940.xyz**
data set info:	**length: 25.3 nm, time: 4.7 h, speed: 5.4 kn**

Depth [m]

projection: MERCATOR datum: WGS 84

latitude of true scale: 60

raster cell size: 10 meter

contour line interval: 25 meter

This map was automacitally generated using the generic mapping tool GMT

Be aware that the shown data set may contain outliers and navigation errors

Figure 1: Example of a map of a multibeam raw data file.