DATA PROCESSING, STORING AND PUBLISHING FOR THE AUTONOMOUS MOORED PROFILER AQUALOG
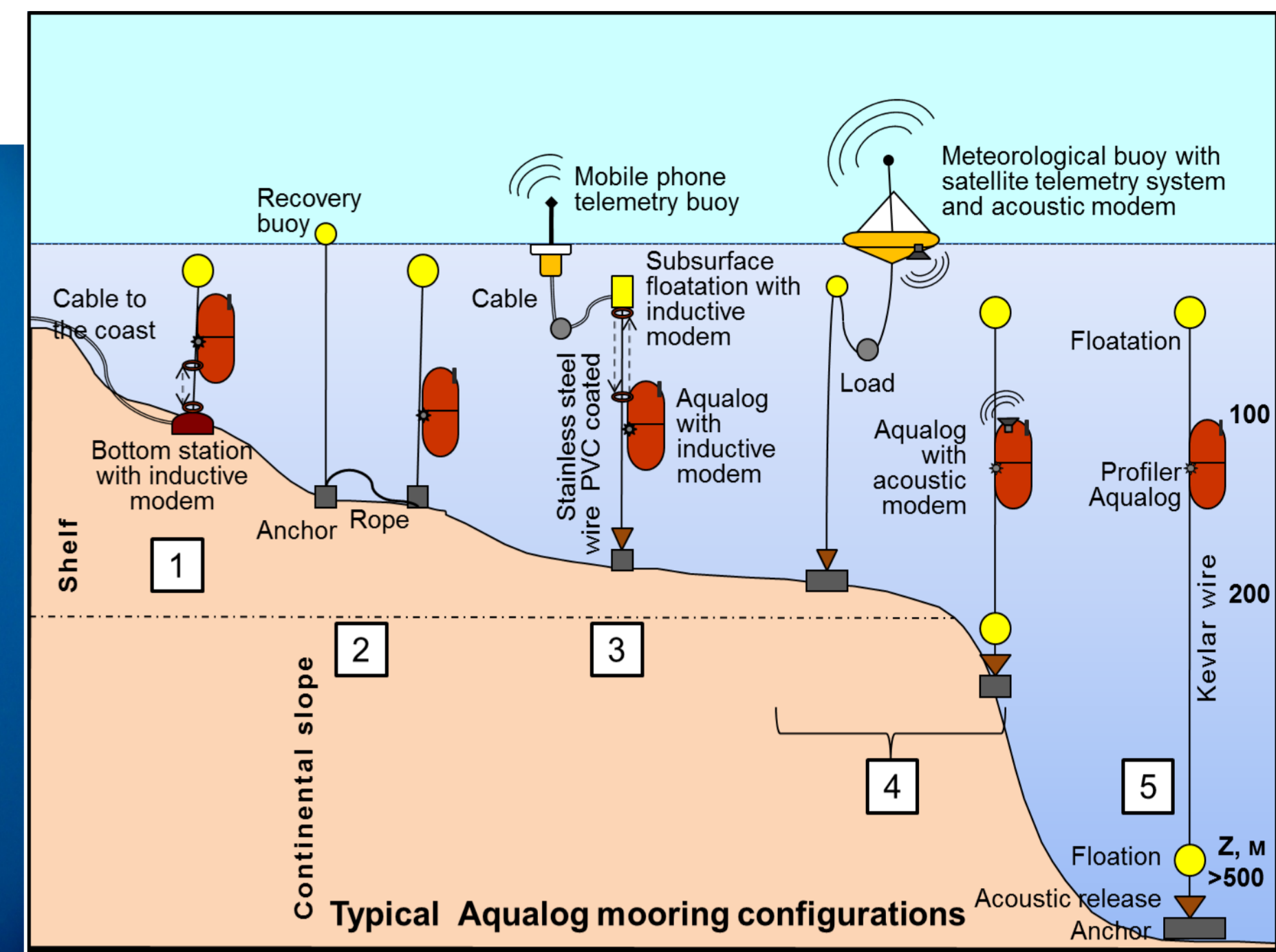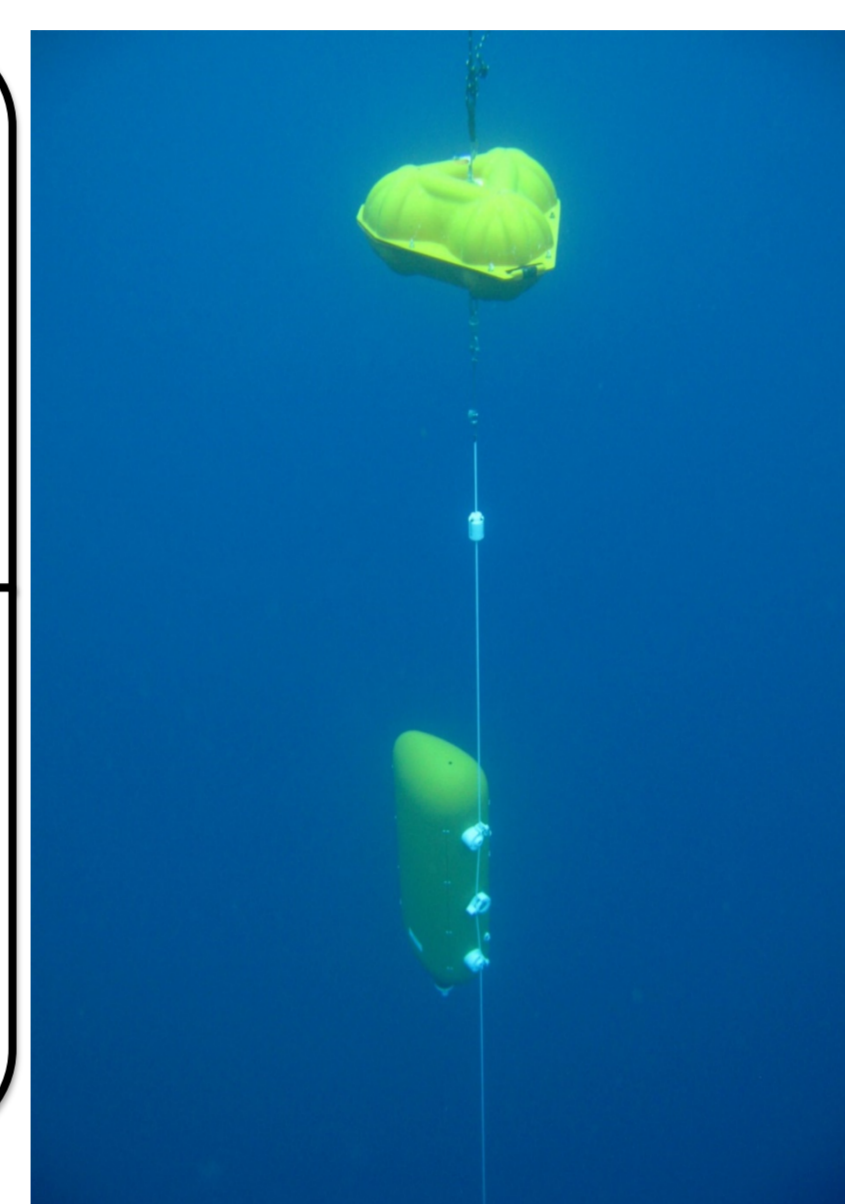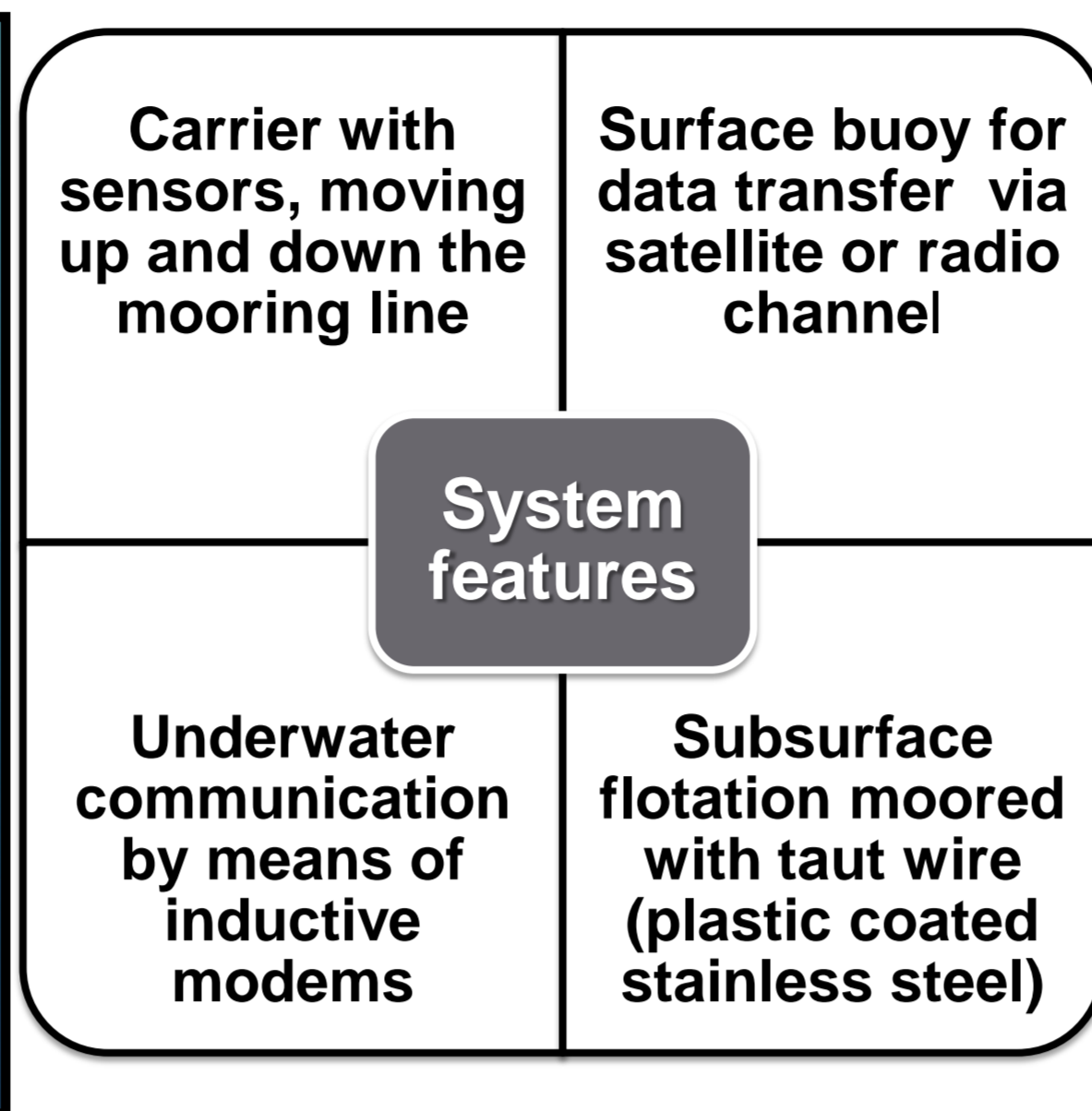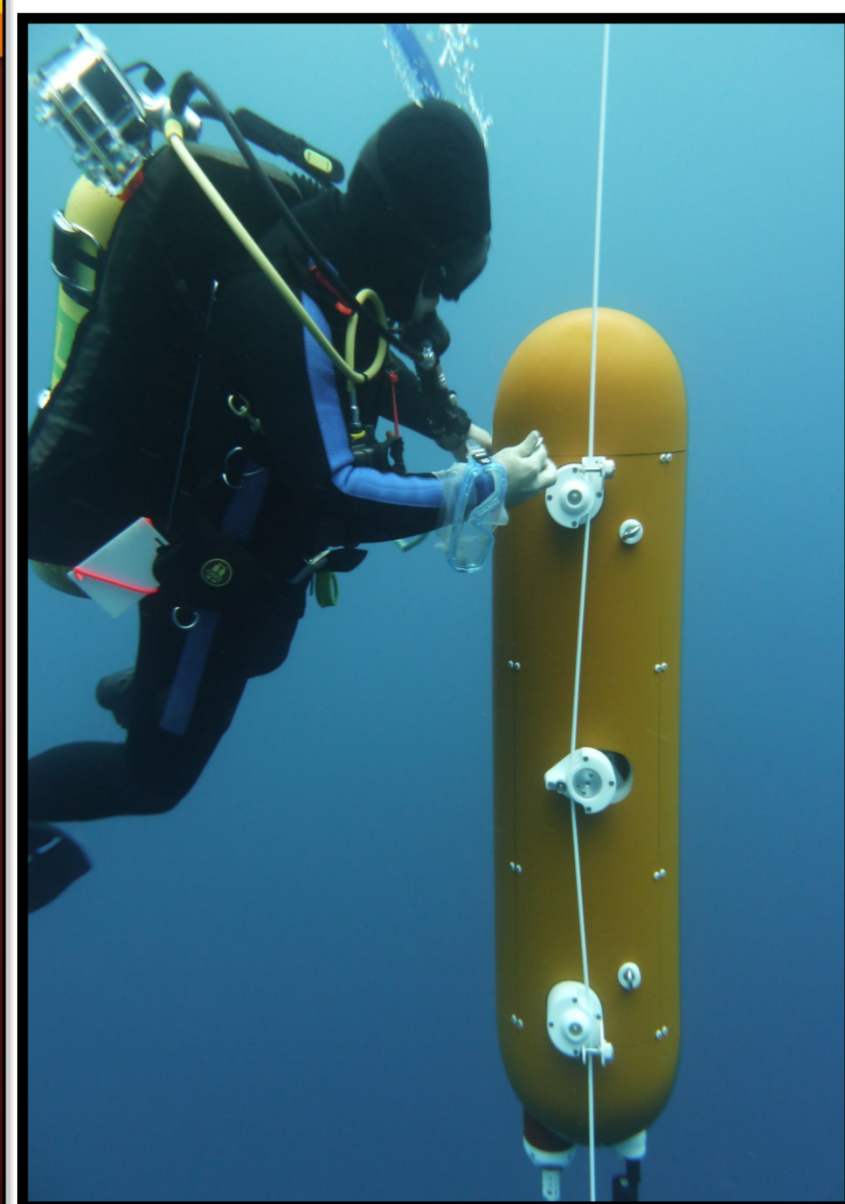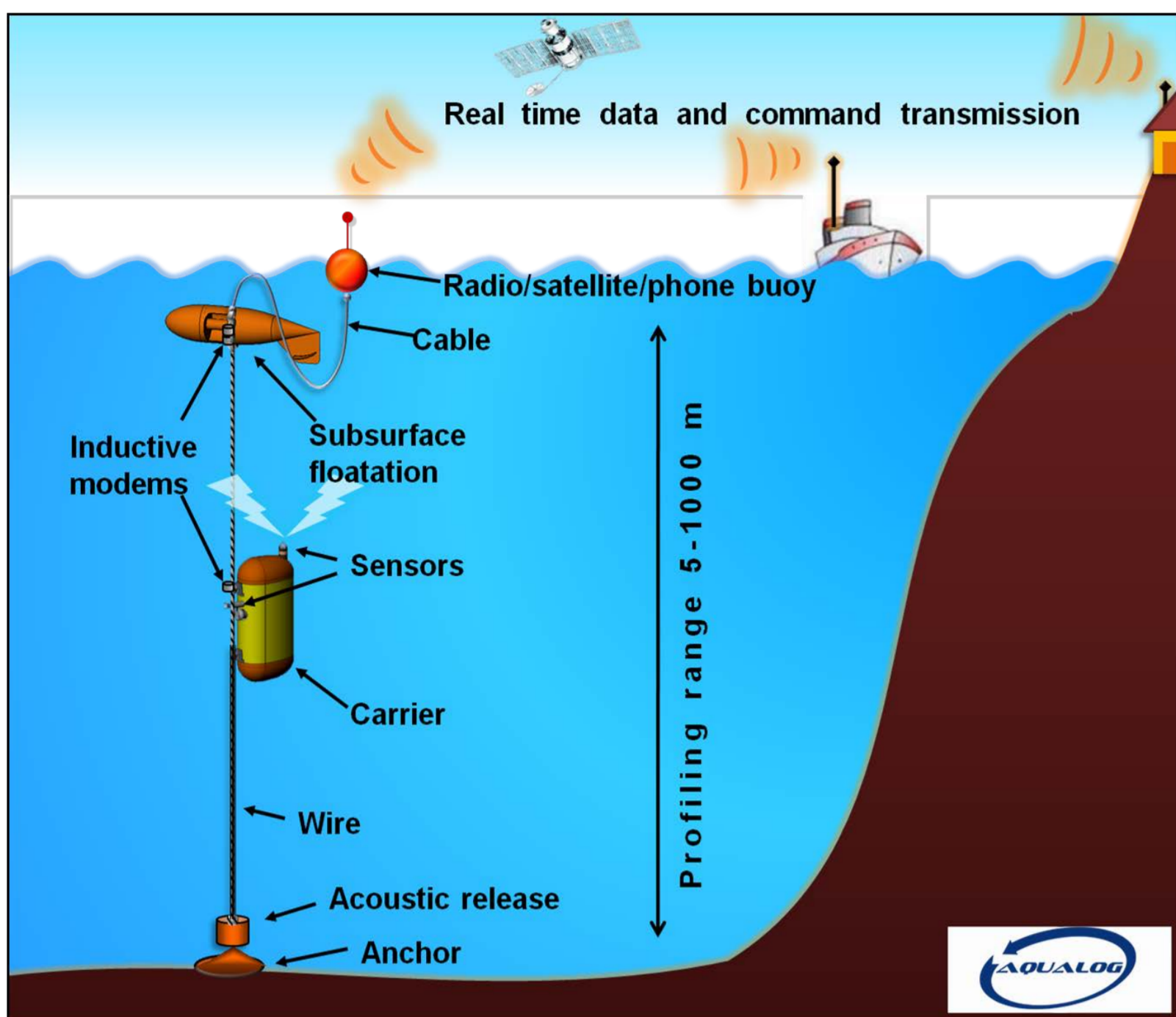
P.P. SHIRSHOV INSTITUTE OF OCEANOLOGY
Russian Academy of Sciences
Vladimir Solovyev, Tamara Shiganova, Alexander Ostrovskii

AQUALOG
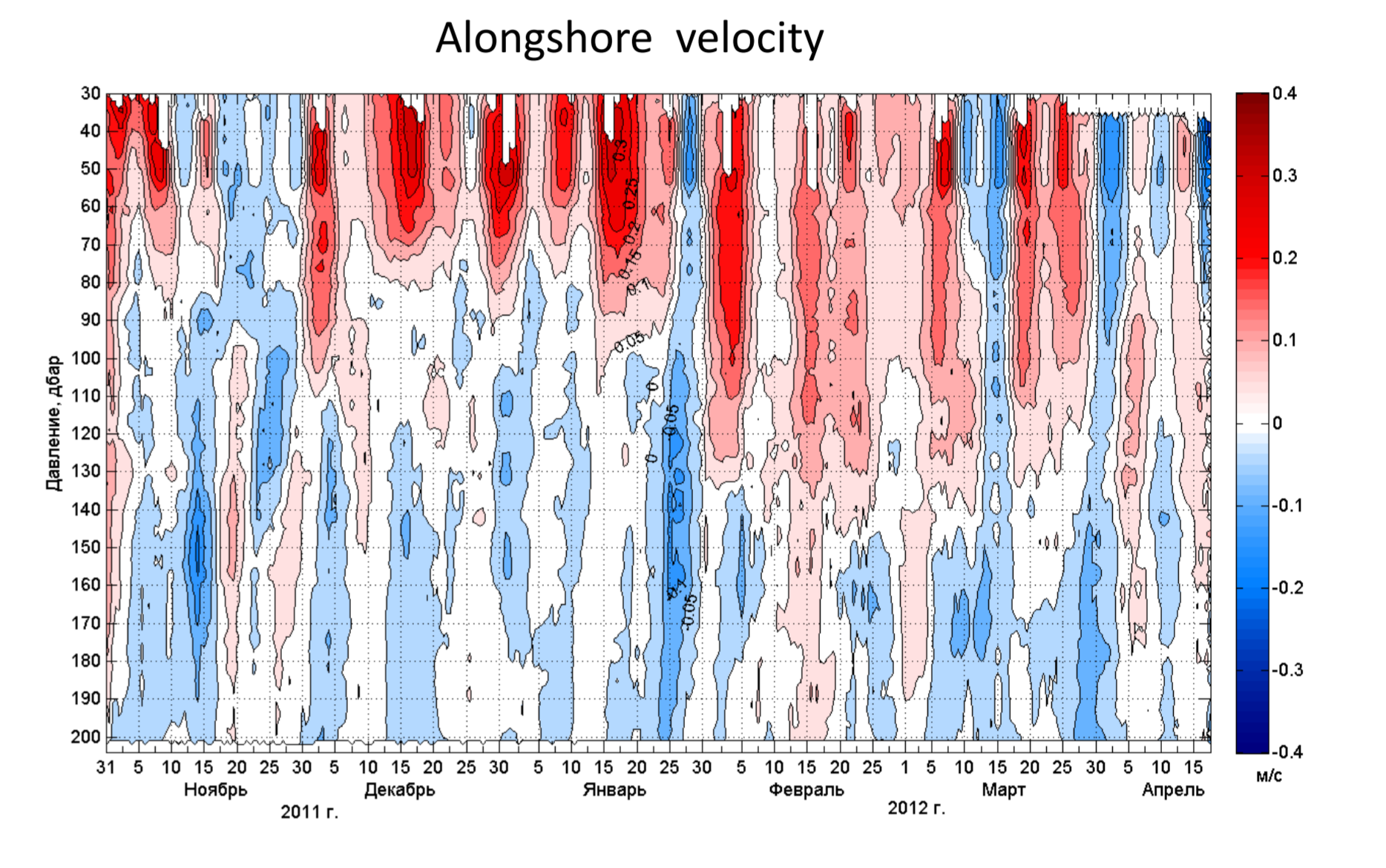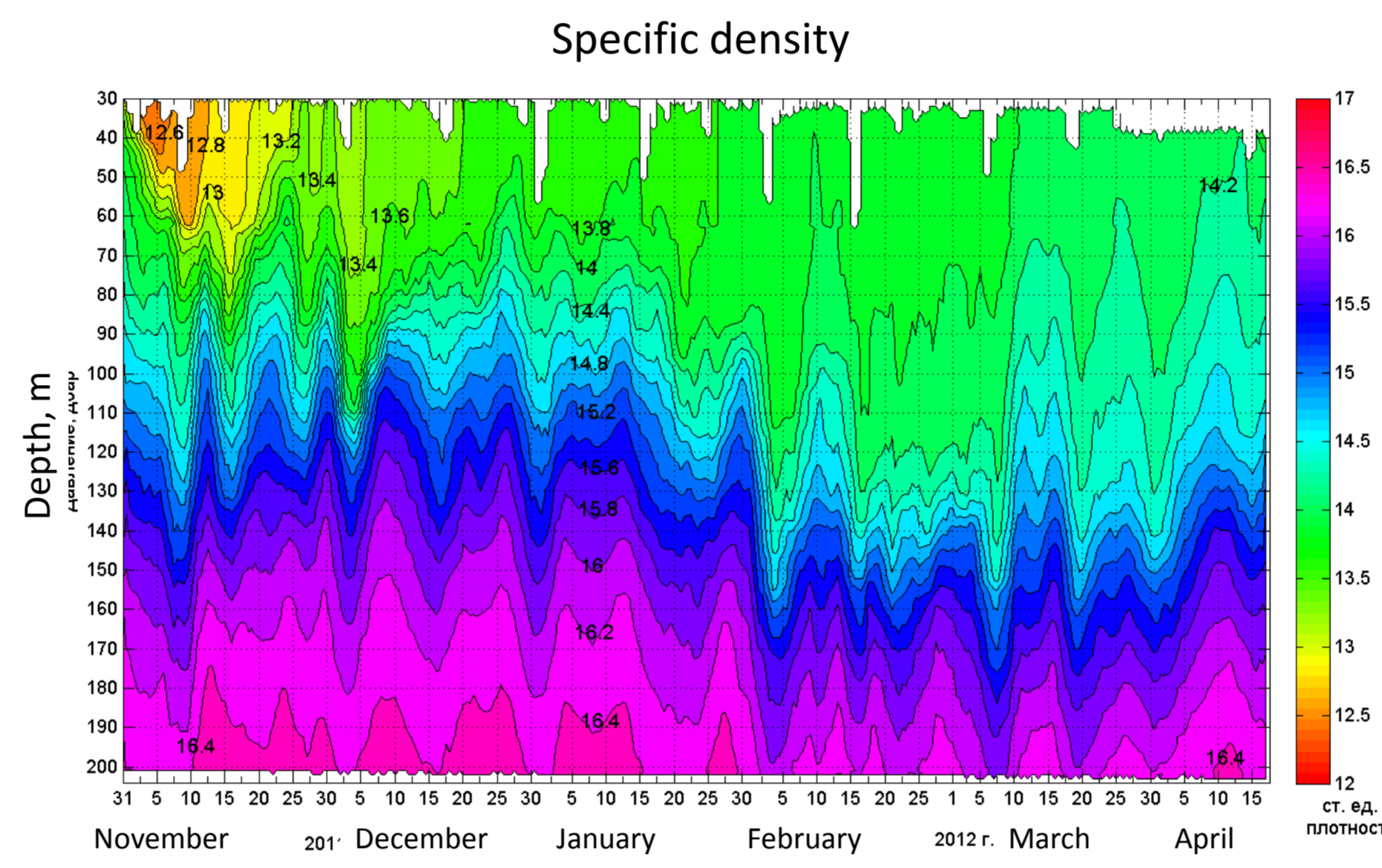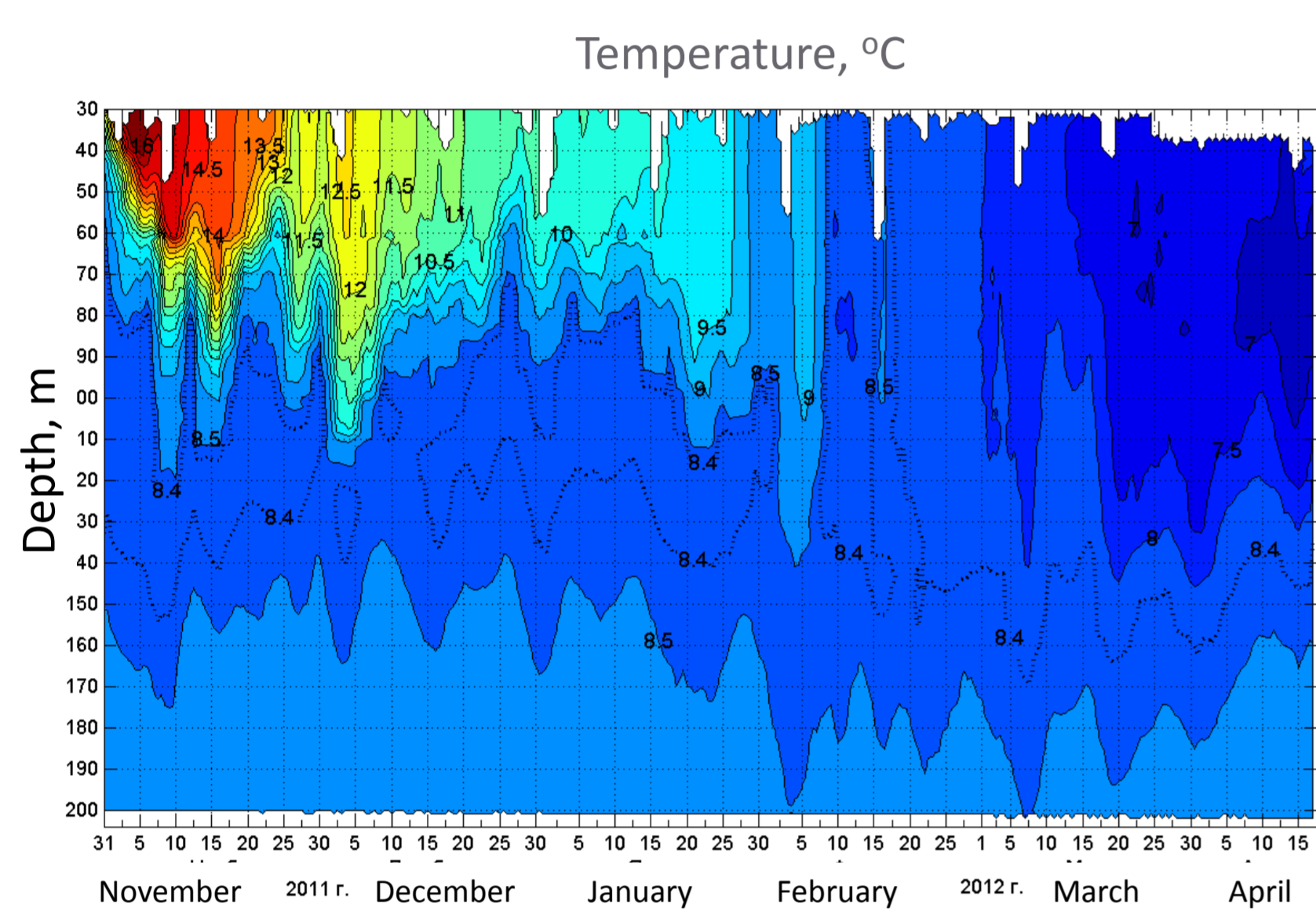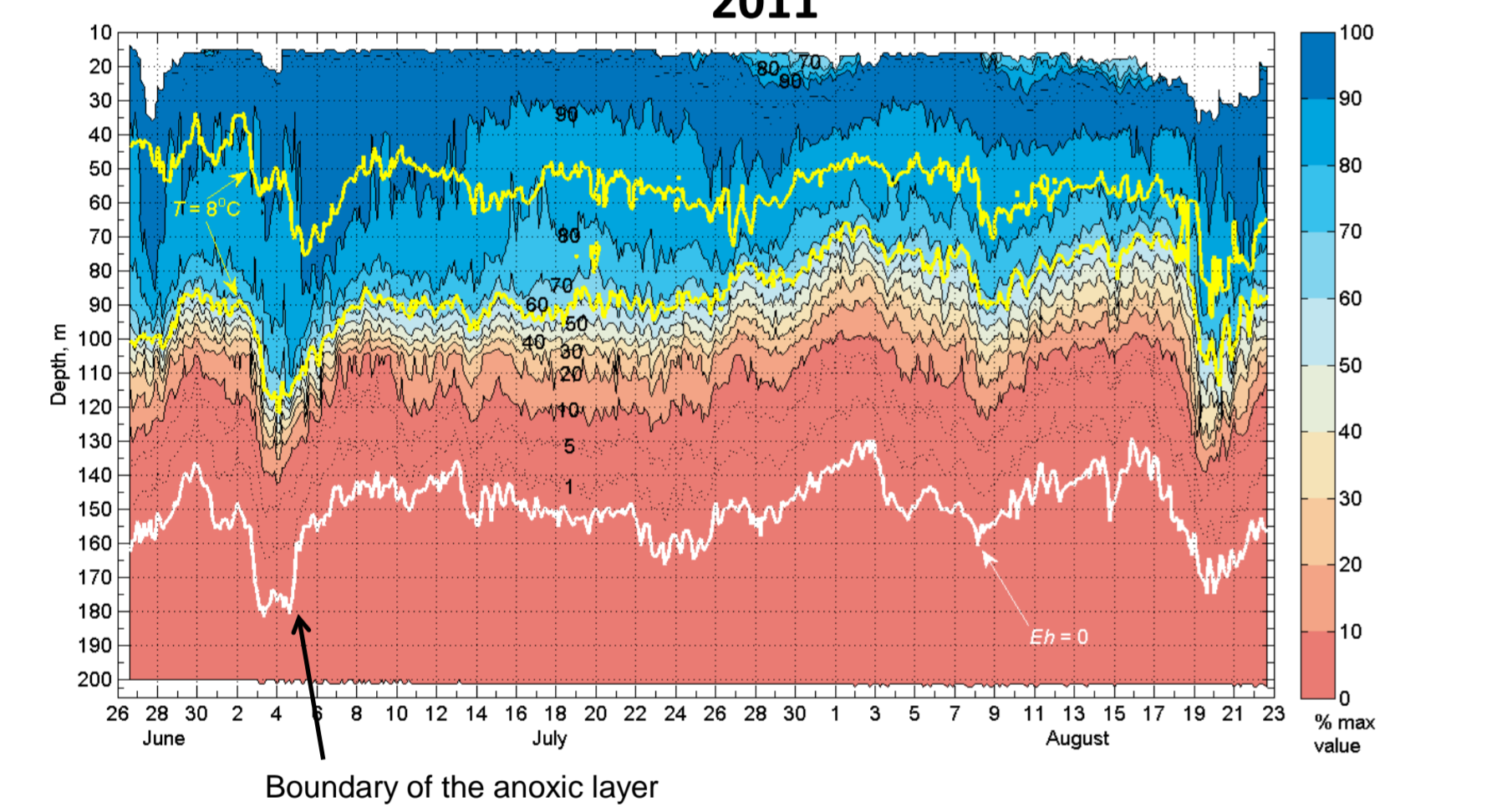### Multi-sensor platform for vertical profiling in the ocean

Real time data and command transmission
Radio/satellite/phone buoy
Cable
Inductive modems
Subsurface floatation
Sensors
Carrier
Wire
Acoustic release
Anchor
Profiling range 5-1000 m

Carrier with sensors, moving up and down the mooring line	Surface buoy for data transfer via satellite or radio channel
System features	
Underwater communication by means of inductive modems	Subsurface flotation moored with taut wire (plastic coated stainless steel)

Typical Aqualog mooring configurations

Data obtained examples

Long-term continuous profiling of the upper 200-м layer (31/10/2011 - 17/04/2012), Black Sea

Temperature, ºC

Specific density

Alongshore velocity

Fluctuations of the Black Sea anoxic zone boundary in June-August 2011
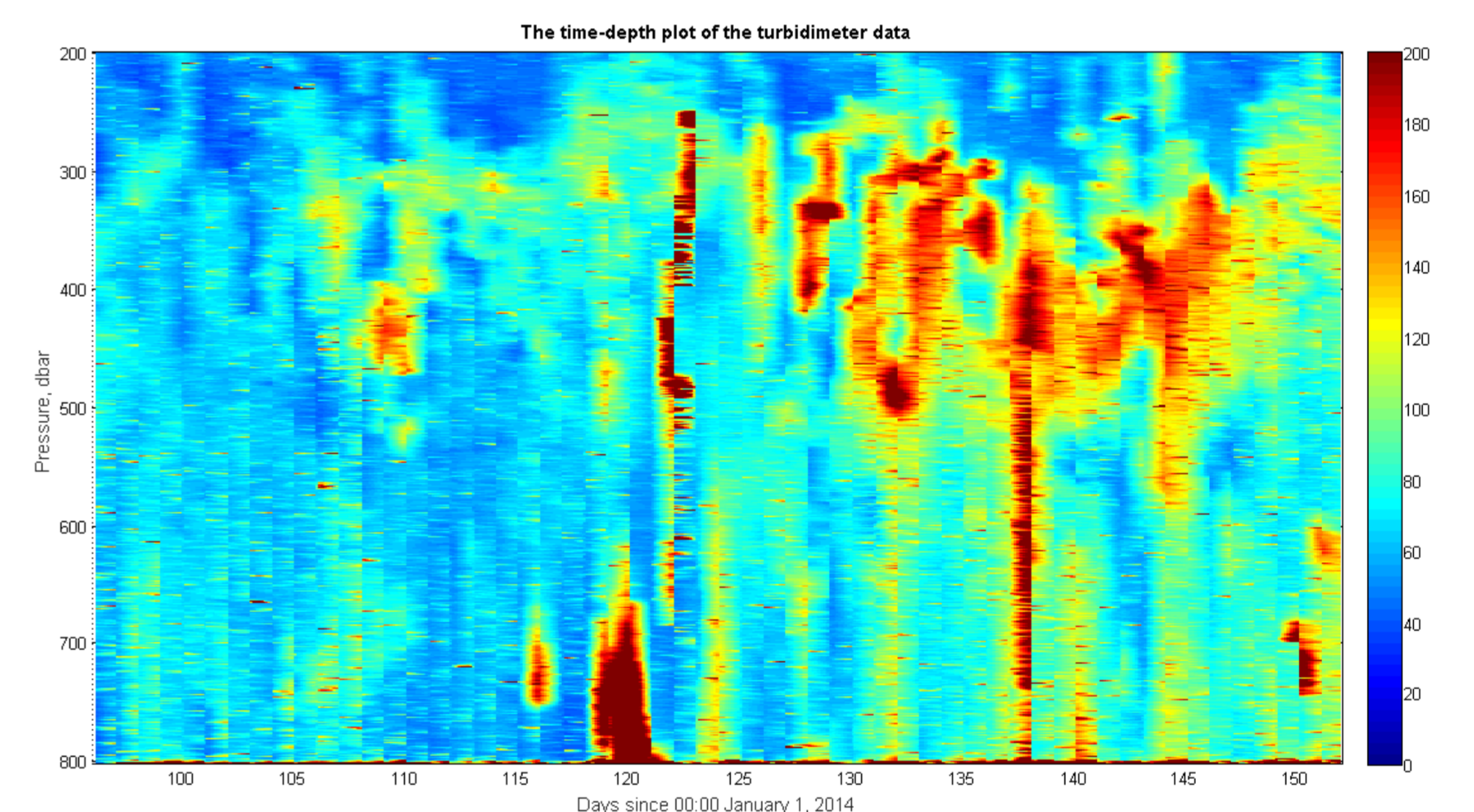
Boundary of the anoxic layer

Gulf of Eilat, Read Sea, 2011
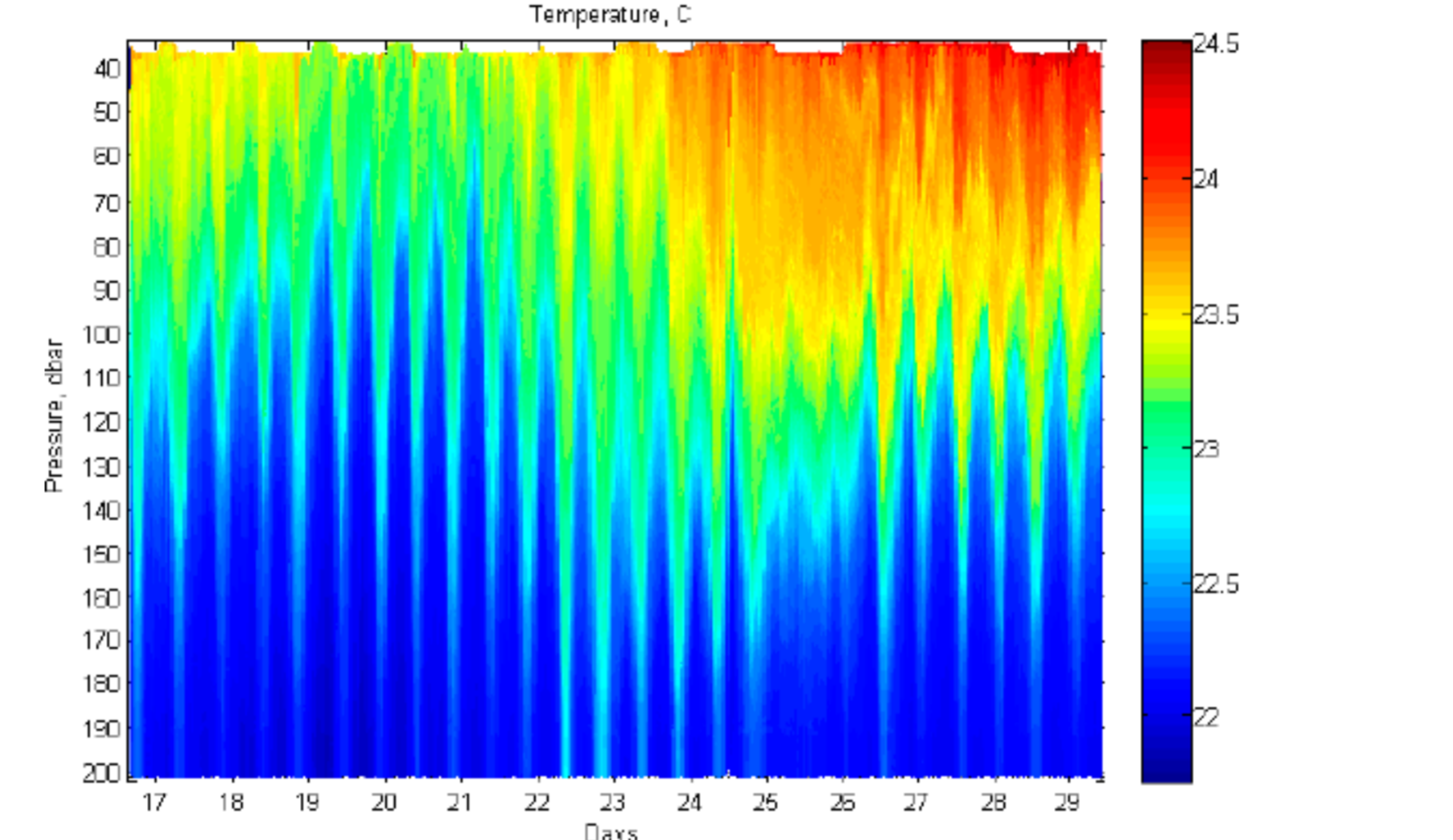
The data show large vertical displacement of isoterm (≈100 m) at what appear to be tidal.

Mediterranean Sea
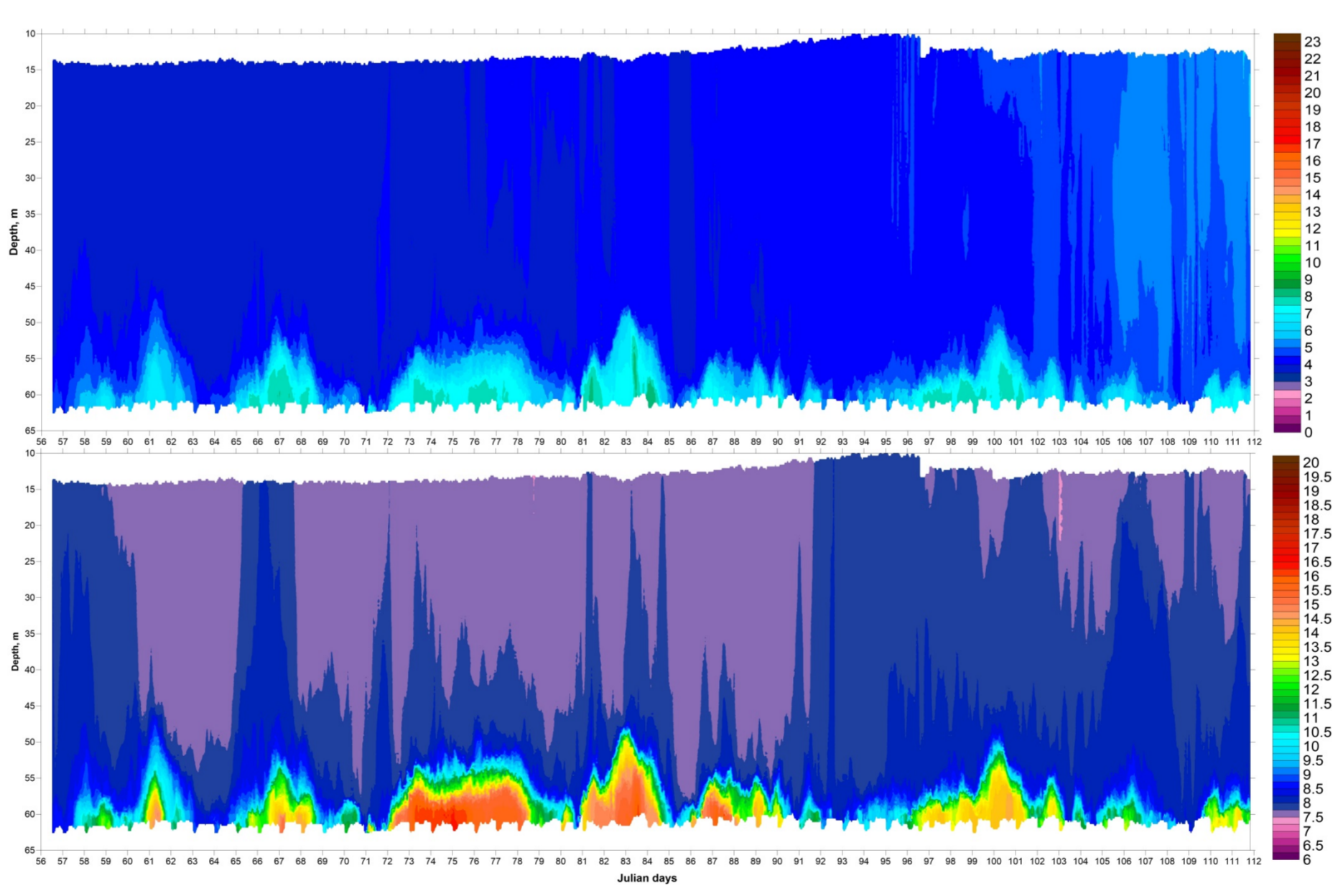
The time-depth plot of the turbidimeter data

Diel zooplankton migration, Acoustic Backscatter, Black Sea

The time-depth plot of the acoustic backscatter channel 1&2 (counts)
The data were obtained at both ascending and descending tracks

Calanus, size 1-3 mm

Sunset: 18:16 [GMT +0,0 h]
Start migration: 13:30 - 14:30
Finish migration: 17:00 - 18:00
Duration: ok. 3,5 h

Sunrise: 2:45 [GMT +0,0 h]
Start migration: 00:00 - 01:00
Finish migration: 02:30 – 03:30
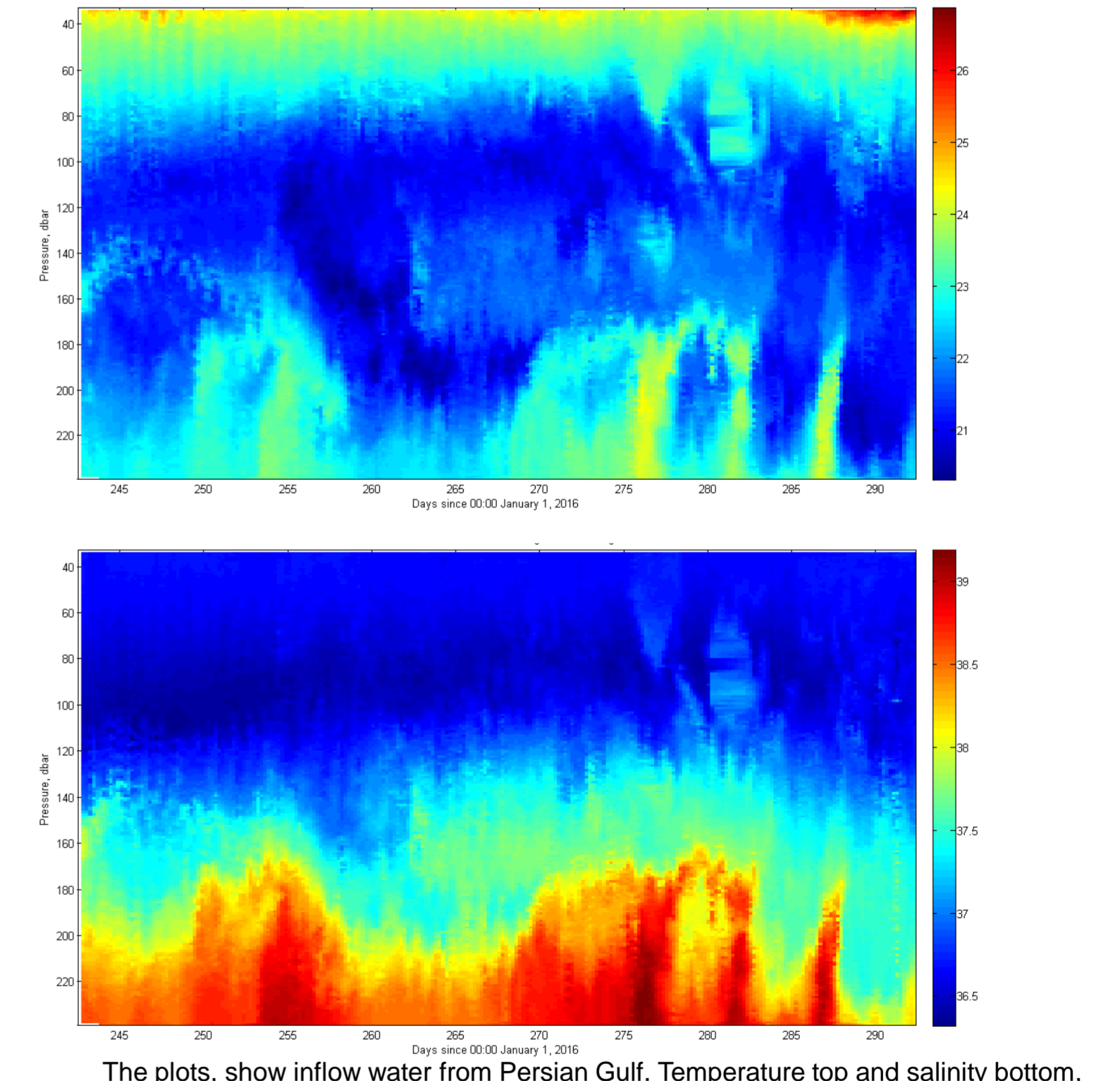Duration: ok. 2,5 h
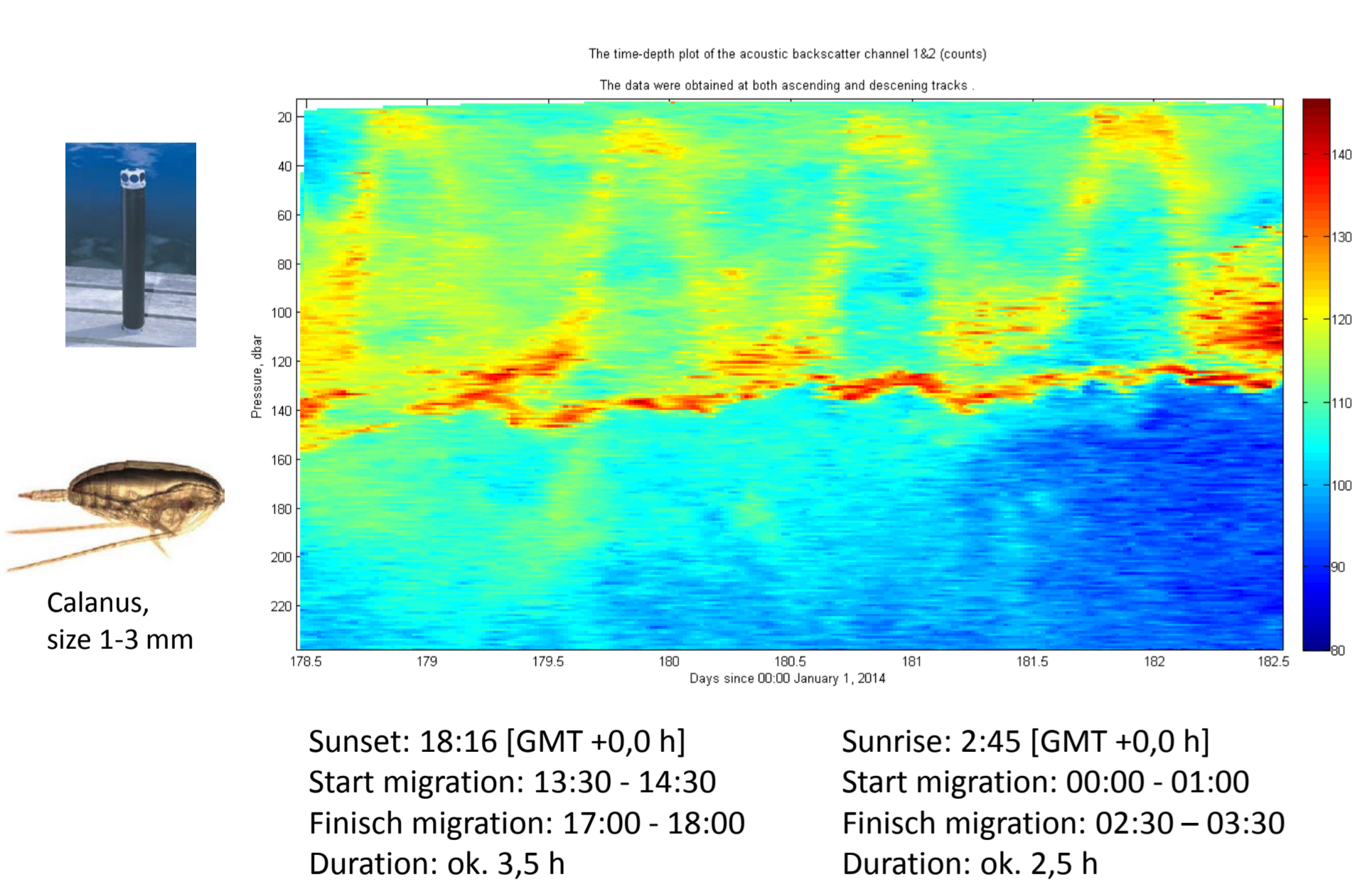
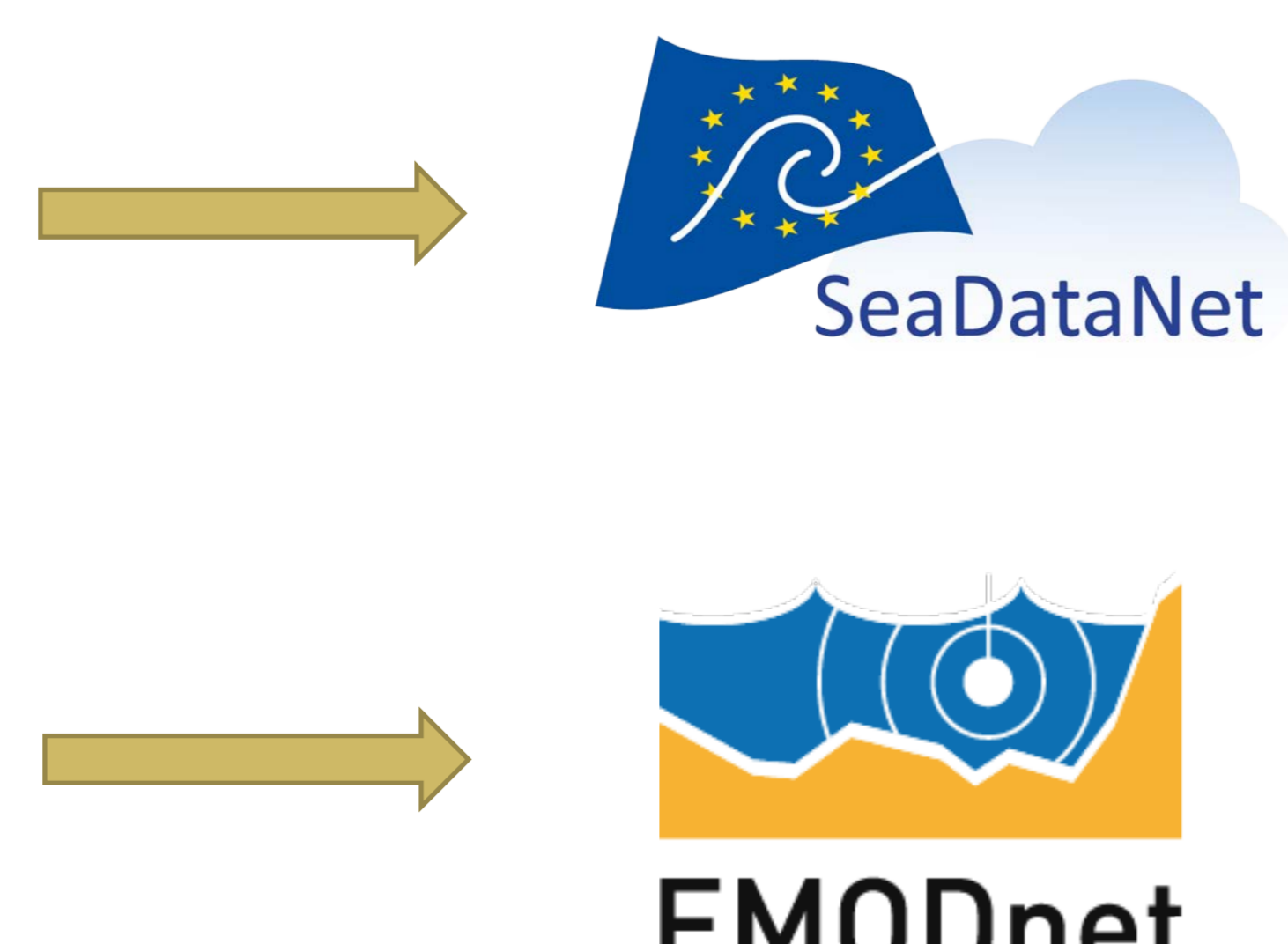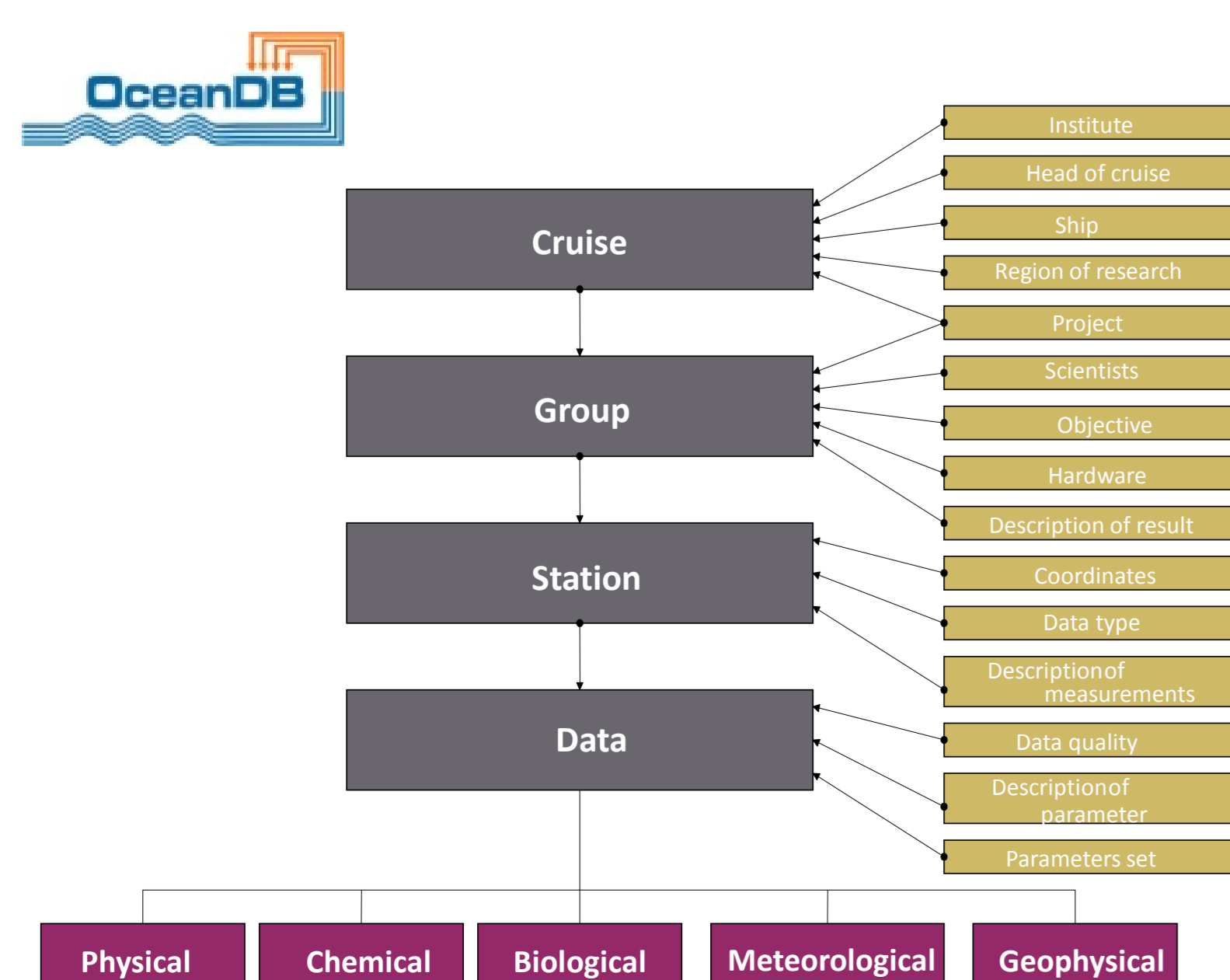### The Slupsk Channel, Baltic Sea, 2015

The plots show inflow water from Nord Sea. Temperature top and salinity bottom.

Oman Gulf, 2016

The plots, show inflow water from Persian Gulf. Temperature top and salinity bottom,

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Data storing and publishing

OceanDB

Cruise — Institute, Head of cruise, Ship, Region of research, Project, Scientists, Objective, Hardware, Description of result
Group — Coordinates, Data type
Station — Description of measurements, Data quality, Description of parameter, Parameters set
Data

Physical | Chemical | Biological | Meteorological | Geophysical

SeaDataNet

EMODnet

The data obtained by Aqualog profilers are described using the SensorML standard was transferred to the data center of the Shirshov Institute of Oceanology. In the data center, quality control was carried out to verify the following: all the data was in the regional parameter range, ascending and descending profile data variance remained within the predefined limits, pressure and density inversions were eliminated, spikes were tested, proper visual QC was obtained, and etc. After QC check the data store in the oceanographic data warehouse OceanDB.

OceanDB provides the structured storage of diversed oceanographic data on the following scientific sections: physics of ocean, ocean chemistry, marine biology and ecology and geology. CDI indexes and records for Download manager coupling table are automatically processed for data publish in EMODnet and SeaDataCloud system.