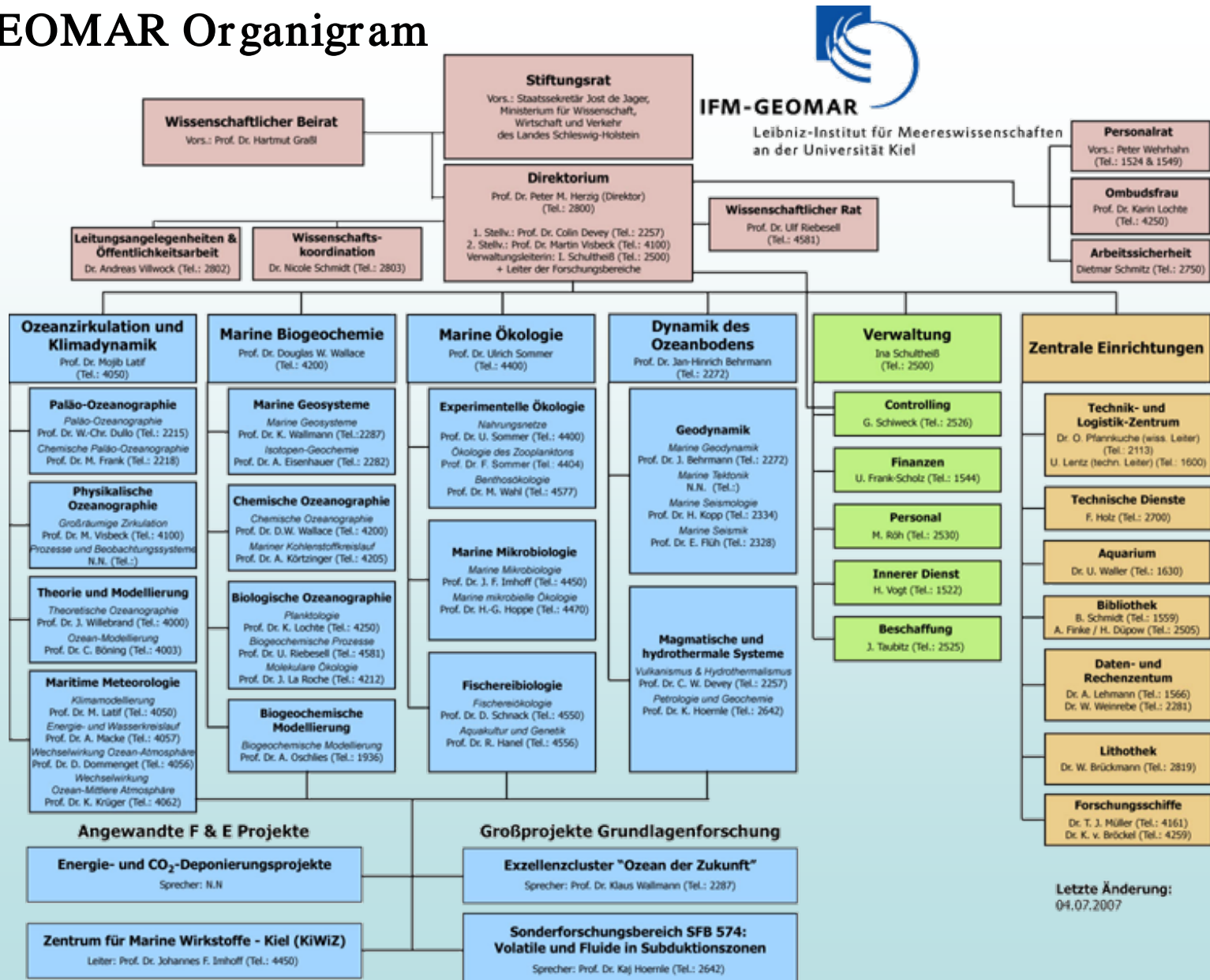


Major instrumentation available at IFM-GEOMAR

IFM-GEOMAR Organigramm



Major System Overview

Ships

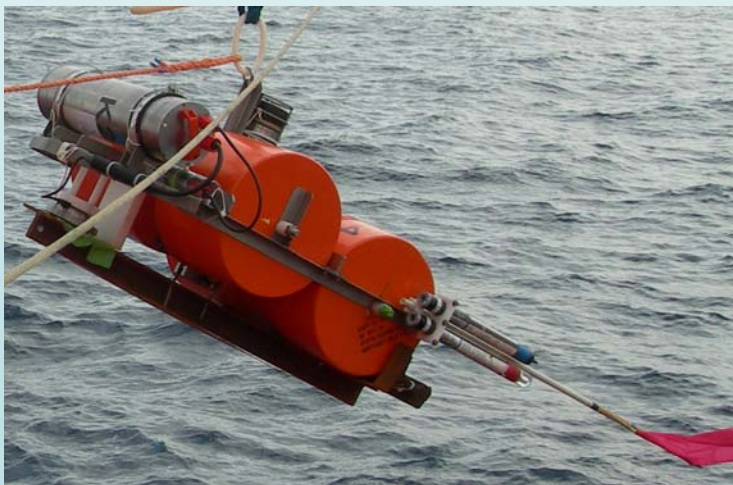
- Poseidon
- Alkor
- Litorina
- Polarfuchs

Mobile Systems

- geologic probes (coring, dredging)
- water probes (CTDs, drifters, gliders)
- Lander systems (geo-bio-chemic, physical properties)
- seismic equipment (sources, streamers, ocean bottom)
- remote systems (JAGO, ROV, AUV)
- mobile winch (11 mm, 6000 m) replacement 2008/2009?

The GEOMAR Ocean-Bottom-Seismometer and Hydrophone

- sampling up to 10 kHz
- broadband seismology sensors available
- extended for Tsunami application
- acoustic + time release

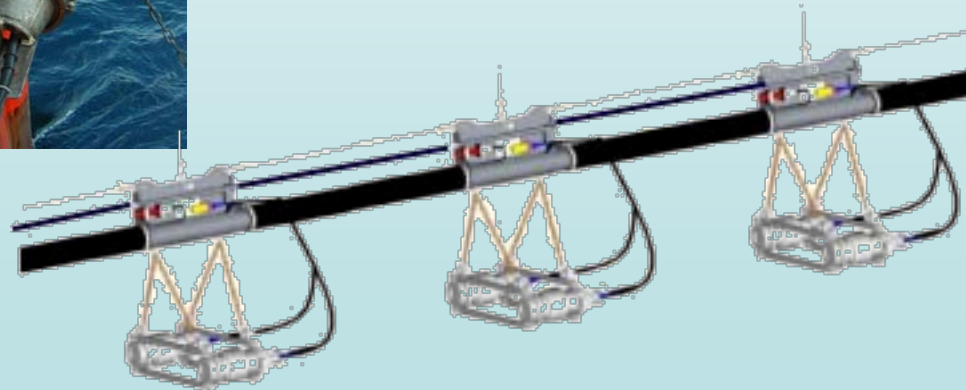


- ca. 80 instruments

Seismic Sources

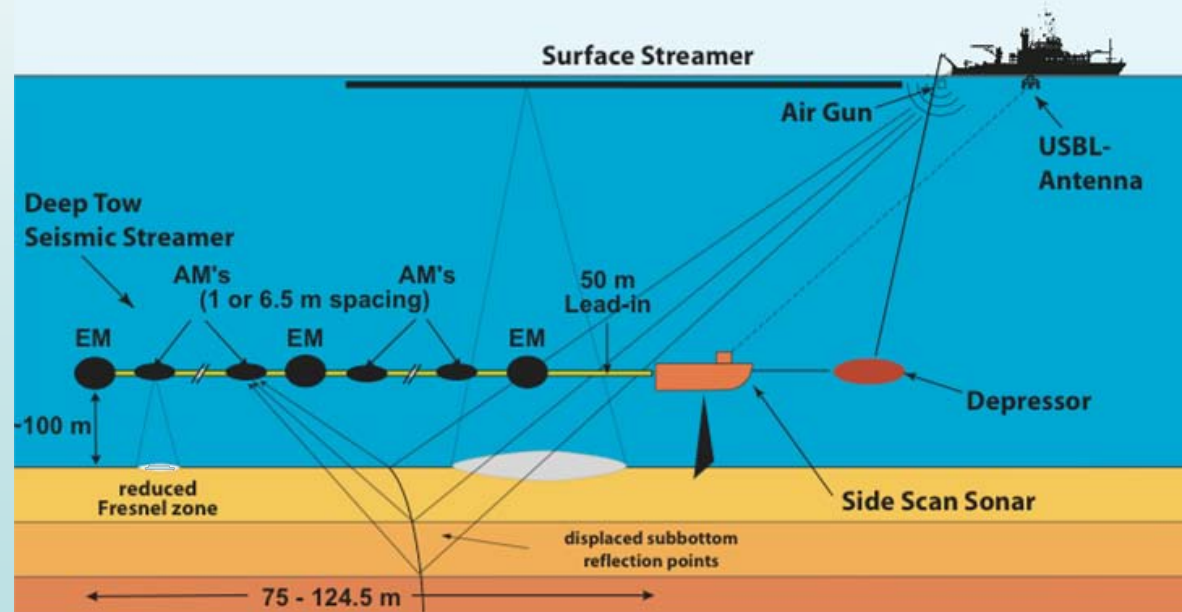
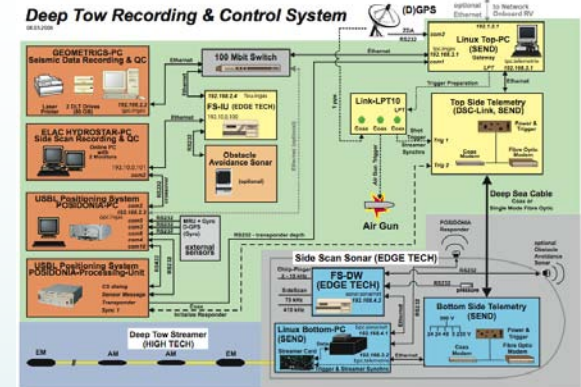


- 3 GI gun 105/105 (250 Generator)
- 3 Bolt PAR 800 (2000)
- 4 G gun clusters (520/520) @ 2 booms
- 1 G gun cluster 380/380
- 1 G gun cluster 280/280
- 1 G gun cluster 150/150
- reconfiguration into 2 towed G gun arrays with 3 clusters each



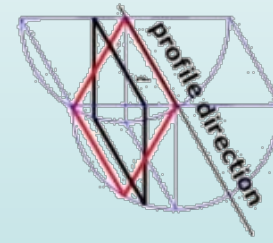
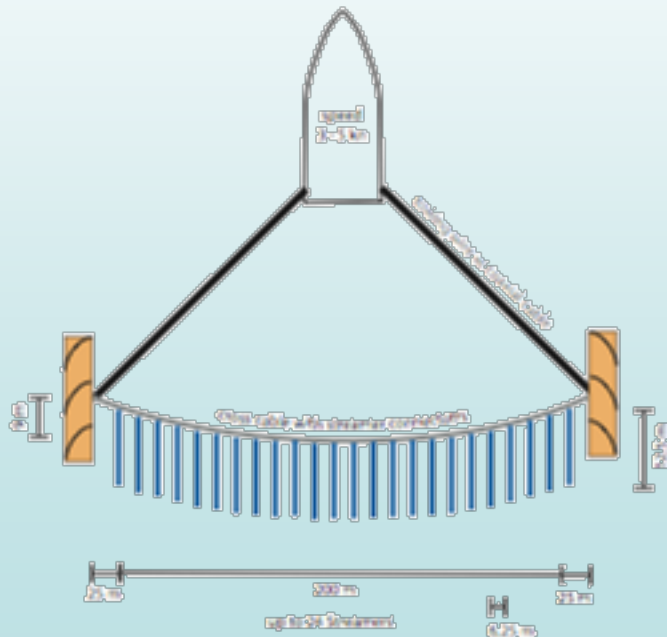
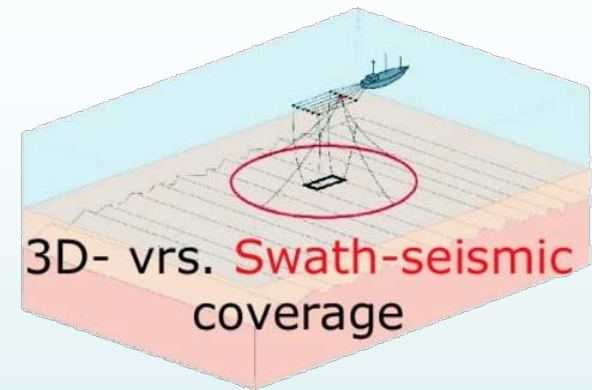
DeepTow Multichannel Seismic Streamer and Sicescan Sonar

- dual frequency Sidescan EdgeTech DT1 (70/420)
- Chirp SubBottom Profiler
- 26 channel digital streamer
- modular receiver nodes
 - single hydrophones
 - opt. compass and depth
- coax & fibre optic telemetry
- Posidonia USBL
- rated to 6000 m

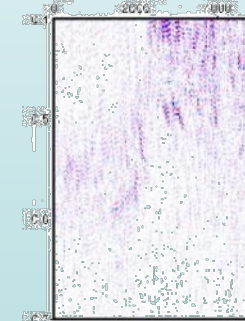


Future development: 3-D MCS Acquisition and SwathSeis

- lateral extend of 24 streamer sections (optional up to 48)
improve resolution (reduced Fresnel zone)
- 24 (- 48) * 8 channel, 1.65 m group, 6.25 m streamer offset
- fast and flexible 3-D
- beam forming improve 3D resolution in SwathSeis mode

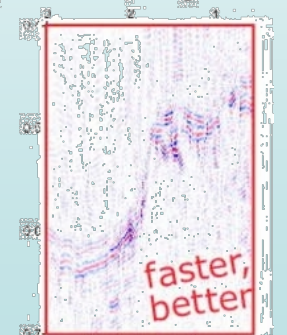


3D-prestack-time migration (Kirchhoff)



prestack sail line-126m

New swath-seismic 3D map migration

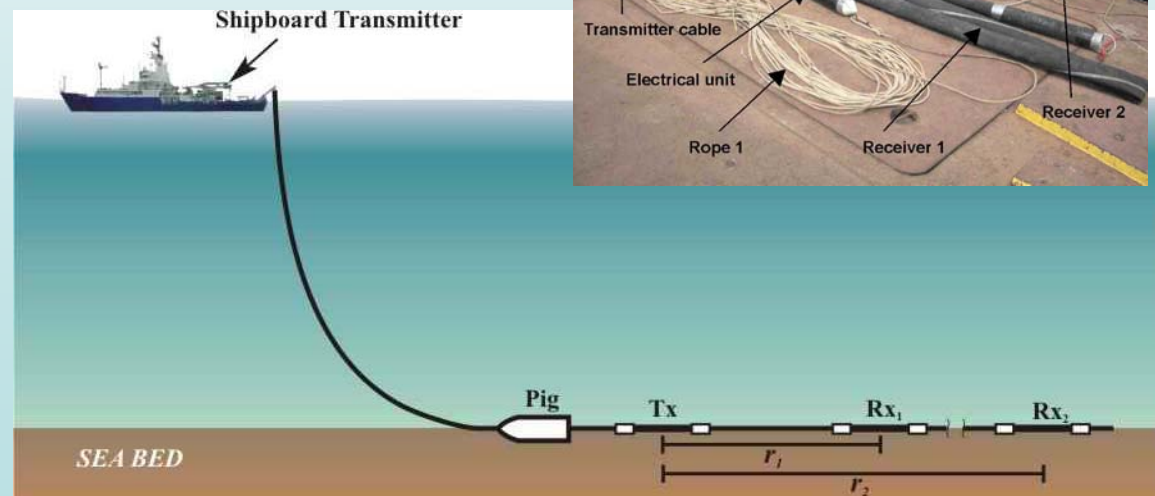
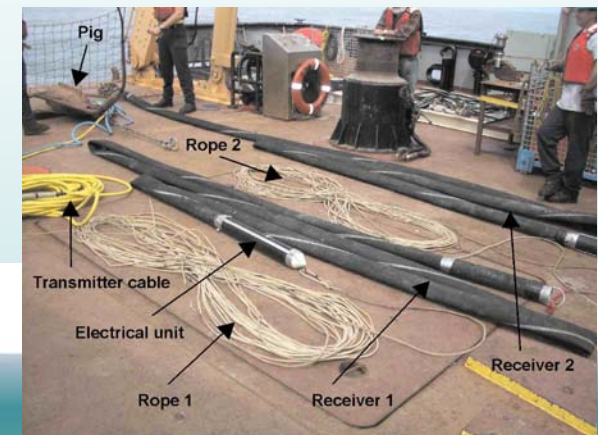
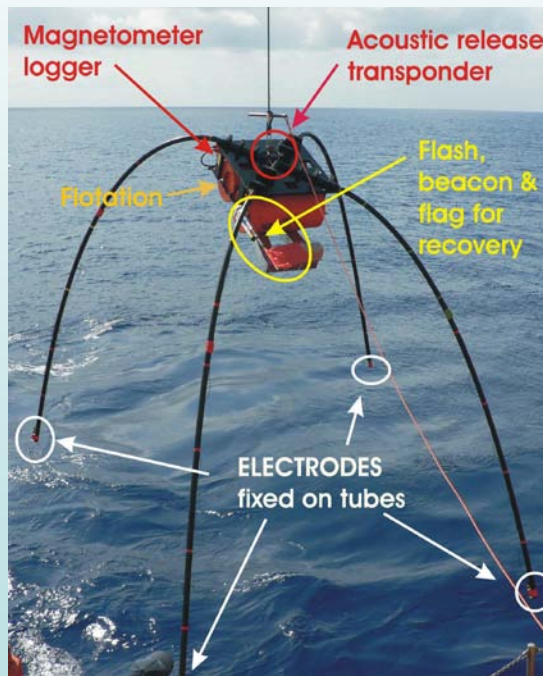


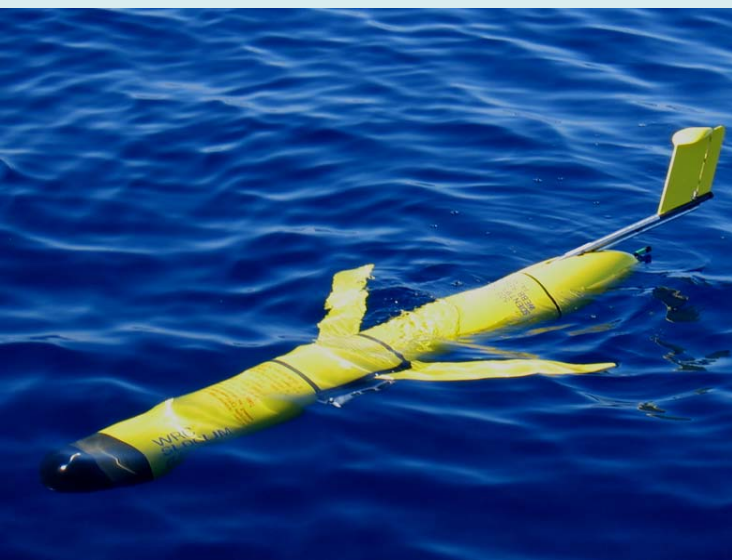
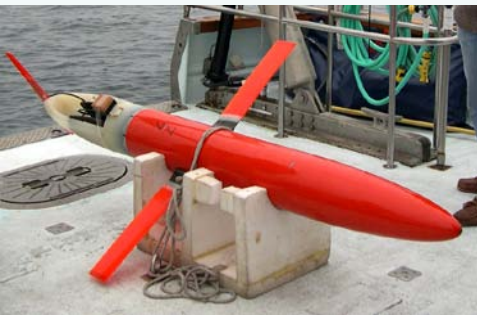
swath-seismic inline +20

Ocean Bottom Magnetotelluric OBMT & Controlled Source Electro-Magnetics CSEM

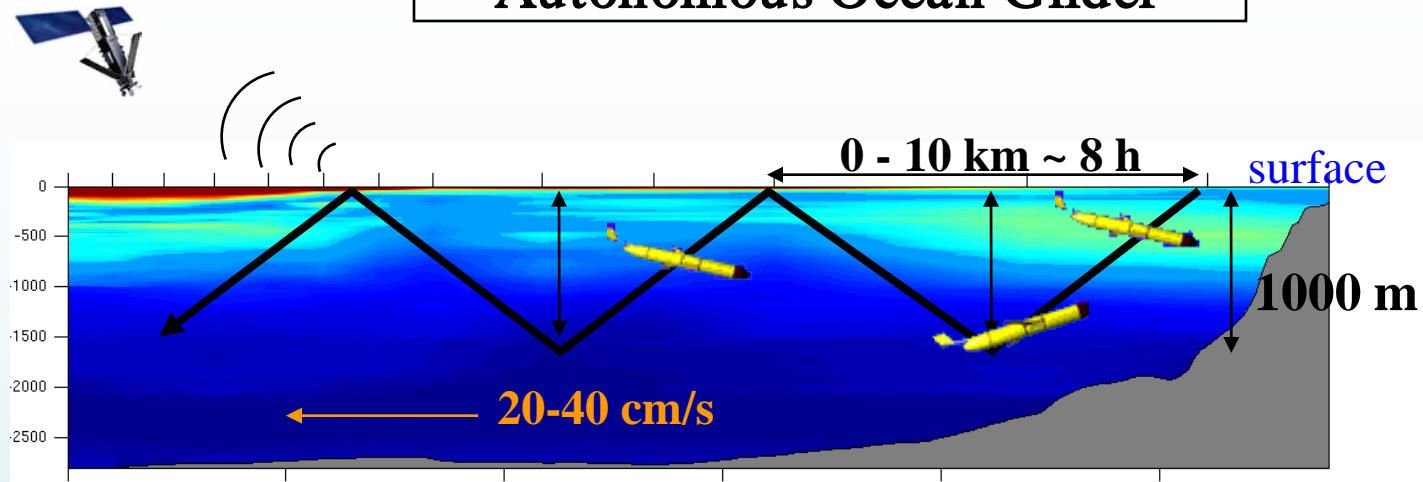
- Magnetic field @ 10 nT resolution
- Electric field @ +/- 10 mV

- dipole-dipole array, 170 m / 275 m
- max 600 V @ 15 A





Autonomous Ocean Glider



- Profile the upper 1000m
- Communicate results in real time
- Last up to 6 month
- Carry a host of electrical sensors

ROV Kiel 6000

- work class ROV, rated 6000 m
- 7 electrical thrusters to 530 kgf fore/aft
- 2 hydraulic manipulators (7p, 5p)
- 8 video cameras
- Lighting up to 4 kW
- Sonar (up to 400m \pm 1 m)
- Video Measuring System (Tritech Typhoon VMS)
- USBL navigation and ROV Homer System
- Tool skid, up to 130 kg payload (lead equivalent)
- Power on ROV: 60 kW
- 380 – 400 VAC, 3 phase, 50 Hz
- 4160 VAC, 3phase, 460 Hz
- 6500m umbilical @ 19 mm
- 20 cable layers on electrical winch
- 350 A for ROV, 350 A for winch
- Live Boating Mode, i.e. no TMS
- station keeping up to 2 kn current
- auto pilot mode

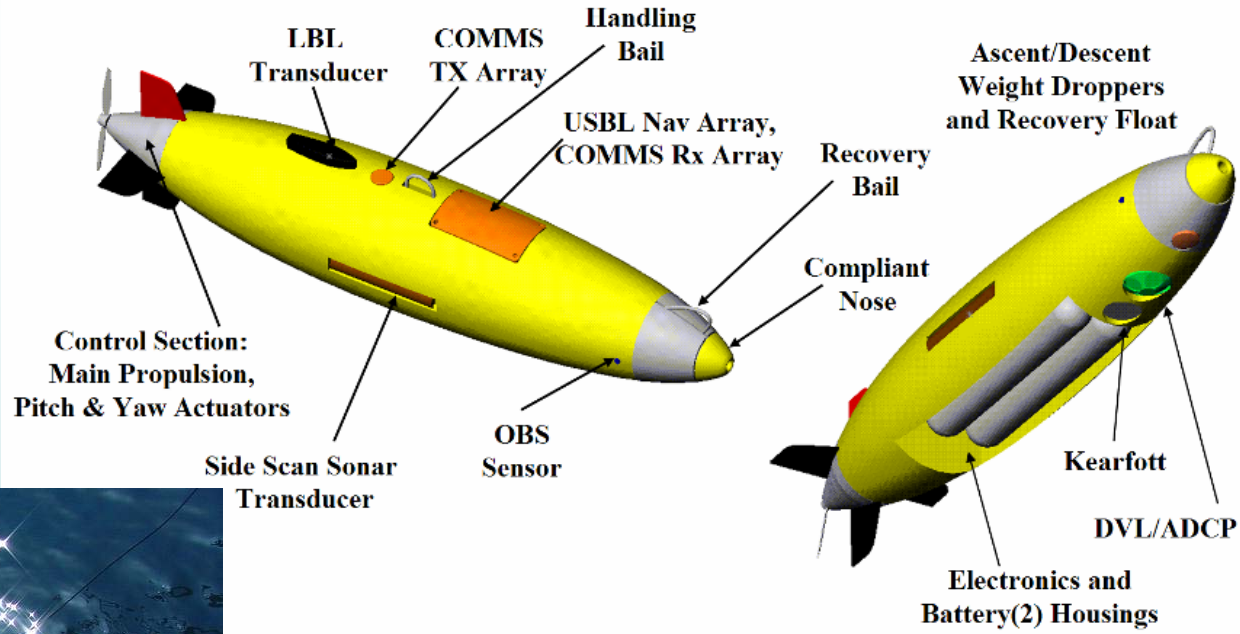


Tkuhn@ifm-geomar.de



Major instrumentation available at IFM-GEOMAR

AUV Remus-6000
to be delivered in Aug. 2008



Two Mobile Streamersystems

ODIM Winch:

Weight: 24 to

Dimensions:

20'' but 3.4 m high

Power Supply:

380-440 V

50-60 Hz, 36 A



Type: SERCEL SEAL

Total Length:

4500 m

Group Intervals:

12.5 m

Channels:

360

Type: SYNTRON

Total Length:

3200 m

Group Intervals:

12.5 m & 25 m

Channels:

138

Guns: 16

Volume:

50.8 l (3100 in³)

Work. Pressure:

138 bar (2000 psi)

resp.

207 bar (3000 psi)

Consumption:

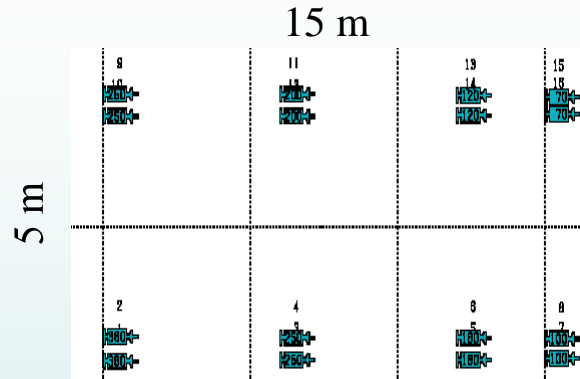
160 l/min

@ 138 bar/207 bar

Weight:

1.15 to/array

Airgun Arrays (two subarrays with 4 double clusters each)



System Availability

- all systems belong to individual research divisions
- maintenance funded through research projects
- OBS have been supported as Large Scale Facility

- general Barter support need to be funded
- loan with budget refund possible
- project co-operation welcome

- ROV Kiel 6000 dedicated to join Barter program when fully operational

- BGR belongs to Federal Ministry of Economics and Technology
difficult to join Barter program straight way