

From the deep sea to the atmosphere

Helmholtz Centre for Ocean Research Kiel

presented by:
Marilena Oltmanns



Helmholtz Centre for Ocean Research Kiel

GEOMAR

- Foundation by public law
- Member of the Helmholtz Association of German Research Centres
- Budget: 65 Mio. Euro, about 42 Mio. institutional funding, 23 Mio. project funding
- Staff: 850, about 450 scientists
- Close relationship to Kiel University:
joint professorships (up to 40), curricula, large research projects:
cluster of excellence „The Future Ocean“, collaborative research
project 754 “Climate-Biogeochemistry Interactions in the Tropical
Ocean”

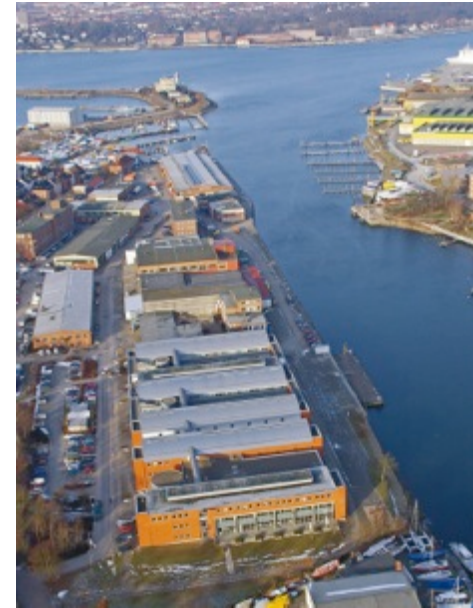
Marine Research with tradition and innovation



Helmholtz Centre for Ocean Research Kiel

West shore (former IfM)

East shore (former Geomar)



Major research topics

From the deep-sea to the atmosphere

- **The role of the ocean in climate change:** temperature and sea level rise, extreme events, CO₂ budget
- **Anthropogenic impact on marine ecosystems:** food webs, ecosystem and climate change, ocean acidification, overfishing, aliens
- **Marine resources:** natural substances from the sea, gas hydrates, mineral resources
- **Plate tectonics and natural hazards:** subduction zones volcanism, and tsunamis



Infrastructure

Research vessels

Large-scale equipment

Isotope- and trace metal analytics

Modelling

Infrastructure: Research vessels



FS ALKOR



FS POSEIDON



FK LITTORINA



FB POLARFUCHS



RV Maria S. Merian



RV Sonne



RV Meteor



RV Polarstern

Infrastructure: Large-scale equipment



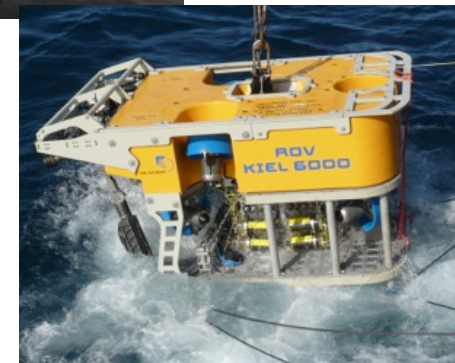
Research submersible „JAGO“

Pilot, 1 scientist (observer),
400 m max. diving depth



ROV „Kiel 6000“ & „Phoca“

Deep-sea robot („Remotely Operated
Vehicle“) up to 6.000 m



AUV „ABYSS“

Deep-sea robot („Autonomous Underwater
Vehicle“) up to 6.000 m depth funded by
DFG



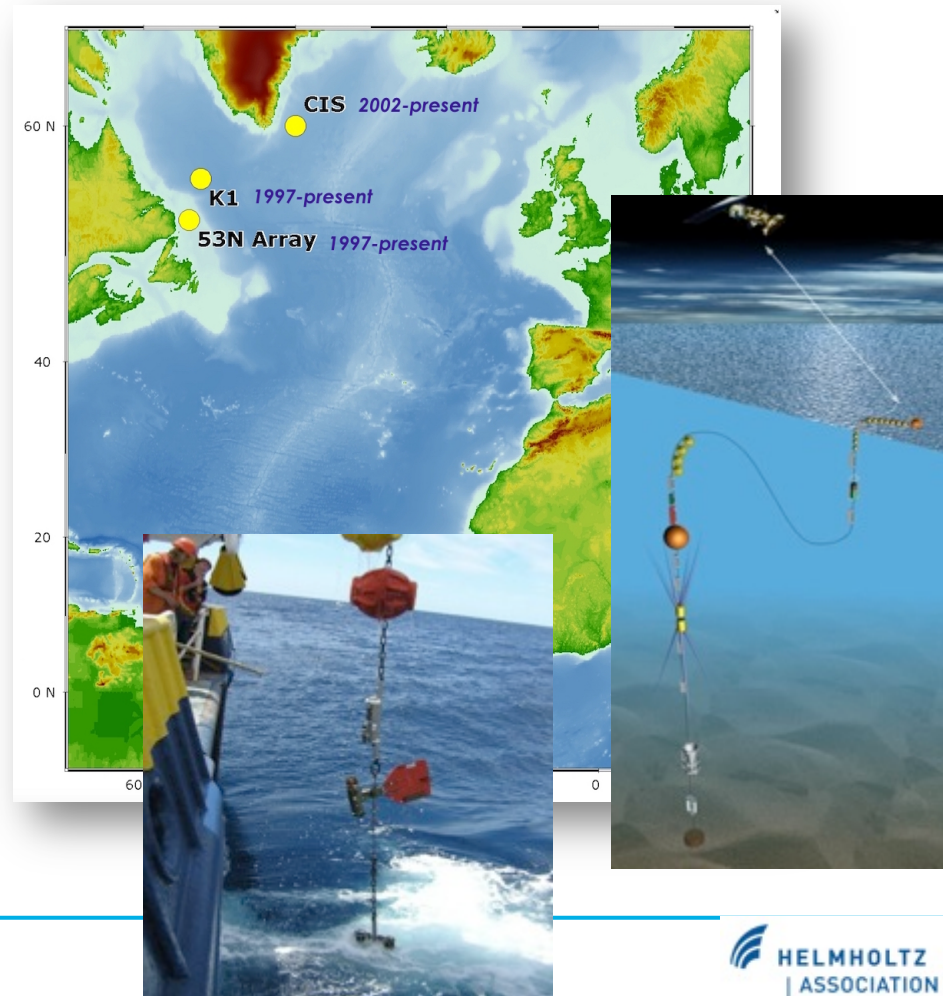
Infrastructure: Ocean Observatories



Underwater Glider

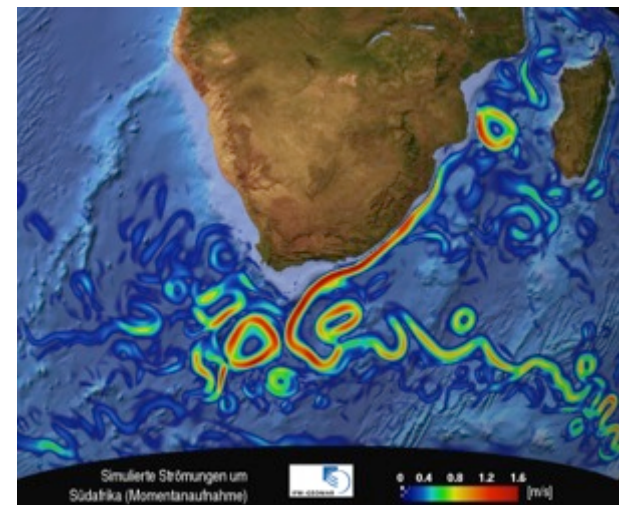
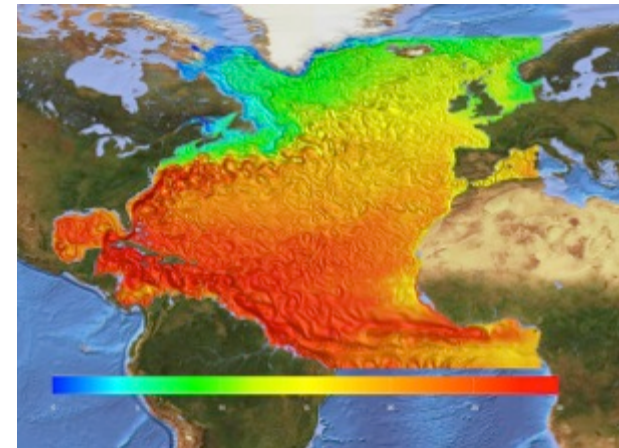


Longterm Ocean Observatories



Modelling

- Eddy-resolving models
- Coupled models with chemical and biological feedback
- Access to high-performance computing centres (Kiel, Hamburg, Stuttgart,..)



GEOMAR Data Management



GEOMAR
Helmholtz-Zentrum für Ozeanforschung Kiel

SIGN IN

HOME
RESEARCH DATA
TUTORIALS
SIGN UP
PROJECTS
CONTACT US


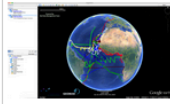

THE DATA MANAGEMENT PORTAL

...provides access to various services for research data collection, archiving and publication of the marine research in Kiel and is provided by the GEOMAR data management team ([contact us](#)). The portal offers document exchange, common or individual blogs and fora and integrates internal and external webservices and -pages. Moreover it provides access to several project's collaboration sites with personal login.


The infrastructure covers the period from data acquisition to publication, or 10 years (DFG-Richtlinie), respectively. The longterm archiving of research data will be achieved by publication in suitable world data centers, allowing the synthesis with external data.

DATA MANAGEMENT SERVICES

"Open Access" to Research Data

	<p>■ OSIS- Kiel (Ocean Science Information System): Allows data exchange and description for expeditions, numeric models and experiments. Expeditions are linked to KML-files (Google-Earth compatible), allowing a visualization of all stations of a cruise/expedition.</p> <ul style="list-style-type: none"> ■ How To - OSIS Manual (PDF) ■ How To - Integrate your Data (GEOMAR and research projects only) ■ Go to OSIS ■ Contact: Data Management Team
	<p>■ KDMI Geo-Search: Search cruise tracks, print publications, sampling locations, glider tracks, sample descriptions and detailed cruise information as georeferenced information in GoogleEarth.</p> <ul style="list-style-type: none"> ■ Go to KDMI GEO-Search ■ Contact: Data Management Team
	<p>■ GEOMAR OPeNDAP (THREDDS): The OPeNDAP server allows access to published data of model experiments. The data sets are interlinked in OceanRep and OSIS.</p>


RESEARCH PROJECTS




future ocean
KIEL MARINE SCIENCES




SFB 754




flows




BIONCID
Biological Impacts of Ocean-ACidification




BIOSCIENCE
OCEANS




COASTAL TIME SERIES
Since 1957 / GEOMAR Kiel



HALOCAT




MEMENTO
Marine CH₄ - N₂O database



MIGRATE
marine gas hydrate



BASE-LINE Earth



MARINE FUNGI



BIO-C3

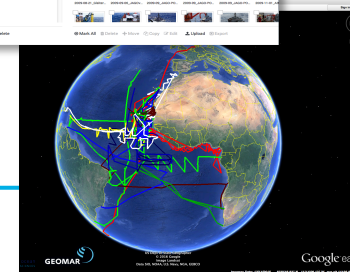
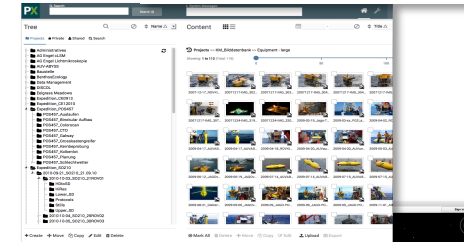
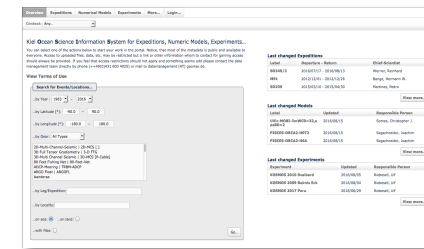


ECO₂

Data Management Portal for Marine Sciences



- Kiel **O**cean **S**cience **I**nformation **S**ystem (OSIS) *manage data from Expeditions, Numeric Models, Experiments, ... storage, access, metadata*
- OceanRep *assembles research output from scientists (journal articles, conference papers, thesis, ...) **linked with expeditions and projects** for reference*
- GEOMAR OPeNDAP (THREDDS) server *holds model experiment data, is a mirror for certain open access data (MODIS subvariables)*
- Media database & Image and Video annotation
- Geo-Search *Search cruise tracks, glider tracks, cruise information... Georeferenced in GoogleEarth*



A dark, atmospheric image of a city at night, with a bright, glowing comet or meteor streaking across the sky. The city lights are visible in the lower half, and the sky is filled with dark clouds and a bright, glowing streak of light. The text "Role in SeaDataCloud" is overlaid in white.

Role in SeaDataCloud

- Participant in:
 - WP2 *Project network coordination*
 - WP3 *Training of data providers: as trainee*
 - WP5 *Expansion and governance of metadata & data content*
 - WP7 *Tuning of requirements and overall integration*
 - WP11 *Development, update and publication of products*
- Member of Scientific Committee

*Johannes Karstensen representing AtlantOS project
(coordinated by GEOMAR), and
GOOS components (OceanSITES, OceanGliders)*
- Regional groups:

Arctic, North, Atlantic