

Updates on

- German RVs supporting OFEG
- Science support (WTD) on German RVs
- Synthetic Cables on German RVs
- Telepresence on German RVs
- OFEGT Tech Internet Pages



R/V METEOR Replacement



METEOR replacement

- Scientific technical advisory group delivered profile of requirements
 - Details of laboratories and installed equipment
 - Details on technical capabilities of the vessel
- Call for bids pending due to delay with replacement of POLARSTERN
- RV POSEIDON
 - will terminate last cruise in December 2019
 - Ship will be sold
- RV ALKOR
 - will be send to the Mediterranean the first time
 - Three cruises in January / February 2020



Science Support on German Research Vessels - WTD



Technical Science Support

- Wissenschaftlicher Technischer Dienst – **WTD**
- Available on ocean class vessels
 - METEOR, MERIAN, SONNE - POLARSTERN - unknown
 - Employees of ship operator Briese
 - Member of ships crew
 - Support vessel installations if no demand by science
- Three fields of expertise
 - 2 Electronic Engineers
 - 1 or 2 Software Specialists (trained on ship's installations)
 - 1 Technician, Fitter

Competence of WTD

- Onboard network access (LAN, W-LAN, E-Mail, phone, etc.)
- Installation of scientists computers
- Data distribution from scientists gear on board
- Introduction to vessel owned research equipment
 - Check and prepair onboard instrumentation prior to cruise
 - Advice watch keepers
- Support mechanical installation of scientists gear on board
 - All kind of iron work possible with shipboard equipment
 - Major requests need to be discussed well in advance
- Service winch connectors and cable terminations (e.g. fibre-optic, slip ring)

Competence of WTD

- Upon request (already within cruise proposal)
 - Request for second boatswain (e.g. 24 hrs heavy gear operations)
 - Request for operator (multibeam processing and chart preparation)
- Electronic / mechanical repair support on failure of scientists equipment
 - Not on service level
 - Based on available spare parts
- During and after the cruise
 - Prepare backups of
 - DSHIP navigation and sensor database
 - Multibeam, sub-bottom profiler and other ship owned equipment

Synthetic Ropes and Cables on German RVs



Steel cables on German RVs

- Steel wires out of range at 5000 m depth
- Usually factor of safety (FS) about 3 for wires without conductor
 - Dynamic behaviour reduces FS to 2
 - Wires get stretched, uneven diameter
 - Spooling becomes bad
- Main winch manufacturer for German RVs HATLAPA
 - Has been sold
 - Spooling control device of HATLAPA
 - With diameter check, could balance unequal diameters
 - No longer supported
 - Only two spooling experts left at HATLAPA

Synthetic cables on German RVs

- Scientific community and ship owners not very enthusiastic on synthetic wires and cables
- METEOR
 - 6000 m, 8 mm, COSA aramid rope, with nylon braid and PE jacket
 - 900 m, 14 mm, SELDIS synthetic rope with PA core & PP jacket
- MERIAN
 - 3000 m, 8 mm, Dyneema, GeoSpecial Technora
- SONNE
 - 4000 m, 8 mm, Dyneema, GeoSpecial Technora
- Synthetic ropes on spare drums - not in use

Synthetic cables on German RVs

- MARUM, University of Bremen
 - MEBO 200 limited to about 2700 m water depth
 - Umbilical for greater water depth not available
- New development by Norddeutsche Seekabelwerke (NSW)
 - Carbon stick technology
 - Patent published
- MARUM, University of Bremen
 - Submission of proposal to test umbilical on MeBo 70 winsh
 - Cooperation with NSW and Brieese

OFEG Tech database on winches and cables

- OFEG summary by Colin Day of 2016
- ERVO prepares new Position Paper #25 for European Marine Board
 - „**Next Generation European Research Vessels**”
 - Will include update on winches and cables
 - Last PositionPaper collection from 2007
 - **Not a live database**
- Winch and Cable Database
 - ERVO covers all EU vessels, well beyond those within OFEG
 - OFEG Tech to copy relevant parts of ERVO database?
 - Annual updates ?
 - OFEG Tech interested to maintain ERVO database?
 - Annual updates ?

Telepresence on German RVs



- German RVs with C-Band capabilities
 - POLARSTERN, METEOR, SONNE
- Vessels equipped with antennas (C-Band) only
 - 10 Mbit about 50k€/ 4 weeks
 - True band width unstable
- GEOMAR operates two mobile Systems
 - Rx / Tx boxes for 4 HD channels
 - SRT coding
- MARUM and AWI
 - SRT based hardware
 - 3 Mbit, full HDTV underwater video transmission

Main problem is latency

– ROV has passed point of interest when displayed on shore

Testphase 1: MARUM - 2018 aboard RV Sonne SO263, Central Pacific:

first realtime 1280/720p feed live during 2 last dives
encoding software based, max. 1.5 Mbit/s per stream (tunneled)

Testphase 2: GEOMAR – aboard RV Sonne SO268, Central Pacific

First Science Application: MARUM, coop. with AWI - April/May 2019
aboard RV Polarstern, PS119, South Sandwich Islands:

- SRT based hardware encoding with 3 Mbit upload per stream, full HDTV underwater video transmission
- First applied remote science with low latency video, audio conference, data file exchange, and interactive GIS (QGIS)
- Repeated public live transmissions to locations in Bremen, Hamburg and Berlin



AWI MARUM IFREMER Cooperation – next steps:

-
- after successful tests and application during PS119 we suggest to
-
- - establish a best practise procedure for video streaming for science
- - procedure checklist for setup and operation on vessel and on land
- - compare hardware interfaces and define a minimum compatibility
- - define software interfaces for video and audio display on land (ideally all web-based)
- - setup a basic training procedure for land-based scientists and PR
-
- - evaluate poss. hardware upgrades (SAT, SRT streaming, audio)
- - (re-) define task categories and appropriate bandwidth levels
- - design a proposal scheme to allow science party to chose approp.
- category with enough time in advance (min. 6 months)
- - define proposal-funding-workflow with LDF, PTJ and BMBF

AWI MARUM IFREMER Cooperation

Suggestions for next steps:


- establish a best practise procedure for video streaming for science
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OCEAN FACILITIES EXCHANGE GROUP
 A BOTTOM-UP APPROACH TOWARDS RESEARCH FLEET CO-ORDINATION AND HARMONIZATION



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OFEG TECH

Introducing OFEG TECH

To aid the development of OFEG from a pure ship barter organisation to one that is also capable of delivering state of the art marine scientific facilities across all OFEG platforms, through interoperability of large equipment, adoption of common working practices, harmonised mechanisms, protocols and tools.

What are the objective's of OFEG-TECH?

- As the OFEG concept has matured and expanded, the opportunity for barter of major equipment has increased.
- To assist in the further development of major equipment barter within OFEG the right people at the right level in each organization need to be engaged.
- OFEG-TECH was set up to provide the forum for the required communication and networking to support the development of major equipment barter and to improve cooperation between the OFEG partners.
- Improving knowledge of each others organizations also allows each organization to benefit from new experience and knowledge which can be used to develop our own internal technical capabilities.
- To develop an understanding of each others organization, structure and contacts.
- To identify and develop the opportunity for exchange of knowledge and experience.
- To investigate the potential for 'bilateral training' and technician exchange.
- To identify common problems and elevate them to the OFEG/European level.

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<http://ofeg.eurocean.org/np4/17>

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OFEG Tech > Meetings

DOCUMENTS AND PRESENTATIONS

Below are documents associated with the various OFEG TECH meetings.

2018 OFEG TECH


La Seyne sur Mer, France | 6 March 2018

Documents


Description	Author	Member
Agenda [PDF]	Colin Day	NERC
What is OFEG-TECH? Why are we here? [PDF]	Colin Day	NERC
IFREMER: Overview of Toulon, IFREMER operation [PDF]	Jan Opderbecke	IFREMER
NERC, NOC: Overview of NOC, NMF autonomous capability and development [PDF]	Maaten Furlong	NERC
IFREMER: hybrid ROV results [PDF]	Jan Opderbecke	IFREMER
Germany: AUV development at GEOMAR [PDF]	Joerg Bialas	GEOMAR
NERC, NOC: Autonomous vehicle mission planning / NERC Oceananids C2 project [PDF]	Maaten Furlong	NERC
IMR: What's new! (New equipment, points of interest for OFEG-TECH) [PDF]	Dag Hellesnes	IMR
IFREMER: Development of the IFREMER 6000m AUV [PDF]	Jan Opderbecke	IFREMER
Equipment developments in CSIC [PDF]	Javier Prades Villarroya	CSIC
Germany: Discussion - Ships over side wires, cables and ropes – Issues with Factors of Safety and operating loads [PDF]	Joerg Bialas/Colin Day	GEOMAR/NERC
IFREMER: – Overview of IFREMER ship and fleet developments [PDF]	Jan Opderbecke	IFREMER
NIOZ: Technology update and new equipment [PDF]	Yvo Witte	NIOZ

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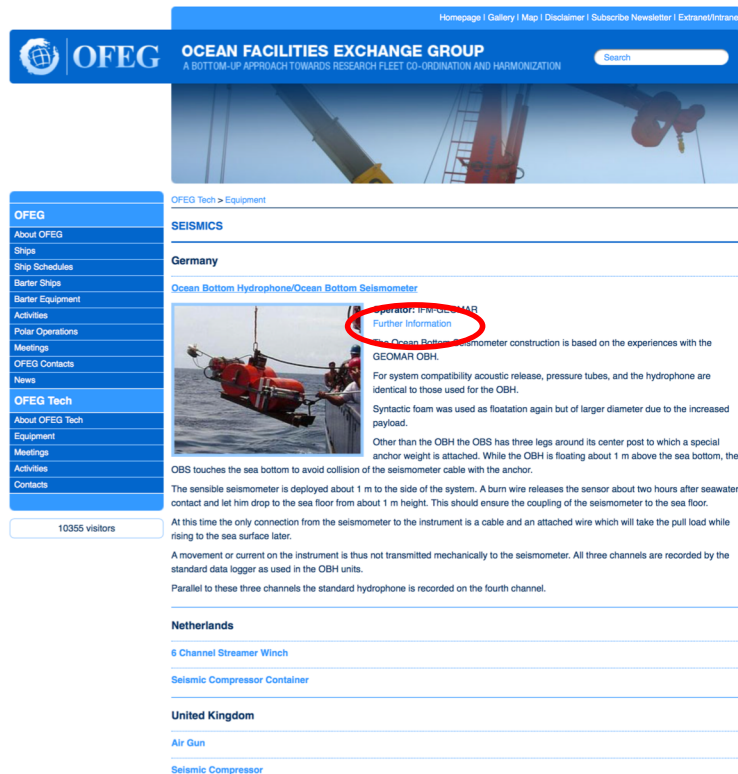
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ACTIVITIES

- Moorings Group**
- ROV Workshop

- Still alive?
- Contacts are outdated

Links on equipment are outdated



Equipment overview splits in

- Deep Platforms
- Seismics
- Found presentations with wrong content
 - E.g. German OBS
 - Description and picture of GEOMAR OBS
 - Link to AWI OBS – Pool
- Found most links directing to home pages or not existing

Equipment > Seismics

- Seismics, Germany
 - Ocean Bottom Hydrophones / Ocean Bottom Seismometers
 - Seismic Sources
- Seismic, Netherlands
 - - does their equipment still exist ?
- Seismic, United Kingdom
 - - „Further Information“ links are outdated

Equipment > Deep Platforms

- Deep Platforms, Germany
 - - please update link for JAGO SUB 400 „Further Information“ <https://www.geomar.de/en/centre/central-facilities/tlz/jago/>
- Deep Platforms, France
 - - all „Further Information“ links are redirected to IFREMER Home Page
- Deep Platforms, Netherlands
 - - all „Further Information“ links are redirected to NIOZ Home Page
- Deep Platforms, Norway
 - - Aglantha ROV and Kley France Calypso Corer links are outdated
- Deep Platforms, United Kingdom
 - - TOBI, BRIDGET, SHRIMP links are outdated

Links on equipment are outdated

- OFEG is aware of gaps in the informations
 - Sally Heath of NOC send out an „August reminder“ on 9th Aug.
- JB reported above listet outdated links on 9th Aug.
 - No reply so far
- Next OFEG meeting early October in Hamburg
- **Ready to take all your updates and send a bundle to Sally**
- **Will contact Sally again on maintenance of web page**