BOOS
Baltic Operational
Oceanographic System

Introduction to BOOS activities

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BOOS Steering Group

BOOS
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BOOS objectives

- To develop, co-ordinate and harmonize operational oceanographic observation, information, forecasting systems and services for the Baltic Sea through effective cooperation:
  - To facilitate BOOS partner cooperation on OO through joint activities and projects
  - To improve the service quality both in basin and local scales
  - Foster cooperation in regional, European and global levels: BOOS-EuroGOOS, BOOS-CMEMS, BOOS-BSHC, BOOS-HELCOM, BOOS-EMODnet etc

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BOOS 2017/18 activity review

- BOOS Communication
- BOOS external cooperation
- BOOS Website WG
- BOOS Modelling activities
  - Modelling in BAL MFC2: HBM-NEMO-ERGOM-WAM-SCOBI
  - Forecasting challenge identification
  - Multi-lateral cooperation
- BOOS Observation activities
  - In-situ TAC in CMEMS
  - ftp data exchange WG
  - NRT ship data delivery TT
  - Observing system assessment and integration
  - Multi-lateral cooperation
- BOOS Product and service activities
  - Multi-model ensemble TT
  - CMEMS OSR2017

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BOOS Communication

- **Business as usual**
  - BOOS Workshop on Coastal Operational Oceanography and Annual Meeting (13 partners attended, apology from 7, no response from 3)
  - Bridging BOOS with EuroGOOS, EMODnet, HELCOM etc
  - Broadcast funding opportunities
  - Quarterly STG Skype meetings
- **Annual report resumed**
- **Resume contacts with BOOS members**
  - In 2017 BOOS AM, there are 23 members, 7 of them are “silent”, many due to funding, personnel or organizational change or political reasons
  - To re-establish contacts with: **EPA, IOUG, LEGMA, IOW, RSHU, KU**
  - Members still silent: **NWAHEM, SPb-SOI**

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BOOS external cooperation

- **BOOS-EuroGOOS**: involved in SAWG, DataMEO WG, coastal WG (new), Glider TT (new), Ferrybox TT, Tidal gauge TT, EuroArgo TT etc.
- **BOOS-CMEMS**: BALMFC (website, modelling, MME, cal/val etc.), INSTAC (QC), OCTAC, SSTTAC
- **BOOS-EMODnet**: EMODnet projects
- **BOOS-MedGOOS**: CLAIM project
- **BOOS-GOOS-EOOS**: contribution to EOOS Forum, OBS19

BOOS Website WG

- Update of BOOS website:
  - New products: accumulated inflow index
  - New data: water level from IMWG
  - Updated products: eg MME
- Extension of BOOS web: BALMFC cal/val webpage (in discussion)
- Potential improvements (eg Observation page, in discussion)

DMI
Vejr, klima og hav

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BOOS Modelling activities

- **NEMO cooperation**
  - SMHI, BSH, DMI, FMI, MSI, (IOPAN)
- **ERGOM cooperation**
  - BSH, IOW, DCE, MSI
- **HBM cooperation**
  - BSH, DMI, MSI, FMI, UL
- **WAM cooperation**
  - FMI, BSH, DMI, MSI
- **PDAF cooperation**
  - DMI, BSH, SMHI, FMI, AWI, (HZG)
- **Cal/Val cooperation**
  - BSH, MSI, SMHI, DMI, FMI
- **MME cooperation**
  - BSH, FMI, DMI, SMHI, MSI, FCOO, IOPAN

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National modelling activities

- **Ice modelling**
  - SMHI, FMI, BSH, DMI, FMI, MSI, IOPAN, IMWG, FCOO, HZG
- **Ecological modelling**
  - SMHI, IOPAN
- **Ocean modelling**
  - IMGW (mike3), FCOO (GETM), HZG (NEMO, GETM, SCHSIM), IOW
- **Wave modelling**
  - IOPAN, IMGW (shallow water), FCOO (WW3), IOUG, MIG
- **Oil spill modelling**
  - BSH, DMI, SMHI, FMI, FCOO

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BMP: challenges and opportunities

- Modelling needs and challenges at national level
- How can community basin-scale models help in coping with national modelling challenges?
- How can MME be used for improving operational forecast?
- Standardized cal/val approach (CMEMS cal/val metrix)
- Bathymetry and coastline optimization (to ensure use of best and most updated data)
- Towards coastal data assimilation (PDAF)

Project	Description	Partners
TASSEFF (DK) – M+O	Resuspension in Limfjørd caused by fishing	DCE, DMI
FindFISH (PL)	Knowledge transfer	IOPAN, MIG
SatBałtyk (PL) – O+M	Satellite Environment Control of Baltic Sea	IOPAN, MIG, IOUG
FINMARI (FI) – I	Combine all major components of the Finnish marine research community	SYKE, FMI
EXOSYSTEM (FI) – M	Development of Archipelago Sea nutrient load model assembly	FMI, SYKE
BuleAdapt (FI) - S	Enhancing Adaptive Capacity for Sustainable Blue Growth	FMI, SYKE
MeRamo (DE) – M+S	Support MSFD from an assimilative Physical-biogeochemical model system	BSH, IOW, HZG
SmartSea (RE) – S	Gulf of Bothnia as resource for sustainable growth	FMI, SYKE, SMHI
FAMOS (RE) – O	Finalising Surveys for the Baltic Motorways of the Sea	BSH, SMA
Baltic LINes(RE) – I+S	Coherent Linear Infrastructures in Baltic Maritime Spatial Plans	BSH. SYKE
DAIMON (RE) – S	Decision Aid for Marine Munitions	SBSH, YKE, IOPAN, MIG
BALMFC (EU) – M	Provide Baltic Sea Copernicus marine service	DMI, BSH, FMI, MSI, SMHI
INSTAC (EU) – O	CMEMS In-situ Thematic Assembly Centre	SMHI, SYKE
SICTAC – O	CMEMS Sea Ice TAC	FMI, DMI
EfficienSea2 – M	e-navigation for Baltic and Arctic	DMI, SMA
BSCP (EU) – O	Data adequacy assesment in 11 challenge areas	DMI, FMI, MSI, SMA, SMHI
CLAIM (EU) – M+O	Monitoring, modelling and cleaning plastic litters	DMI, MSI
EMODNET Chemistry (EU) – O	Collect and disseminate chemistry data	SMHI, LHEI, TUT, FMI, SYKE
EMODNET data ingestion (EU) – O	Marine Data ingestion	FMI, AU, MSI, SMHI
Seadatacloud (EU) – O	Advance the SeaDataNet Services and adopt cloud and HPC technology	BSH, SMHI, FMI, MSI, IOPAN, SYKE
JERICO NEXT (EU) – O	Joint European Research Infrastructure Network for Coastal Observatory	SYKE, FMI, SMHI
WAVE2NEMO (EU) – M	Coupled ocean-wave model development in forecast environment	HZG, MSI

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National Observation Activities

	BSH	DMI	EPA	FMI	IOPAN	IOUG	IMGW	KU	MSI	SMA	SMHI	SYKE
TG	X	X	X	X			X		X	X	X	
Argo				X	X						X	
Buoy	X		X	X	X		X				X	
RV	X		X	X	X	X	X	X			X	X
Glider				X					X			
ADCP	X	X		X			X				X	
FST	X	X	X	X		X	X				X	X
Ferrybox							X		X		X	X

BOOS Observation activities

- Upgrade and extend BOOS ftp network: IMGW WL data added
- NRT ship data delivery TT (Johanna's talk):
  - NRT ship data delivery workshop
  - IOPAN ship data NRT delivery
- Observing system assessment and integration
  - She J. 2018, Assessment of Baltic Sea observations EuroGOOS conf. paper
  - She J. and J. Murawski: GEO Blue Planet special issue, submitted
  - BSCP Data adequacy report 2: fit-for-purpose assessment
  - Contribution to CMEMS in-situ assessment
  - Contribution to OceanObs19

BOOS and EOOS

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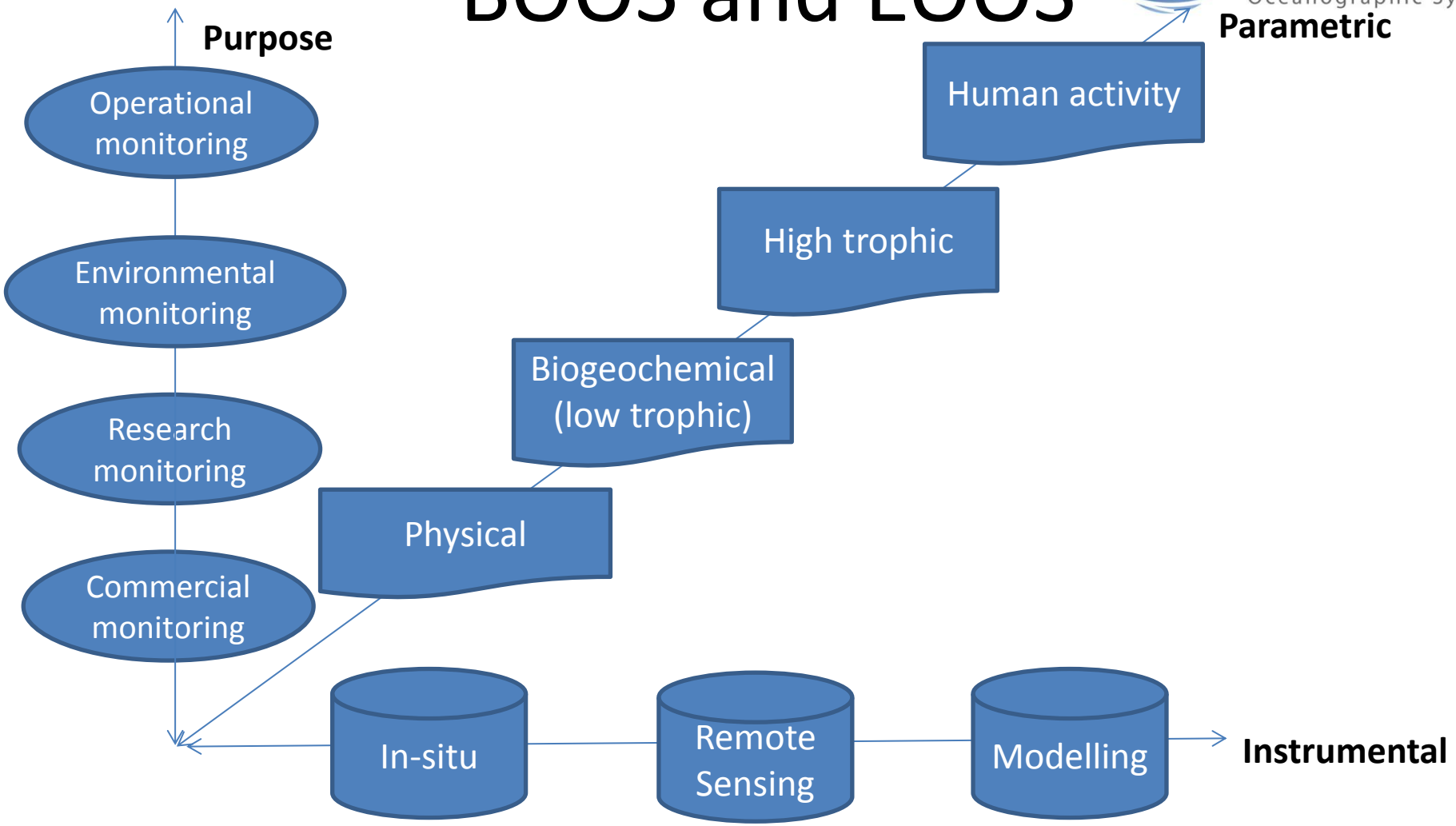

Integration in BOOS: breaking institutional and community barriers in ocean observing (OceanOBS19)

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BOOS Product and service activities

- Multi-model ensemble (Thorger's talk)
  - Monthly validation
  - NRT MME
  - Towards a distributed operational MME
- CMEMS OSR2017 (Jun's talk)
  - Ocean monitoring indexes (OMI)
  - Baltic Inflow
  - Baltic Eutrophication
  - Extremes in sea level, SST and waves
  - "Silent" storm event in western Baltic Sea

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News from partners

IOUG owns and operates a new research vessel – catamaran 'OCEANOGRAF'

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MAIN SCIENTIFIC EQUIPMENT:

- Wire trawl sonar Simrad FS70 with real-time catch monitoring system PI50/60
- Gillnets operating equipment
- Current meter ADCP, Teledyne, RD Instruments Workhouse Mariner
- Radiance and Irradiance Sensors RAMSES by TriOS for analysing light above and below water surface
- MINI_ROV GUARDIAN 2.1 remotely operated underwater vehicle (ROV) with umbilical cable, SUBSEA TECH
- Towed scan sonar Multi-Purpose Survey System 4200,
- Vaisala Maritime Observation System MAWS410
- MiniCTD Probe, Valeport

KLAIPEDA UNIVERSITY

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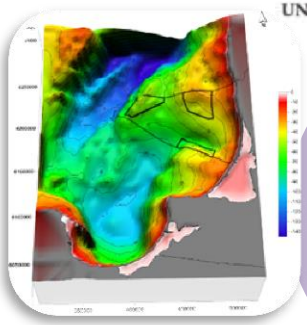
Open access research infrastructure

of the Marine Valley of Marine Research Institute of Klaipeda University

- Laboratory of Marine Ecosystems
- Research vessel
- Laboratory of Marine Chemistry
- Laboratory for Research of Marine Constructions and their Reliability
- Laboratory of Waterborne Transport Technologies
- Experimental Laboratory of Fisheries and Marine Pisciculture








IOPAN: EuroArgo, Argo Poland

Argo float 39021101 trajectory and S,T,O_2 profiles

http://www.ifremer.fr/argoMonitoring/float/3902101

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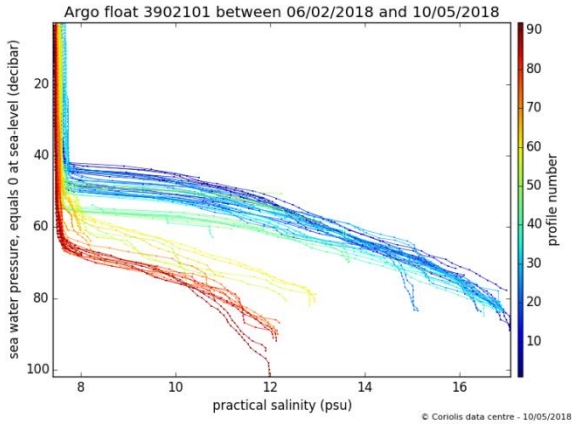

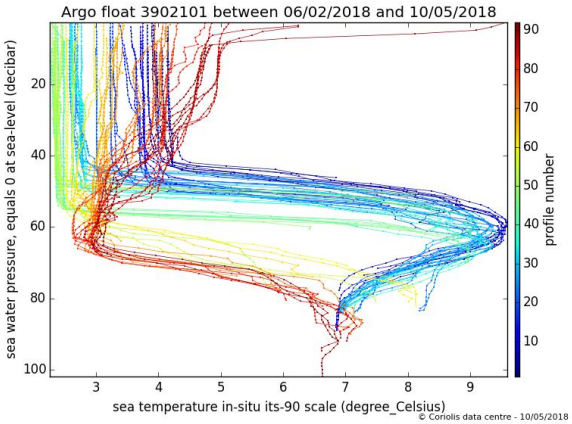

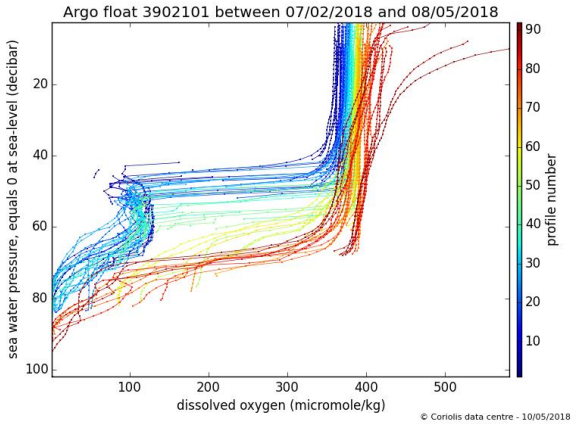

IOPAN: Surface buoy deployment

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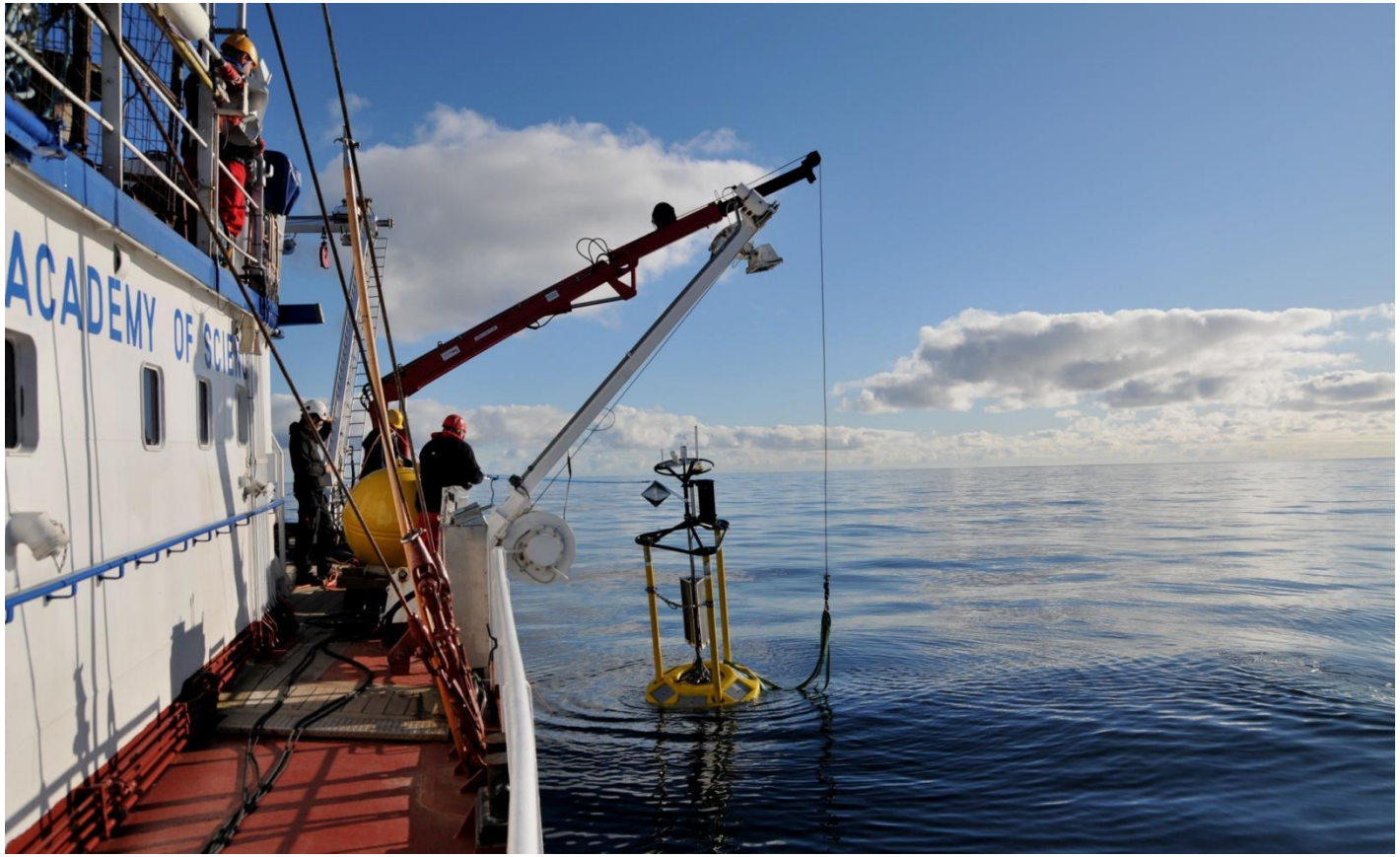

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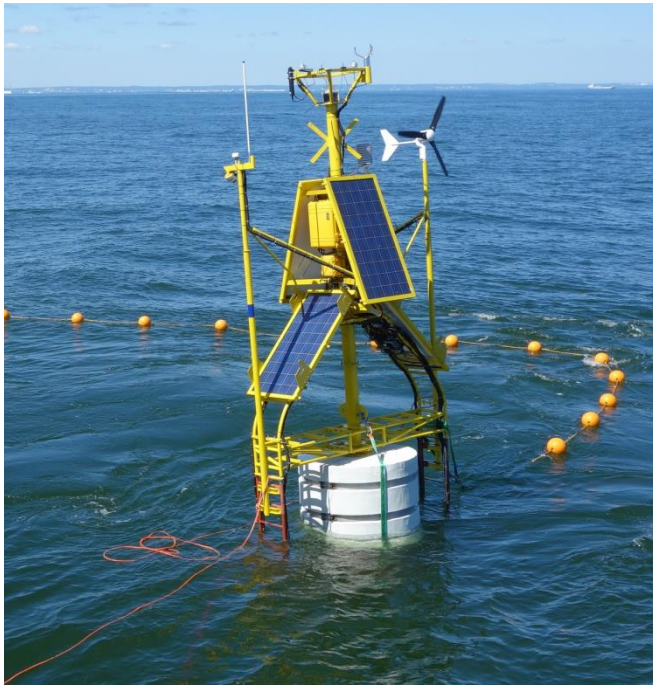
Deployment of the SatBaltyk bio-optical buoy



The buoy operate in summer time