In situ monitoring of oxygen depletion in hypoxic ecosystems of coastal and open seas, and land-locked water bodies

Fact Sheet

Project Information

HYPOX

Grant agreement ID: 226213

Status
Closed project

Start date
1 April 2009

End date
31 March 2012

Funded under
FP7-ENVIRONMENT

Overall budget
€ 4 665 281,20

EU contribution
€ 3 499 710,90

Coordinated by
MAX-PLANCK-GESELLSCHAFT
ZUR FORDERUNG DER
WISSENSCHAFTEN EV

Germany

Objective

Hypoxic (low oxygen) conditions in aquatic ecosystems increase in number, duration and extent due to global warming and eutrophication. Global warming will lead to degassing of oxygen, increased stratification, reduced deep-water circulation and changes in wind patterns affecting transport and mixing. Projected increases in hypoxia (e.g. doubling of “dead zones”) are accompanied by enhanced emission of greenhouse gases, losses in biodiversity, ecosystem functions and services such as fisheries, aquaculture and tourism. A better understanding of global changes in oxygen depletion requires a global observation system continuously monitoring oxygen at high resolution, including assessment of the role of the seafloor in controlling the sensitivity of aquatic systems to and recovery from hypoxia. Here we propose to monitor oxygen depletion and associated processes in aquatic systems that differ in oxygen status or sensitivity towards change: open ocean, oxic with high
that differ in oxygen status or sensitivity towards change: open ocean, oxic with high sensitivity to global warming (Arctic), semi-enclosed with permanent anoxia (Black Sea, Baltic Sea) and seasonally or locally anoxic land-locked systems (fjords, lagoons, lakes) subject to eutrophication. We will improve the capacity to monitor oxygen depletion globally, by implementing reliable long-term sensors to different platforms for in situ monitoring; and locally by training and implementing competence around the Black Sea. Our work will contribute to GEOSS tasks in the water, climate, ecosystem and biodiversity work plans, and comply to GEOSS standards by sharing of observations and products with common standards and adaptation to user needs using a state of the art world data centre. We will connect this project to the GOOS Regional Alliances and the SCOR working group and disseminate our knowledge to local, regional and global organisations concerned with water and ecosystem health and management.

Field of science

/engineering and technology/environmental engineering/energy and fuels/fossil energy/gas
/agricultural sciences/agriculture, forestry, and fisheries/fisheries
/agricultural sciences/agriculture, forestry, and fisheries
/natural sciences/biological sciences/ecology/ecosystems
/social sciences/sociology/governance/public services
/social sciences/social and economic geography/transport
/natural sciences/earth and related environmental sciences/hydrology/limnology

Programme(s)

Topic(s)

Call for proposal

FP7-ENV-2008-1

Funding Scheme

CP-FP - Small or medium-scale focused research project

Coordinator

MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV
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INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU GEOLOGIE SI GEOECOLOGIE MARINA-GEOECOMAR

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EU contribution
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