Press Release

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Why so cold all of a sudden?

First glider mission in the Baltic Sea provides new insights into the coastal upwelling in Bay of Eckernförde

08 July 2014/Kiel. **Gliders are autonomous measuring probes collecting data for marine research in the open ocean on predetermined courses between the sea surface and up to 1000 meters water depth. The fact that these devices can also operate precisely in the 20-meter shallow Baltic Sea was proven in an experiment by the GEOMAR Helmholtz Centre for Ocean Research Kiel at the "Boknis Eck" time series station. The data obtained here have now been published in the international journal "Biogeosciences".**

Anyone who regularly swims in the Baltic Sea knows the phenomenon: When the wind blows from the land towards the sea, use caution when diving into the water, even in midsummer. While the water may have been comfortably warm at 22°C the day before, it may suddenly cool down to well below 20°. This phenomenon is the result of a process oceanographers call "upwelling". The wind

and warm surface layers were once again present. “The intensity and rapidity with which the events took place, was very surprising to us. Only the high temporal and spatial resolution of the data allowed us to analyze these enormous fluctuations exactly,” says Karstensen.

By combining the measurements in the water with GEOMAR’s wind measurements at Kiel lighthouse it was possible to reconstruct the strength of the upwelling in the Bay of Eckernförde all the way back to 1982. This information could then be used to interpret the obtained monthly ship data at the Boknis Eck measurement station.

Besides the scientific relevance of the campaign, the scientists were able to demonstrate that gliders can also be used as highly suitable observation platforms in the Baltic Sea.

Reference:
Karstensen, J., T. Liblik, J. Fischer, K. Bumke, G. Krahmann (2014): Summer upwelling at the Boknis Eck time-series station (1982 to 2012) – a combined glider and wind data analysis. Biogeosciences, 11, 3603-3617, http://dx.doi.org/10.5194/bg-11-3603-2014

Links:
www.geomar.de GEOMAR Helmholtz Centre for Ocean Research Kiel
www.geomar.de/de/forschen/fb1/fb1-po/beobachtungssysteme/gleiter/ Information about gliders on the GEOMAR webpages
www.bokniseck.de Boknis Eck Time Series Station
http://edition.cnn.com/video/?/video/international/2010/07/29/earths.frontiers.ocean.gliders.cnn
CNN documenation about the glider campaign at Boknis Eck

Images:
Images are available for download at www.geomar.de/n1993-e

Contact:
Dr. Johannes Karstensen (GEOMAR, RD1 – Physical Oceanography), jkarstensen@geomar.de
Jan Steffen (GEOMAR, Communication & Media), Tel.: (+49) 0431 600-2811, jsteffen@geomar.de