



## **Lander based hydroacoustic monitoring of marine single bubble releases in Eckernförde Bay utilizing the multibeam based GasQuant II system.**

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The GEOMAR Helmholtz Centre for Ocean Research Kiel is currently developing a Imagenex Delta T based lander system for monitoring and quantifying marine gas release (bubbles). The GasQuant II is built as the successor of the GasQuant I system (Greinert, 2008), that has been successfully used for monitoring tempo-spatial variability of gas release in the past (Schneider von Deimling et al., 2010). The new system is lightweight (40 kg), energy efficient, flexible to use and built for ROV deployment with autonomous operation of up to three days. A prototype has been successfully deployed in Eckernförde Bay during the R/V ALKOR cruise AL447 in October/November 2014 to monitor the tempo-spatial variability of gas bubble seepage and to detect a possible correlation with tidal variations. Two deployments, one in forward- and one in upward looking mode, reveal extensive but scattered single bubble releases rather than distinct and more continuous sources. While these releases are difficult to detect in forward looking mode, they can unambiguously be detected in the upward looking mode even for minor gas releases, bubble rising speeds can be determined.

Greinert, J., 2008. Monitoring temporal variability of bubble release at seeps: The hydroacoustic swath system GasQuant. *J. Geophys. Res. Oceans* Vol. 113 Issue C7 CiteID C07048 113, 7048. doi:10.1029/2007JC004704  
Schneider von Deimling, J., Greinert, J., Chapman, N.R., Rabbel, W., Linke, P., 2010. Acoustic imaging of natural gas seepage in the North Sea: Sensing bubbles controlled by variable currents. *Limnol. Oceanogr. Methods* 8, 155. doi:10.4319/lom.2010.8.155