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Testing the sensitivity of German Ocean-Bottom-Seismometers to bottom currents in the Baltic Sea.

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Ocean bottom seismometers are sensitive to bottom currents, which move and tilt the sensor and may hide actual seismic signals from the ground. The German OBS pool DEPAS consists of LOBSTER anchors, manufactured by K.U.M., which integrate the sensor into the frame. This design means that motion of the anchor affects the sensor as well. Previous long-term deployments alongside French OBS, which have the seismometer separated from the frame (model LCPO-2000), showed a much higher long-period noise level of the German instruments [Stähler et al, 2016]. The first conclusion was to review the sensor placement within the frame.

To quantify this effect, we did two test deployments of LOBSTER OBS next to the permanent oceanographic measurement station *Darßer Schwelle* in the Baltic Sea, operated by Leibniz institute for Baltic Sea Research, Rostock. This allows us to compare directly bottom current velocities with the noise level on the OBS. To estimate the effect of the sensor itself, one OBS was equipped with Guralp CMG-40T, the original sensor of the LOBSTER design, the other with a Nanometrics *Trillium compact* seismometer. The results show that the high long-period noise level can be mostly attributed to the seismometer itself and that the noise floor of a LOBSTER equipped with a Trillium compact is less than 10 dB above the instrument self-noise for periods > 50s. This is comparable to the noise level of the LCPO-2000 design. Preliminary results of a second deployment comparing the recent NAMMU OBS model with a LOBSTER at the same position will be shown.

Stähler, S. C., Sigloch, K., Hosseini, K., Crawford, W. C., Barruol, G., Schmidt-Aursch, M. C., … Deen, M. (2016). Performance report of the RHUM-RUM ocean bottom seismometer network around La Réunion, western Indian Ocean. Advances in Geosciences, 41, 43–63. https://doi.org/10.5194/adgeo-41-43-2016