

Interactive comment on “Technical note: GODESS – A profiling mooring in the Gotland Basin” by Ralf D. Prien and Detlef E. Schulz-Bull

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Review of "Technical note: GODESS – A profiling mooring in the Gotland Basin" by Ralf D. Prien and Detlef E. Schulz-Bull

The authors present a straightforward description of their moored winch system designed to autonomously collect multiple profiles of water properties in the Baltic Sea over time periods of several weeks to months along with the results from 3 test deployments. The GODESS system represents an integration of several commercially-available components plus some adaptations for the specific measurement site. The paper's introduction makes note of previous "wire-following" moored profiling instruments, but fails to review past (and current) moored winch systems. There are in fact many of these (both commercially-available and "home-built"). It seems to me that the

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principal difference between Prien and Schulz-Bull's system and these other moored winch systems (that I know about) are the adaptations for the unique water properties of the deep Baltic Sea (high H₂S concentrations in particular). I would have welcomed in this paper a review of the state of moored winch systems that highlights the novel features of the GODESS mooring. A major shortcoming of the Prien/Schulz-Bull system in my opinion is lack of communication between the winch and profiling instrumentation package (PIP). Apart from the synchronization issues (addressed by the authors by relying on clock stability in the two components), at present, all of the science data collected by their device are stored in the PIP. Should the tether break (as could easily happen with the PIP left floating at the surface after the winch battery is exhausted (as occurred in their third test), all of the information would be lost. The moored winch systems I am familiar with address this communication link using an inductive modem (operational when the profiling unit is retracted against the winch module). Perhaps the authors will look into adding this capability in future? Also, couldn't the winch controller monitor battery level and terminate operations with the PIP (somehow) locked in its retracted position before the battery is exhausted fully? My other more general concern about this technology is its broader applicability. The Baltic experiences rather weak currents and small surface waves (relative to many coastal ocean sites). Currents can prevent the low-buoyancy PIP from reaching near the surface. Wave action can produce repeated periods of slack tether tension that can cause line snarls at the winch. The ocean is a difficult environment to make measurements. No instrument system is perfect. The GODESS mooring described in this paper shows promise for sustained observations in the Baltic. I believe this paper could be strengthened by a more thorough discussion of its present shortcomings and sketching future development work to address them.

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