

Interactive comment on “Measurements of Hydrodynamics, Sediment, Morphology and Benthos on Ameland Ebb-Tidal Delta and Lower Shoreface” by Bram C. van Prooijen et al.

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This data release documents hydrodynamic and sediment transport measurements in areas of the Wadden Sea, landward and seaward of Ameland, and on the ebb tidal shoal. Overall, the report is clear, the data are accessible using accepted protocols (OpenDAP), and they will be of wide utility for coastal management locally and for basic sediment transport research globally. I have a few major suggestions, and a few minor comments.

Major comments:

C1

It would be helpful to add a table of dates and coverages for the platforms/instruments, unless this is somewhere in the repository/supplemental that I didn't see.

Within the text, it would be good to document the pre-deployment calibration steps for the various instruments. As it stands the calibration for only one instrument is described (LISST), and it is embedded in the post-processing section. I would at least add documentation on calibration of the optical sensors, compass calibrations for the velocity meters, and pressure-zeroing for the pressure sensors. It may seem trivial but it is important for inter-operability to know how instruments were prepared.

Some of the terminology is unclear or inconsistent. For example, the term “tidal divides” is not a generally known term, and the use of “watersheds” to describe the landward drainage areas of the tidal channels is not the best choice. I think some time should be taken to tighten up some of these for clarity, mainly so the reader knows precisely where those ADCP measurements are being made without having to refer to the figure immediately. Perhaps the easiest terminology would be “tidal channels that drain the back-barrier basin” for the first use, and then “back-barrier tidal channels” after that?

Abstract: the abstract is awkwardly written. The details of the deployments probably don't need to be in the abstract, the reader will go to the map and table to decide if they can use the data. Suggest revising to something like this:

"The dataset obtained from the field campaign consists of: (i) single and multi-beam bathymetry; (ii) pressure, water velocity, wave statistics, sediment concentration, conductivity, temperature, and bedform morphology on the shoal; (iii) pressure and velocity at six back-barrier locations; (iv) bed composition and macro benthic species from box-cores and vibracores; (v) discharge measurements through the inlet; (vi) depth and velocity from X-band 10 radar; and (vii) meteorological data."

Minor comments:

P1, L10: “The synoptic nature of these measurements makes this dataset unique. . .”

C2

P2, L9: “lose sediment across the offshore boundary” L13: “across the offshore boundary”

P3, L2: “Knowledge of these processes” L11: “gorge” is an unusual geomorphic term to use here L29-30: “reign free within its established boundaries” is unclear

P5, L3: upward looking RDI Monitors do not measure wave orbital motion L11: if turbidity was not calibrated to suspended-sediment concentration with water samples, then you should just say turbidity is used a proxy for SSC, but requires site-specific calibration.

P7, L14: “acoustic backscatter intensity”, SPM not defined previously, spell out here and be consistent with use of suspended-sediment concentration vs. suspended particulate matter, suspended particle concentrations, etc. . .

P8, L1: “tidal divides” is not clear, and not defined previously. In the abstract, these locations were called “watersheds”, and I suggested re-wording to “back-barrier”. I suggest determining an optimal descriptor for these sites (back-barrier tidal channels?) and sticking with it throughout. L6: “Biannual bathymetric surveys” L28: what is a “laquer peal” or “lacquer peel”? L29: here and elsewhere, “vibracore” is the traditional spelling but if this is a brand name or regionally accepted spelling, OK.

P10, L25: I think it would be useful to have a section earlier in the documentation that identifies instrument calibration steps, like what is done with the LISST here. This could include the calibration of optical sensors, conductivity sensors, compass calibrations, zeroing-out the pressure, etc. This is pre-deployment info, whereas this section is post-processing. They should be handled separately for clarity if deemed important for this data release.

P12, L5: “in the North Sea”

Fig 8: is the sonar image from a location within the map in the upper panel? If so, show on map, if not then add an inset to show where it is.

C3

Review by Neil Ganju, USGS

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C4