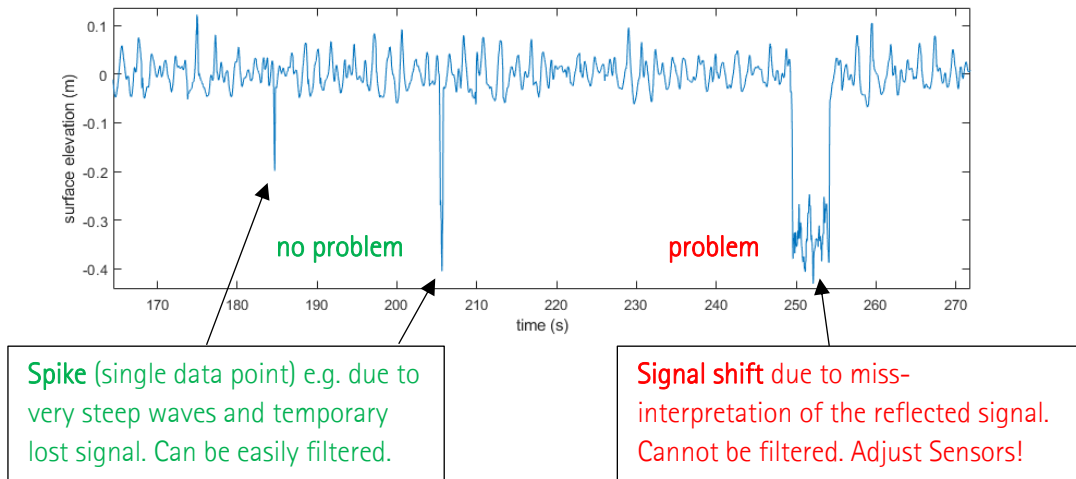
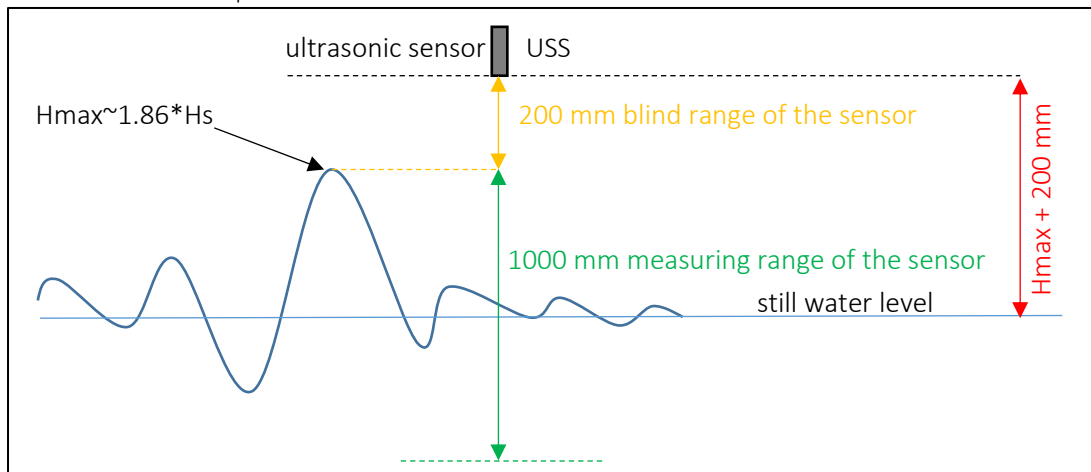


## Guide to avoid interference during measurement with ultrasonic sensors (USS):



The order of the points corresponds to the importance of the measure:

1. Measure as close as possible to the water surface:



2. Avoid reflective surfaces close to the ultrasonic sensor at tripods or mountings. Keep distance to reflective surfaces and use filter foam on flat mountings if necessary.
3. If you observe signal shifts try to change the elevation of the individual sensor by  $\pm 1-2$  cm. (It is possible that the ultrasonic wave creates a standing wave between water surface and reflective mounting at this distance. The wave speed depends on the air temperature, which is compensated live with the reference distance. Therefore, it is possible that the error occurs only sometimes in the case of temperature fluctuations in the test area.)
4. In general, unwanted reflections can be avoided and the beam footprint can be focused, if you place the USS inside a pipe.
5. If signal shifts are still present, the measuring range can be pre-set in the Ultralab software and a precise measuring range (min and max distance) can be pre-set for individual sensors. Do not forget to undo changes once you are finished with the testing to not trouble the next researcher.
6. If you want to measure very steep waves (e.g. focusing waves close to the break point), 2 or 3 sensors can be grouped or wire gauges should be used.