

Principle

A vertical array of optical backscatter (OBS) detectors is mounted so it penetrates the bottom

Applications

- Continuous monitoring of near-bed sediment pollution
- On-line warning system of sediment deposition or high near-bed turbidity on bottoms near work sites
- Early warning of incipient erosion and scour
- Studies of bedform variability and sand transport
- Studies of mud accumulation and resuspension
- Measuring the settling process of suspended matter

Benefits

- Protection of sensitive under-water environments
- Cost-effective for developers, contractors, researchers

Specifications

Wavelength	945 nm (NIR)
Measurement length	350 mm
Number of detectors	36
Detector spacing	10.0 mm
Resolution	0.1 mm
Length excluding holder	700 mm
Sensor rod diameter	15 mm
Instrument house diameter	51 mm
Holder tube diameter	20 mm
Anchor screw diameter	100 mm
Measurement time, array	ca 0.2 s
Internal memory	2 MB
Memory cards	SD/MMC*
Communication	USB*, RS485*
User interface	Display & NavPin*
Analog sensors	Temperature, Light*, Pressure*

*Presence contingent on model and options



The patented SediMeter™ was designed by Dr. Ulf Erlingsson, CEO of Lindorm, Inc.

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SediMeter™

instrument for monitoring

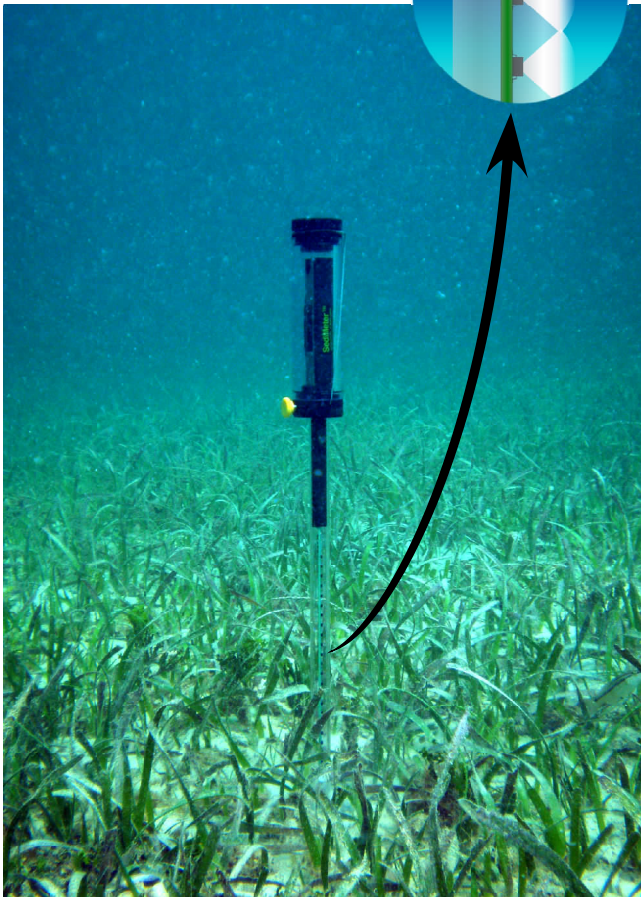
- Sedimentation
 - Siltation
 - Erosion
 - Scour
- Resuspension
- Near-bed turbidity



SediMeter™ Sensor

The sensor consists of an array of 36 optical backscatter detectors mounted inside a vertical transparent tube. Each backscatter detector emits infrared light through a LED, and measures the reflected light. A daylight filter removes visible light. The signal strength is measured by an A/D-converter, which allows the bottom level to be interpolated between detectors.

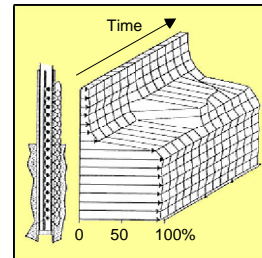
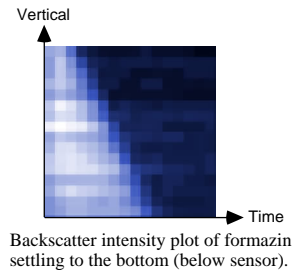
Notice that the instrument delivers a **through-the-bottom turbidity/consolidation profile**. The data thus contains more information than just the level of the bottom.



Cost-Effective Data

Stand-Alone: A diver mounts the instrument on the bottom and leaves it. At regular intervals, or at the end of the mission, the diver brings the instrument to the surface to replace the batteries and retrieve the stored data. The retrieval interval is a compromise between the cost of field work, and the risk of losing data.

On-Line: The SediMeter™ can be connected by cable to a computer at the surface. In an RS485 network over a hundred instruments can share a single cable. The computer controls measurement timing and handles data storage. It can also act as a web server on the internet for real-time results. For monitoring the environmental effects of ongoing activities this solution has clear advantages in terms of cost-benefit and risk reduction. It is even possible to mount the instrument upside down with the electronics buried in the bottom. Only the 15 mm diameter sensor will then protrude into the water.



LogDator™

The sensor requires a logic unit to control the measurements. The LogDator™ does this, and it can additionally function both as a network interface and as a stand-alone logger. A thermometer is built-in, and two optional sensors can be connected, e.g. pressure and light sensors. Contact us for special requirements.

Installation and Handling

It is easy to install and remove the SediMeter™. Experience shows that it can be done even in zero visibility conditions. Furthermore, the diver only needs to carry two items, since the holder can be transported inside the handle. When using the instrument on hard bottoms a drilled hole is used. The instrument can be brought up for retrieving data while the holder stays in place. This allows for a continuous measurement series, even though the instrument is removed regularly for service.

