Wednesday, October 10
Poster Session 3
16:00–18:00

Poster 131

MEASUREMENTS OF PARTICLE SIZE DISTRIBUTIONS IN NORWEGIAN COASTAL WATERS: A COMPARISON OF LISST-200X TO TRADITIONAL MICROSCOPY COUNTING WITH A NOVELTY

The particle size distribution (PSD) represents the relationship between the size of particles and their concentrations. Marine PSDs are relevant to a large number of varied fields, from biology and oceanography to climate studies and geology. The propagation of light in natural waters depends directly on the cross-sectional scattering area of the particles, and therefore the PSD provides important information about the optical properties of the oceans. The relevant size range for bio-optical studies is generally 0.01 micrometer to 1 mm, including virus, bacteria, sediments and phytoplankton [Jonasz and Fournier 2011]. The LISST-200X is a submersible laser-diffraction based particle size analyzer which is an improved version of the LISST-100X, able to make measurements at twice the depth, down to 600 meters. This makes the instrument especially suitable for measurements in the deep Norwegian fjords. The size range is 1-500 micrometer with 36 size classes. We have also taken water samples to filter and subsequently count and size particles the 'old fashioned' way using a microscope. However, since this is a very time-consuming and tedious method, we have developed a novel technique to ease this task: A software tool to measure length and width of particles from microscope images converts the non-spherical particles to 'equivalent' spheres [Grenfell and Warren 1999], which in turn are used to produce the PSD. Further we have compared the LISST-200X and the equivalent-spheres approach for several locations and depths from Norwegian coastal waters and fjords, to determine suitability and possible complementations for the two methods.

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