

OCEAN OPTICS XXIV

Valamar Lacroma Dubrovnik Hotel | Dubrovnik, Croatia | October 7–12, 2018

<https://oceanopticsconference.org>

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 54

CHARACTERIZATION AND VARIABILITY OF PARTICLE SIZE DISTRIBUTION IN GLACIAL BAYS, SPITSBERGEN

Ongoing climate change and global warming provides intense recession and melting of glaciers observed in the polar regions. The recession of glaciers is accompanied by intensification of melt water runoff and mineral particles supply. Particle size distribution (PSD) and concentration of mineral suspended sediment released from melting glaciers is an important factor affecting the light availability in water columns, thus changing underwater light climate for photosynthetic organism. In this study, we investigated the PSD properties and variability in the front of different tidewater glaciers in Hornsund fiord at Spitsbergen based on filtration techniques to obtain concentration of suspended sediment, laser diffractometer (LISST -100x) measurements, CTD, turbidity sensor and XRD – techniques to obtain mineralogical composition of the tested suspension. Sampled sites are under strong influence of freshwater discharge from glacier. The presence of suspended matter introduced with melt water is reflected by highest value of light attenuation in this area compared to the other parts of the fjord. At each stations particulate inorganic matter contributed up to 98% to total suspended matter with the concentration of the particle reaches up to 80 mg/l with the mean PSD slopes ranged from 3,0 to 3,6. The result provide an valuable baseline information of observed range of variability of the optical properties due to glacial runoff and a presence of particles of different mineral origin in the glacial bays.

Katarzyna Dragańska - Deja, Institute of Oceanology of the Polish Academy of Sciences, katarzyna@iopan.pl

Sławomir Sagan, Institute of Oceanology of the Polish Academy of Science, sagan@iopan.gda.pl