

OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Monday, October 8

Oral Session 1

10:50–12:30

12:10–12:30

VARIATIONS OF THE VOLUME SCATTERING FUNCTIONS MEASURED IN NORTH PACIFIC OCEAN AND EASTERN CANADIAN LAKES

The volume scattering function (VSF) were measured using the LISST-VSF in North Pacific Ocean from the Haro Straits to the Papa Station and eastern Canadian lakes from the urban areas to the Boreal Shield. In July 2017 and February 2018, a total of 145 VSFs were measured in North Pacific at 29 locations and several depths from surface to bottom (-4023 m). The particle scattering coefficients (bp) vary from 0.1235 to 2.6813 m^{-1} , the particle backward scattering coefficients (bbp) from 0.0007 to 0.0340 m^{-1} , and the particle attenuation coefficients (cp) from 0.0415 to 3.6350 m^{-1} . The phase functions vary 2 order of magnitude and the backscattering ratios (Bp) vary between 0.0037 and 0.0475. In the open ocean, the average value of Bp in winter/early spring is 0.0234, about twice as large as in summer (0.0114), while such seasonal difference was not observed in near-shore waters. The Bp values generally increase with the depth within the epipelagic zone, but Bp near the bottom is lower than it at 100 m. The simultaneously collected total suspended solids and particulate inorganic material data indicated that the sediment of particles might cause such decrease in Bp. In summer 2017, surface VSFs were measured in 21 eastern Canadian lakes. The lake water shows greater variation than seawater in bp from 0.6067 to 3.0549 m^{-1} , bbp from 0.0038 to 0.0474 m^{-1} and cp from 0.8105 to 7.0748 m^{-1} , but much less variation in Bp from 0.0056 to 0.0184.

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