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OCoc- from Ocean Colour to Organic Carbon

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Enhanced permafrost warming and increased arctic river discharges have heightened concern about the input of terrigenous matter into Arctic coastal waters. Especially, large parts of the Central and Eastern Siberian coastline are characterized by highly erosive sedimentary ice-rich material. The 'OCoc-from Ocean Colour to Organic Carbon' project (IPY-project 1176), funded by the German Research Foundation (DFG), is an Ocean Colour study joined with the Arctic Circum-polar Coastal Observatory Network Acco-Net (ACCO-Net: IPY-project 90) originating from the Arctic Coastal Dynamics ACD project . OCoc uses Ocean Colour satellite data for synoptic monitoring of the input of organic matter – from both fluvial and coastal sources – into the Arctic coastal waters.
Initial results from the German-Russian Expedition Lena08 along the southeastern Laptev Sea Coast (Arctic Siberia, Russia) in August 2008 are presented. Ocean Colour MERIS Reduced Resolution (RR)-LIB data of the Laptev Sea Coast from August 2008 have been processed towards L2 parameters using Beam-Visat4.2© and the MERIS case2 regional processor for coastal application (C2R). C2R uses neural network procedures for the retrieval of water leaving reflectances and neural network procedures to derive the inherent optical properties (IOPs) from the water leaving reflectances. C2R output parameters are IOPs (absorption and backscattering coefficients), apparent optical properties (AOPs) (water leaving radiance reflectance, attenuation coefficient 'k'), optical parameters such as the first attenuation depth ('Z90') and calculated concentrations of chlorophyll, total suspended matter, and yellow substance absorption.
Initial comparisons with Lena08-Expedition data (Secchi depths, cDOM) and water transparency data from former arctic cruises show that the MERIS-C2R optical parameters 'total absorption' and the first attenuation depth, 'Z90', seem adequately to represent true conditions. High attenuation values are the tracers for the organic-rich terrigenous input. The synoptic information of MERIS Ocean Colour products will provide valuable spatial and dynamical information on the Organic Carbon and sediment fluxes from the Siberian permafrost coast.