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# Characterization of the terrigenous organic matter distribution in the bottom sediments of the East Siberian Arctic Shelf

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The Arctic Ocean is a Mediterranean sea with exceptionally large shelves that account for approximately 50% of the total area of the enclosed ocean. Accordingly, the inorganic and organic character of the sediments both on the shelves and in the basins of the Arctic Ocean strongly reflect a pervasive influence from the surrounding land/thawing permafrost (Macdonald et al., 2008). The East Siberian Arctic Shelf (ESAS) is an enormous, shallow shelf that receives most of its particulate supply from coastal erosion A notable characteristic of the ESAS is an extremely large gradient of hydrological and biogeochemical parameters from Long Strait/Wrangell Island to the Lena River Delta that corresponds to geographically critical contrasts in the Arctic system where the Pacific and local shelf waters interact over the shelf (Semiletov et al., 2005). ESAS is clearly important region for storing and processing material that derives from the land and the sea. Here we synthesize the lithological and biogochemical data obtained in the ESAS by Laboratory of Arctic studies POI in cooperation with the IARC and SU during the last 10 years (1999-2009). Highest organic carbon (OC) concentrations in the surface sediment (up to 4w/w%) was found near mouths of major rivers (Lena, Yana, Indigirka, Alaseya, Kolyma), and near highly eroded coast (1-2 w/w %). .However, sedimentation over the major portion of shallow ESAS is dominated by coastal erosion not riverine runoff. It has been shown that contribution of terrestrial organic carbon (CTOM) is up to 100% in areas strongly impacted by coastal erosion. Lowest OC values ($\sim$0.1-0.5 w/w %) were found in the relic sediments of shoals (e.g. Semenovskaya, Vasilevskaya, and Diomid). New detail maps of distribution of sediment OC, CTOM, and C/N are considered along with the sediment sizing and mineralogical data. This multi-year study was supported by the Russian Foundation for Basic Research (Russian NSF), FEBRAS, NOAA, NSF, Wallenberg Foundation, and Swedish Polar Research Secretariat.

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