

# Oceanography Seminar

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## ***Shelf – basin interaction along the Siberian continental margin – information from chemical tracers***

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Spanagel Hall, Room 316

Water from Siberian shelf seas penetrates most depth of the connected deep basins and thus contributes to the ventilation, properties and transport of chemical constituents. In this presentation data from 2008 and 2014 are used to assess the biogeochemical processes on the shelf and utilizing the resulting chemical signatures to trace the exchange along the continental margin from the Laptev Sea to the Herald Canyon in the Chukchi Sea.

The result show the importance of microbial degradation of organic matter in determining the partial pressure of carbon dioxide and thus also ocean acidification. The source of organic matter is both terrestrial, added by river runoff as well as by coastal erosion, and marine from primary production by phytoplankton. The dissolved organic carbon is largely degraded in the surface water and thus interacts with the atmosphere, while the particular mostly degrades at the sediment surface. The decay products of the latter are thus added to the bottom water, a water that often has had its salinity increased by brine addition from sea ice production. In regions of relatively high surface water salinity and large sea ice production the bottom water salinity can reach levels that make it penetrate large depths of the deep basins and thus contribute to ocean ventilation and transport of chemical constituents. In some of the water layers the signature of the shelf processes can be traced all the way to the exit points of the Arctic Ocean, i.e. the Fram Strait and the Canadian Arctic Archipelago.