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Flux of CDOM in the German Tidal Coastal Waters

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In the south-eastern North Sea strong tidal dynamics form temporally dry falling muddy coasts, such as the East-Frisian Wadden Sea. Their morphodynamics and physical water column dynamics and ecology have been a subject of extensive studies. The fundamental physical, chemical and biological interactions characterizing the existence and dynamics of these coastal zones are investigated in the research programme BioGeoChemistry of Tidal Flats. The main goals are the investigation of the budget of matter fluxes between tidal flats and open coastal waters, and the matter transformation in the tidal flat water column and the sediments.

Among other water column parameters, DOM (Dissolved Organic Matter) has been the subject of intensive investigations due to its major role for the underwater light climate, for particle aggregation and sedimentation, for trace metal complexation, and many other processes which are relevant for this ecosystem. Its optically active components, denoted as CDOM (Coloured Dissolved Organic Matter), is measured by absorption and fluorescence spectroscopy during ship cruises in the last 6 years. Water samples were taken in the open German Bight adjacent to the Wadden Sea, in the backbarrier tidal area, in sediment porewater and in the region of flood gates, where terrestrial run off meets the coast. These data are completed by DOC analyses.

We present the results of this data set, building a broad base for the determination of the temporal and spatial distribution of CDOM. Tidal and seasonal cycling will be presented, these fluxes show a great variability of CDOM. Samples taken at at different tidal phases are characterized by an emission maxima depending on the presence of freshwater and porewater which mixes with water from the open see. Optical charac-

teristics and comparisons of fluorescence, absorption and DOC data lead to statements about the origin and the varying composition of DOM.