Tuesday, October 9
Poster Session 2
10:30–12:30

Poster 14

OPTICAL DELINEATION OF THE NELSON-HAYES RIVER PLUME USING CDOM, SUSPENDED SEDIMENT AND SALINITY DATA (HUDSON BAY)

River plume influences the physical and biogeochemical processes operating in the coastal waters. This study attempts to delineate the Nelson-Hayes (NH) River plume (south-west Hudson Bay) using in-situ salinity, Chromophoric Dissolved Organic Matter (CDOM) and suspended sediment (SS) data. The contribution of CDOM to the total absorption coefficient ([aCDOM/at]) at 412 nm must be known to trace the terrigenous flow in the coastal waters. This ratio was found to vary over the range of 0.5 to 0.86 in the sampled locations along a salinity gradient towards the marine domain. An empirical algorithm was developed to retrieve [aCDOM/at] (412 nm) from remote sensing reflectance (Rrs). The absolute uncertainty on the [aCDOM/at] retrieval was 0.14. The uncertainty of Non-Algal Particles (NAP) on the [aCDOM/at] retrieval was determined to distinguish the plume dominated coastal stretch from the non-riverine coastal domain. The estimated aNAP was based on the SS measurement with an approximated 0.1 m^{-1} mass-specific absorption coefficient at 412 nm. It was observed that southern coastal water was characterized with high [aCDOM/at] and [aNAP/at] ratio. Whereas the Northern coastal waters had high [aNAP/at] ratio but a very low [aCDOM/at] ratio, which indicated the absence of the plume water and dominance of non-riverine coastal processes. The in-situ aCDOM and SS variations along the salinity gradient suggested a linear dilution of the constituents with an exception of resuspension of SS observed in-between 5 to 15 PSU. The CDOM-salinity empirical relationship has been exploited to map salinity using Rrs and retrieved aCDOM data.

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