The Seasonal Distribution of the Suspended Matter in Bohai

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ABSTRACT

For the monitoring of environmental change in the coastal region or in the estuary, the distribution and the transport of the suspended matter (SM) in the sea water is an important part, and therefore the concentration of SM is a basic information for the marine environment. Although the *in situ* data are generally more accurate, they may not represent the marine environment at the large spatial scale nor the long time scale. Due to the difficulty, cost and the manpower required for large scale ocean survey, the satellite remote sensing is the best alternative. The visible light is most suitable for the remote sensing of SM, but there is no satellite dedicated for detecting the SM. We use NOAA satellite's AVHRR (Advanced Very High Resolution Radiometer) data to derive the SM distribution in Bohai. In the spectra of SM in the visible bands, there is clearly a positive correlation between the SM concentration and the reflectance of yellow and red light at the sea surface. The yellow and red light reflectance derived from the first two channels of AVHRR data is adopted as the index of SM concentration. The spatial and temporal distribution of this index matches with the SM concentration measured *in situ*. The SM concentration is high in the winter and low in the summer, and the extent of high SM coastal water retreats closer to shore. The SM concentration is higher in Bohai than in Yellow Sea, higher near the coast than in offshore region. The large amount of SM carried by the Yellow River into Bohai is mostly deposited in the vicinity of the river mouth. Since the reflectance is only a qualitative index, it can not differentiate the plankton from the sediment, but it does help in monitoring the SM in the estuary and coastal regime, in displaying the path of river water into the sea, and in quantifying the change of estuary if combined with *in situ* data.

(Keywords: Bohai, Suspended Matter, Ocean Color, Remote Sensing)