

## **A NEW TECHNIQUE TO EXTRACT OPTICAL PROPERTIES OF THE WATER FROM ENVIRONMENTAL PARAMETERS**

Sonia C. Gallegos, Juanita Sandidge, Xiaogang Chen , Cynthia Daniels and Chiu Fu Cheng

In this paper we report the development of a real-time environmental model to extract spectral light attenuation coefficient from the surface to the bottom of the Yellow Sea. It illustrates a technique that can be useful in the extraction of optical parameters in highly turbid and optically complex coastal areas. The model, which is based on a back propagation neural network algorithm, is trained on optical and oceanographic parameters collected at various locations in the Yellow Sea from 1996-2000. It relies for its real-time optical estimations on a tidal model developed for the Yellow Sea (ADJOINT) and a statistical model (MODAS) that produces real-time estimations of temperature and salinity at any depth around the world. Sediment and bathymetry databases provide measures of particle size distribution and depth. The model can ingest satellite data, but it is not a requirement for its running. The inclusion of satellite data produces more accurate estimates. However, access to the data is limited to once during daylight hours and to cloud-free periods that are rare in the Yellow Sea. The accuracy of the model increases with the amount and variety of the input data. The best estimates occurred in coastal areas.