

MONITORING COASTAL WATER QUALITY FROM A SMALL AIRCRAFT

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ABSTRACT

Phytoplankton monitoring is an essential part of the environmental assessment of water quality and can be monitored by remote sensing methodology using small aircraft. The light absorbing pigment chlorophyll *a* is commonly used by oceanographers as an index of phytoplankton abundance. This paper describes the use of a non-imaging spectrometer to detect and measure solar-stimulated fluorescence from phytoplankton chlorophyll as an index of plankton growth, as well as total suspended solids and Secchi transparency. Surface temperature can be measured simultaneously with a separate infra-red radiometer. In early September 1989, a compact instrument package was mounted in a small rented aircraft and flown on a monitoring mission as a rapid response to a massive phytoplankton bloom which was devastating fish farms in the Sechel - Agamemnon Channel area. The extent and intensity of the bloom was clearly indicated by our airborne data, and verified with *in situ* sampling. Instead of responding after the fact, a properly administered airborne monitoring program would provide an early warning system to alert sea farmers and administrators of developing blooms or potentially dangerous plankton concentrations in time for an adequate response plan to be developed.