Buoy Instrumented for Spectral Measurement of Water Quality

John F. Kennedy Space Center, Florida

An instrumented buoy measures selected aspects of the spectrum of upwelling light for assessment of "water quality." The buoy carries a previously patented optical-backscatter probe that contains a hyperspectral sensor. The output of the probe is processed by a small onboard computer. Cellular-telephone circuitry on the buoy transmits spectral-signature data to a computer system that, in turn, makes the data available immediately over the World Wide Web. Power is supplied by gel batteries charged by a solar photovoltaic panel on top of the buoy. The scalable optical-backscatter probe is a scalable module fabricated separately from the buoy and the other equipment described above; the buoy and the other equipment are designed to accommodate and mate with the optical probe. Optionally, the instrumentation on the buoy can be augmented by incorporation of additional sensors (e.g., a pH sensor current meter). The current version of the buoy is not intended to function in the presence of high wind and waves; it is designed primarily for operation under relatively calm-sea conditions in shallow, semienclosed natural bodies of water (ponds, lakes, lagoons).

This work was done by Charles Bostater of Florida Institute of Technology for **Kennedy Space Center.** *For further information, please contact http://www.ocn.fit.edu/buoy.*

KSC-12053