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Upper Ocean Profiles Measurements with ASIP

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This presentation describes results from the Air-Sea Interaction Profiler (ASIP), an autonomous profiling instrument for upper ocean measurements. The measurements from ASIP are well suited to enhancing research on air–sea interfacial and near surface processes.

Autonomous profiling is accomplished with a thruster, which submerges ASIP to a programmed depth. Once this depth is reached the positively buoyant instrument will ascend to the surface acquiring data. ASIP can profile from a maximum depth of 100 m to the surface, allowing both mixed layer and near–surface measurements to be conducted.

The sensor payload on ASIP include microstructure sensors (two shear probes and a thermistor); a slow response accurate thermometer; a pair of conductivity sensors; pressure for a record of depth; PAR for measurements of light absorption in the water column. Other non–environmental sensors are acceleration, rate, and heading for determination of vehicle motion. Power is provided with rechargable lithium-ion batteries, supplying 1000 Whr, allowing approximately 300 profiles. ASIP also contains an iridium/GPS system, which allows realtime reporting of its position.

ASIP was deployed extensively during the Cirene Indian Ocean campaign and our results focus on the data from the temperature, salinity, light, and shear sensors.