

IMB

ICE MASS BALANCE BUOY

Innovative and Robust Design

Reliable and Proven Design

Easy Assembly



The METOCEAN Ice Mass Balance Buoy was developed in partnership with CRREL (Cold Regions Research and Engineering Laboratory). The Ice Mass Balance Buoy instrumentation is used to measure ice thickness, ice temperature, and to acquire meteorological and upper oceanographic data.

The Ice Mass Balance Buoy is able to retrieve vital polar information from the buoys Campbell Scientific Data logger and it is equipped with the following: Argos transmitter, thermistor string, above/below ice acoustic sounders which measure the positions of the surface and bottom within 5 mm, GPS, barometric pressure sensor and an air temperature sensor.

The Ice Mass Balance Buoy was designed to be easily deployed. This was successfully accomplished by manufacturing the Thermistor Strings out of PVC rod with YSI thermistors spaced every 10 cm. These rods are connected to assemble strings that are extended from the air through the snow and ice into the upper ocean. The thermistor accuracy is better than 0.1 C.

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Technical Specifications

Buoy Dimensions

Hull:	30" LGTH x Ø 8.625"
Mast Height:	~40"
Float Size:	Ø 24" x 3" THK
Sonar Mast Height:	~60" Above Surface, ~230" Below Surface

Buoy Construction

Surface Unit:	Hull and Mast: 6061 T6 Aluminum
Sonar Mast:	White PVC
Ablation Shields:	Plywood

Sensors

Thermistor Strings:	YSI Thermistors
Sonic Ranging Sensor (Above Ice):	Campbell Scientific SR-50A
Sonar Altimeter (Below Ice):	Teledyne Benthos PSA-916
Barometer:	Vaisala PTB210
Data Logger:	Campbell Scientific CR1000
Multiplexor:	Campbell Scientific AM 16/32B
Air Temperature Sensor:	Campbell Scientific 107L
Telemetry:	ARGOS PTT ST-20

Power Supply

Battery:	Tadiran, Lithium, 14.68V / 152Ah
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Operation

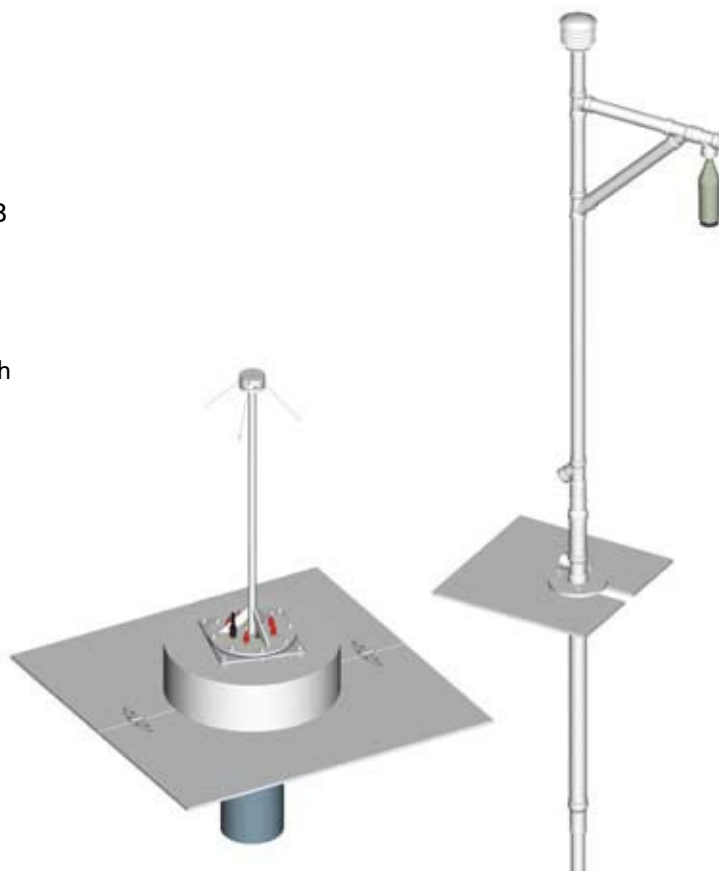
Air temp:	-35 to 40° C
SST:	-35 to 40° C
Relative Humidity:	0 - 100% Marine environment
Battery Operating Life:	24 Months

Storage

Storage Temperature:	-20 to 55° C
Storage Life:	up to 24 months

Survival

Temperature:	-40 to 60° C
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*Deployment in ice 1-4m thick with options for thicker ice; can extend the mast and cable length.