MICROSTAR

The Microstar drifter is a low-cost, coastal, Lagrangian, current following drifter designed to track the mean current at a fixed depth (1m to 5m) beneath the ocean surface. The Microstar was specifically designed to meet the unique challenges of coastal environments as a shallow water small scale current measuring platform. Applications include coastal current studies, outfall analysis, eco-system boundary studies, HF radar validation etc.

The main components of the drifter are the drogue, the surface float and the connecting tether (see diagram opposite side). The drogue is a drag element locking the drifter to a parcel of water. The surface float contains the telemetry system, antenna, batteries and sensors. Drifter positions are calculated by an onboard Global Positioning System (GPS) receiver. Positions are transmitted to the user, providing the information necessary to calculate mean currents. The surface float and drogue are designed to survive deployments ranging from small fresh water lakes to the open ocean. The drifter can be customized to include various sensors and telemetry systems.

FEATURES

COASTAL FOCUS

- High spatial and temporal data resolution suited for characteristic scales of motion in coastal waters
- Low-cost hardware and telemetry permit economical arrays required to measure coastal features
- Near real-time, accurate positions enable drifter recovery and redeployment
- Collapsible drogue facilitates storage on smaller boats

REDEPLOYABLE/ RECOVERABLE

- Microstar may be used as an expendable drifter, but is well suited for deployment and recovery
- Modular drogue may be replaced if drogue is damaged or lost during deployment
- Near-real time position data makes at sea recovery practical
- Surface float is resealable allowing simple battery replacement
- Data can be transmitted to pagers and laptops in near real-time to locations without internet access i.e. small boats.

TELEMETRY OPTIONS

- Mobitex terrestrial data packet network for coverage around North American metropolitan areas
- Iridium satellite system for global coverage
- Globalstar satellite system for coverage in 120 countries and most surrounding bodies of water

SENSORS

Onboard sensors include GPS, Sea Surface Temperature, Battery Voltage, and Submergence (to indicate if the drifter is currently deployed).

DATA STORAGE AND RETRIEVAL

- Transmitted data are received by the Pacific Gyre data server
- Position and sensor values are archived and available on the web at www.pacificgyre.com in near real time.
- Graphical drifter track mapping is available
- Data retrieval available with basestation in remote areas without internet access.

DROGUE

The drogue is a corner radar reflector configuration constructed of nylon. The standard drogue depth is centered at 1m below the sea surface. Other custom depths are available with a corresponding change in drogue size to maintain a drag area ratio of greater than 40. A submergence sensor indicates whether the drifter is deployed.

The drogue may be collapsed like an umbrella into a 4 in. x 26 in. cylindrical shape which allows the user to deploy and recover a large array of drifters from a small boat.

LIFESPAN

The surface float and drogue are designed to survive several months at sea. Battery life ranges from 1 week to 3 months and longer depending on the telemetry system, sampling rates, sensor load and battery type.

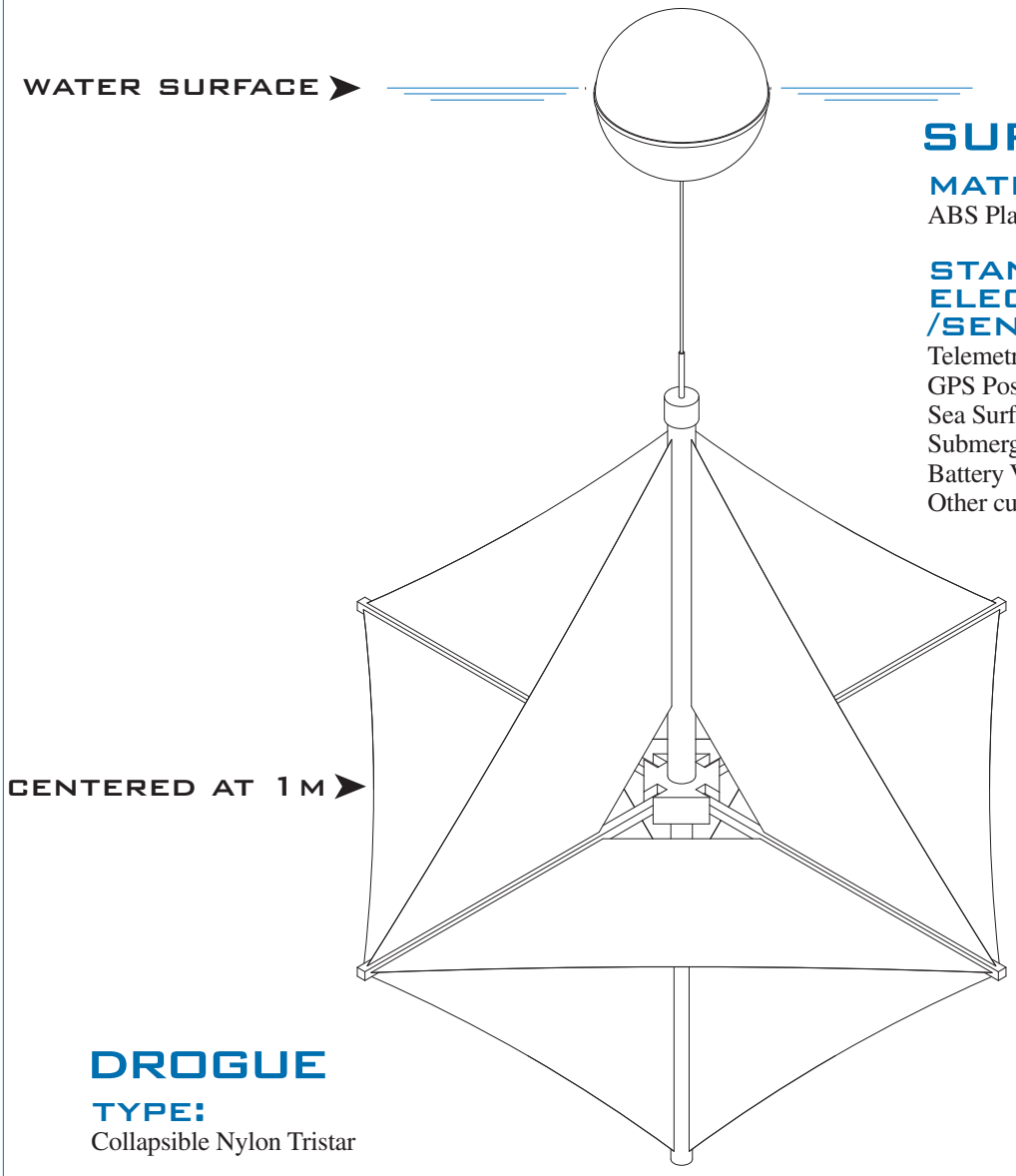
CALIBRATED

The Microstar has been independently calibrated with both current meters and HF radar to verify its water following capabilities.

3740 Oceanic Way, Suite 302 Oceanside, CA 92056 T: 760.433.6300 F: 413.375.0914 info@pacificgyre.com www.pacificgyre.com

PACIFIC GYRE

MICROSTAR



SURFACE FLOAT

MATERIAL:
ABS Plastic

STANDARD ELECTRONICS /SENSORS:
Telemetry Transceiver/Transmitter
GPS Positioning
Sea Surface Temperature
Submergence
Battery Voltage
Other custom sensors available

DROGUE

TYPE:
Collapsible Nylon Tristar

DEPTH:
Drogue shown is sized for centering at 1 meter below the surface. A larger drogue is necessary for deeper deployments

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