



Drone specifications and payload

Windracers Sensor Systems and Applications

Meteorological sensors

- Basic PTH sensors
- Broadband SW and LW radiometers

Potential data products

- Basic meteorological parameters. Profiles and transects in the boundary layer from coast to plateau
- Net broadband radiation budget and albedo maps/transects

Radar Sensors

- VHF radar (69 MHz)
- UWB radar (2-8 GHz)

Potential data products

- For investigation of ice mass balance and dynamics.
- Bed topography/bounding line maps.
- Subglacial lake and hydrology maps
- Ice shelf and ice cap thickness maps/transects.
- Snow stratigraphy transect maps for investigation of distribution of snow accumulation rates.

Optical Sensors

- Hyperspectral imager
- High resolution aerial camera

Potential data products

- Sea-ice properties, ice fraction, spectral reflectance, albedo
- Ocean primary production, chlorophyll-A, algae, calanus
- Snow surface properties, algae, grain size, spectral reflectance, albedo
- Seabird surveys, mosaics
- Marine mammal surveys, mosaics

Detailed specification and payload

Specifications

Windracers ULTRA MKII

Wing span: 10 Meters

Max takeoff mass: 450Kg

Max endurance: 8 – 10 hours

Max range: 700 – 1000 Km



Payload

Ice penetrating radar

Centre frequency: 69MHz

Bandwidth: 10MHz

Transmit power pr channel: 250W

Number of channels: 4

Snow radar

Center frequency: 5000MHz

Bandwidth: 6000MHz

Transmit power: 200mW

Number of channels: 1

Hypersectral imager Hyspex Mjolnir V-1240

Spectral range: 400nm – 1000nm

Spatial pixels: 1240

Field of view: 20°

RGB camera

Sensor module: Flir blackfly BFS-U3

Lens: Computar VL2520U-MPZ

Focal length: 25mm

Aperture: f2.0

Number of cameras: 2 – 4

Total field of view: 120°

Meteorological sensor

Absolute pressure: Honeywell SSCMRNN1.6

Temperature and relative humidity: Sensirion SHT85

Navigation system

Applanix APX-20

Vertical takeoff electric drones



Specifications

CW Shark VTOL

Cruise speed: 70 kph

Range: 100 km

Payload capacity: 2 kg

Sensors

- PTH sensors
- Thermal IR camera
- RGB camera

Potential data products

- Meteorological vertical profiles
- Bird/sea mammal surveys (sensor fusion IR and RGB improves detection rates) low noise lower flight altitude and slower cruise speeds improve resolution down to centimeter level.
- Portable to bring out in the field by snowmobiles.