Albedo Measurement

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Beyond 66

Polar Technology Conference, Boulder, CO 2010
Immediate goal to obtain baseline data to promote understanding of the effects of localized surface optical and evaporative characteristics on snow and ice retention in varied conditions of winter and spring weather and insolation.
Subsystems

- Electrical Power System
- Command & Data Handling
- GPS
- Communications
- Camera
- Thermister String
- Weather Station
- Tilt/Compass
- Structures
Command and Data Unit

- Technologic Systems
- 200 Mhz (step down)
- ½ watt
- Robust
- Inexpensive
- External sleep mode
- Local storage
- Power Management
- 2.4 kernel :

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Mission Requirements

Collection of

• Weather data
• Radiation data
• Sensor data (camera, thermister, etc.)
• Location information
• System information
Weather Data

- Davis Weather Station
- Inexpensive
- Requires calibration
- Existing software
- Some radiation information
Albedometer
Kipp & Zonen

• Accurate
• Wide radiation range
• Robust
• Expensive
• Difficult to setup
• Data logging is complex
Communications
Iridium

Iridium Modem and Mast Mount Antenna

- SBD
- Dial-up
- Reuse
- Power Managed by TS-7260
Local Communications
Open - Mesh

• Mesh (Wifi)
• ROBIN
• Buoy to Buoy Communication
• Cheap
• Self configuration
• More power
• Unverified
Sensors

Camera

- Network Camera
- USB Camera
- Driverless on Linux 2.6
- Inexpensive
- Untested

Thermisters

GPS

Compass
Next steps

- Buoy/Floatation Issues
- Panels
- Tilt Sensor
- Orientation
- Local Mesh
- Marine environment issues
- Battery and charging
- Albedo materials
- Depth Gauge