

Albedo Measurement

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Beyond 66



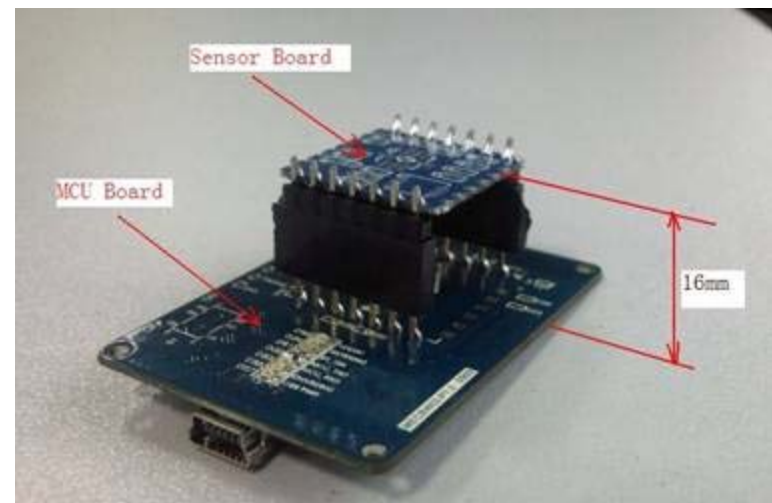
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Study

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.

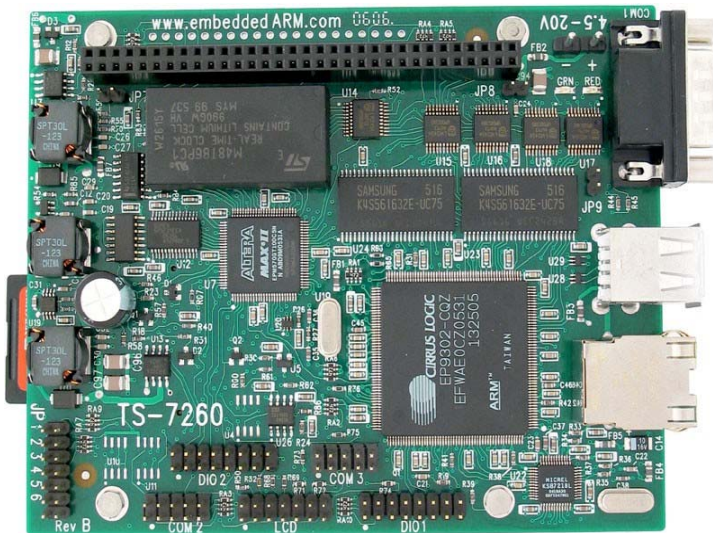
Subsystems

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



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Command and Data Unit



TS-7260

- **Technologic Systems**
- **200 Mhz (step down)**
- **1/2 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

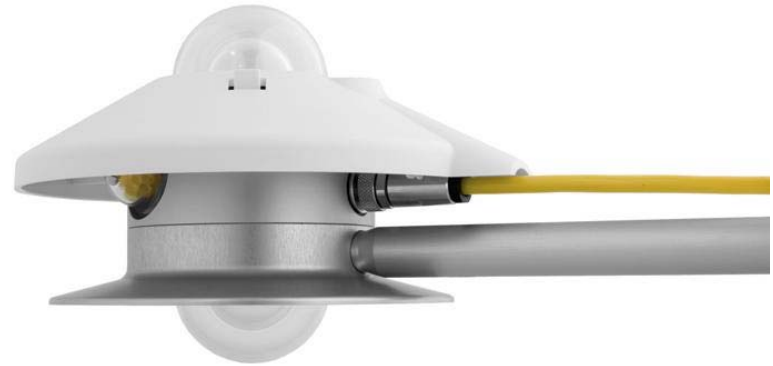
Weather Data

- 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

Thermistors

GPS

Compass



Next steps

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

