

Glacial Environment Monitoring Stations

Typical Station

- ▶ Climate Monitoring
 - ▶ Imagery
 - ✓ Time-lapse photography
 - ✓ Realtime video
 - ✓ Thermal
 - ▶ Glacier Motion
 - ▶ GPS
 - ▶ Seismic
 - ▶ Oceanographic
 - ▶ *Ice strength and temperature

Automation

- ▶ Near-realtime (6 hour cycle)
- ▶ Riegl high-precision laser rangefinder
- ▶ Time-lapse camera (Nikon D-300)
- ▶ Meteorological measurements
- ▶ Satellite communications
- ▶ Public access www.glacierresearch.org

Real-Time Monitoring Locations

(www.glacierresearch.org)

Hubbard Glacier, Alaska (x4)

- ✓ Terminus motion
- ✓ Climate
- ✓ Time-lapse photography

Columbia Glacier, Alaska

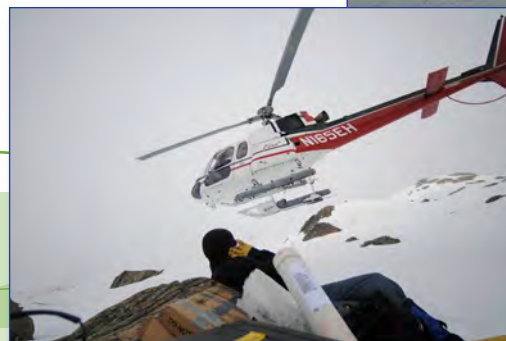
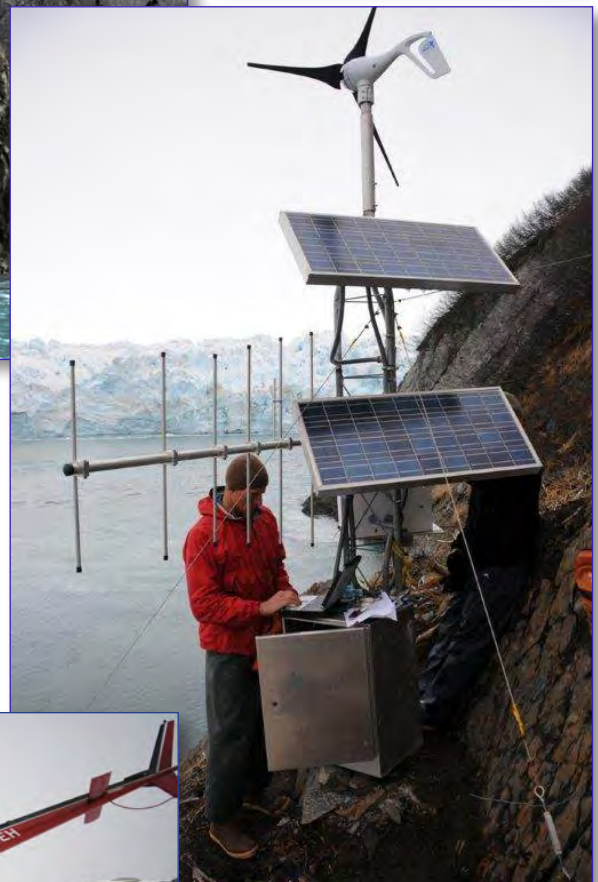
- ✓ USGS Benchmark Glaciers
- ✓ Wolverine Glacier

Gulkana Glacier

*Helheim Glacier, Greenland

*79 Degrees North Glacier, Greenland

*Pegasus Runway – Antarctica



SUTRON CORPORATION

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ISO Certified

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Sutron is an authorized

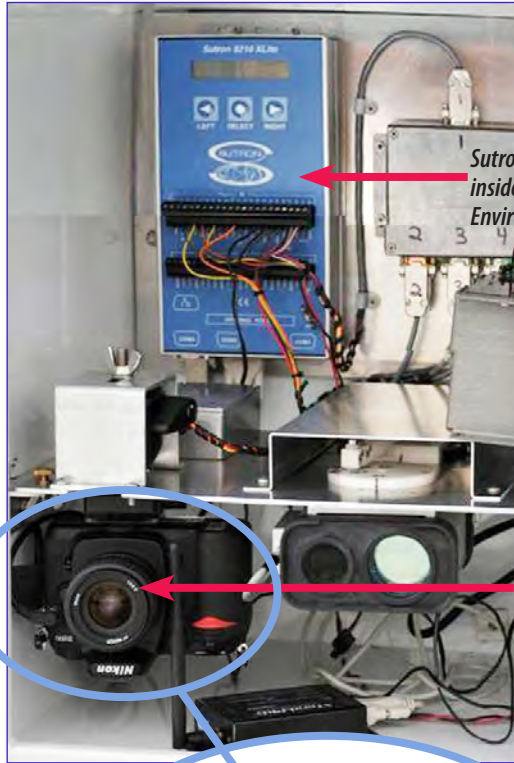
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Iridium® Value Added Reseller (VAR).

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Glacial Environment Monitoring Stations



Sutron's 9210 Data Logger
inside Hubbard Glacier
Environment Station

Time Lapse Camera



On-Going Development

Communications

- ▶ Iridium SBD

Remote Iridium Webcams

Battery Requirements

- ▶ Sufficient power
- ▶ Input from solar / wind
- ▶ Work in very cold temperatures
- ▶ Scalable
- ▶ Lightweight!
- ▶ Shippable



Haenke Island

Station has a complete suite of meteorological sensors. Its built around Sutron's XLite 9210 Data Logger and SatLink2 GOES Transmitter, and acts as a satellite repeater station

- ▶ Air temp
- ▶ RH/Pressure
- ▶ Wind Speed
- ▶ Wind Direction
- ▶ Solar Radiation



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