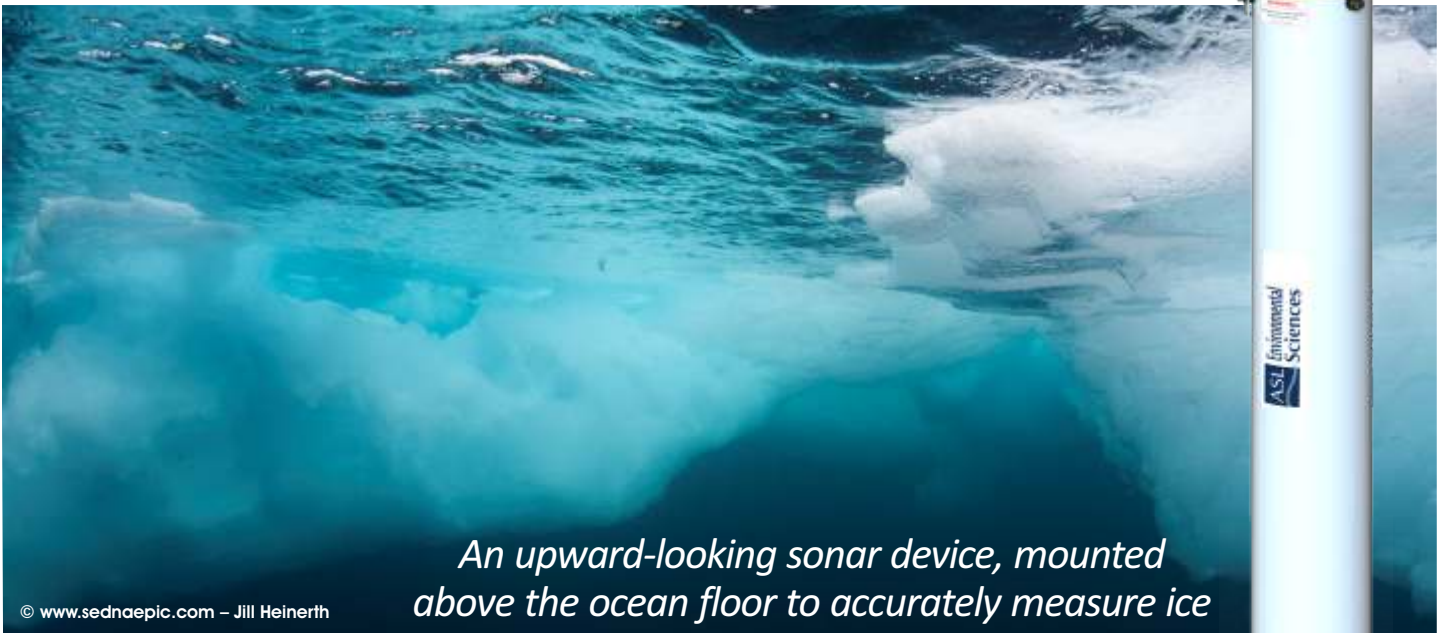


Ice Profiler™



An upward-looking sonar device, mounted above the ocean floor to accurately measure ice

© www.sednaepic.com – Jill Heinerth

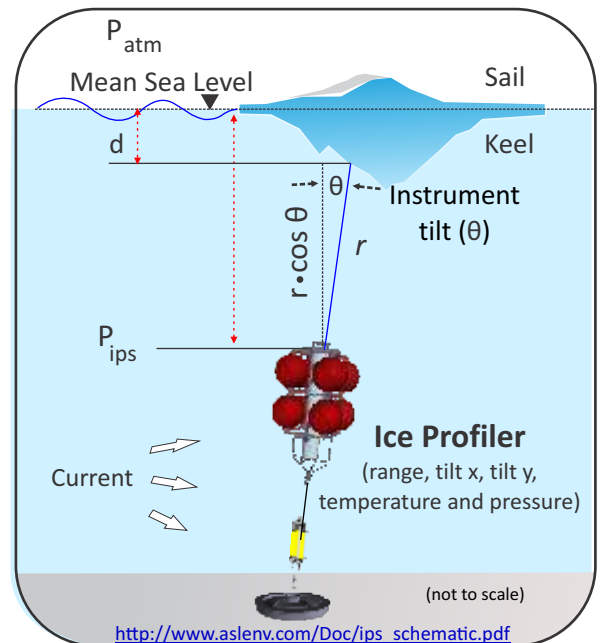
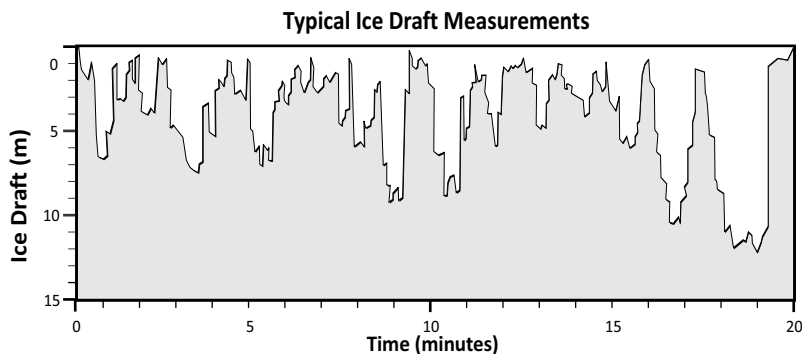
Applications

In order to estimate ice forces, production rates, and mass balances, accurate measurements of ice thickness are essential. The Ice Profiler™ (IPS) makes those measurements much easier to obtain for applications in:

- Offshore Oil Platforms
- Design of Coastal Structures
- Research Oceanography
- Bridges and Causeways
- Global Warming Studies
- Pipeline Studies.

Features

- The Ice Profiler™ has been the proven instrument of choice for ice researchers since 1996.
- Pressure sensor: Paroscientific Digiquartz 2000 series, with long term stability and 0.01% full scale accuracy.
- Excellent horizontal resolution using a high frequency 420 kHz transducer with narrow 0.9° half-beam width.
- Very low power consumption enables continuous sampling at ping rates of 1-2 seconds over one year or more.



The IPS instrument was originally developed by Dr. H. Melling of the Institute of Ocean Sciences, DFO Canada. Since then ASL has made ongoing upgrades to the design and features of the instrument.

Features (continued)

Ice Profiler™

- Multiple sampling options within a deployment to accommodate seasonal changes (up to 12 phases).
- Ocean wave monitoring capability using interleaved 2 Hz burst sampling.
- Windows-based software for deployment planning, initialization, testing and data downloading.
- Full digitized echo can be stored to 1 cm resolution.
- Target detection thresholds are user configurable with up to 5 targets stored.

Model IPS5 Specifications

UPWARD LOOKING SONAR

| | |
|---------------------|--|
| Operating Frequency | 420 kHz |
| Beam Width | 0.9° (center beam to half power point) |
| Sampling Rate | up to 2 Hz (continuous or burst) |
| Duty Cycle | up to 100% |
| Range | 175 m (ice), up to 225 m (water) |
| Precision | ± 0.05 m |
| Resolution | 0.01 m |
| Gain | 4 levels |

REALTIME CLOCK

| | |
|----------|--------------|
| Accuracy | ± 5 min/year |
|----------|--------------|

DATA STORAGE

| | |
|----------|---------------------------|
| Standard | 8 GB Compact Flash |
| Optional | up to 16 GB Compact Flash |

POWER

Provides more than 52 weeks at 1 Hz sampling

TILT SENSOR

| | |
|-----------|--------|
| Range | ± 20° |
| Accuracy | ± 0.5° |
| Precision | 0.01° |

TEMPERATURE SENSOR

| | |
|------------|---------|
| Accuracy | ± 0.1°C |
| Resolution | 0.05°C |

PRESSURE SENSOR

| | |
|--|--|
| Paroscientific Digiquartz® 2000 series | |
| Range | 0 - 126 m |
| Resolution | 0.003 m |
| Accuracy | 0.01% full scale (other ranges available) |

SIZE

0.17 m diameter x 1.0 m length

SOFTWARE The following Windows-based software is included in the Ice Profiler™ package:

| | |
|-------------|--|
| IPS5Link | Communications software to enable setup and download functions. |
| IPS5Extract | Utility package for extracting raw binary data files (available upon request). |

OPTIONAL FEATURES

Short housing which can be powered by an external battery or by an external power source.

Extended alkaline battery pack or carrier for Lithium battery packs to extend deployment duration.

ASL offers the Ice Profiler Processing Toolbox™ - software for processing and analysis of Ice Profiler™ and ADCP ice velocity data sets.

The Ice Profiler is also available in a version designed for river applications which includes an RS 422 serial connection for real time data and remote power - Shallow Water Ice Profiler™ (SWIP).

Custom versions of the Ice Profiler™ are also available for Autonomous Underwater Vehicles (AUV).

Both taut line and gimballed bottom mount moorings available.