

# Arctic Team Surveys Sub-ice Sea



A team of top scientists working on the Catlin Arctic Survey 2011 has chosen Nortek's™ Z-Cell Aquadop Current Profiler to provide current data of water under the Arctic Ice sheet. The instrument was selected for its Z-Cell capability, high accuracy, lightweight structure and robustness. It has been tested up to  $-50^{\circ}\text{C}$ .

Catlin Arctic Survey 2011 consists of four polar explorers and a team of scientists examining the surface layers of the Arctic Ocean during the extreme conditions of an Arctic winter and early spring. The Explorer team will undertake two expeditions walking across the frozen ocean, taking measurements of the upper layers of the Arctic Ocean, using devices dropped through holes in the sea ice.

The powerful ocean currents that circulate warm and cold water around the world's oceans (thermohaline circulation) have a major impact on Earth's climate and weather patterns.

While a number of processes drive thermohaline circulation, there are a few that are unique to the Arctic. The combination of these processes increase water density, eventually making surface waters so dense they overturn and sink to the depths of the Arctic Ocean where they begin to flow south. This process is vital to thermohaline circulation. As sea ice melts, it creates a fresh surface layer which insulates the remaining sea ice from the warmer Atlantic water below.

Recent experiments indicate that these separate layers could be mixing, causing the Arctic sea ice to melt faster. Scientists want to know where the surface water under the ice is heading. Is it staying in the top layer? Is it mixing with the saltier waters below? All outcomes could impact thermohaline circulation. By measuring salinity, temperature and currents at a given depth, scientists can gauge the movement of the different layers of the Arctic Ocean.