



9 year study shows dramatic variability in under-ice hydrodynamics



In small lakes, which are little affected by wind, the decrease of deep water temperature regularly stops at 4°C before freezing. Hence winter hydrodynamics are similar from year to year. In larger lakes, on the other hand, autumnal turnover typically continues to temperatures well below 4°C.

A team of researchers collected a very comprehensive and precise (accuracy 0.05°C) temperature data during nine years using [Star-Oddi's Starmon mini temperature recorders](#) to understand late winter under-ice hydrodynamics in a deep and oligotrophic lake which is susceptible to wind. The accuracy of the recorders enabled the

researchers to discover that variation within the range of only 1°C in water column temperature, at the end of autumnal turnover, led to contrasting under-ice convection and circulation regimes between the melting of snow and ice-break.

The results show that different mixing regimes, which are energized by increasing penetration of solar radiation into the lake, form an interannually variable continuum through which the system evolves. Observed dramatic variability in hydrodynamics probably plays a significant role in early season development of lake phytoplankton. The dependence of mixing regime on a narrow temperature range also likely makes the circulation regime sensitive to a warming climate.

Please click [here](#) to read the whole article.



A study on the effects of Arctic global warming on the Little Auk reveals surprising behavioural changes



Climate change has had devastating consequences in the Arctic with melting sea-ice caps and retreating glaciers. A recent study* shows how these environmental changes inevitably have had an effect on the wildlife in the area. The little auk (*Alle alle*), is an important species in the Arctic's ecosystem, who mostly feed on zooplankton and is considered to be a good climate change indicator. A group of scientists monitored the feeding behaviour of these birds in Franz-Josef Land, Russian Arctic, which is their northernmost breeding site. Data loggers were attached to the birds, among them was [Star-Oddi's DST micro-TD](#) measuring temperature and depth for diving/feeding behaviour analysis. Alongside, the scientists studied the evolution of the sea-ice and coastal glaciers using data collected in the area from 1979 to 2013.

Changed foraging behaviour

The study revealed that there is substantially less sea-ice during the summer months in the Franz-Josef land archipelago, especially since the year 2005 when the area has been more or less ice free. This has led to drastic changes in the auks' foraging behaviour which historically foraged dozens of kilometres away from their breeding site, on the sea-ice edge. In turn the huge influx of cold meltwater from the retreated coastal glaciers has left the zooplankton stunned, creating profitable foraging areas close to the breeding site where little auks, instead of seeking sustenance on the sea ice, are catching the zooplankton.

So far, this change in habits seems not to have had an effect on chick growth, but there has been a 4% decrease in the auks' adult body mass. The long term effects are hard to predict, but the scientists worry about the negative effects that this supposes for the trophic level in the area.

Please click [here](#) to read the whole article.

*Grémillet D, Fort J, Amélineau F, Zakhrova E, Le Bot T, Sala E, Gavrilov M (2015) Arctic warming: non-linear impacts of sea-ice and glacier melt on seabird foraging. *Global Change Biology*, 21: 1116-1123.



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Meet us at Ocean Business in Southampton, UK



Star-Oddi will be exhibiting a [Ocean Business](#) in Southampton, UK on 14-16 April. If you are attending we welcome you to visit our booth no. A20.

Star-Oddi will display its range of small data loggers in the DST and Starmon series. Attendance is free at the exhibition which boasts of more than 300 exhibitors from all over the world.

Demonstration session at Ocean Business



During the Ocean Business exhibition, Star-Oddi will host a training and demonstration session with special focus on temperature, depth and CTD logging. The session will take place on April 15th at 1:30 pm in Node Rm 2 074/02. If you wish to attend, please contact us at ocean@star-oddi.com and reserve your seat.

Fun fact: Iceland's glaciers - catch them while you can



Glaciers form an important part of Iceland's geological composition covering about 11% of the country's surface. Due to high precipitation and below 0°C annual temperatures, the majority of them are concentrated in the southern and central highlands. Among them is Vatnajökull which is Europe's largest ice cap by volume. It covers an area of 8,100 km² or about 8% of the country.

It is estimated that the glaciers started to form about 2.5 years ago. They probably reached their peak around the year 1900, but have been receding ever since. From 1985, the glaciers have been receding rapidly. Vatnajökull, for example, loses about 4km³ of its mass per year. Scientists fear that if this trend continues the glaciers will have disappeared within 500 years.

Many of the glaciers are located above volcanoes, for example, the volcano Bardarbunga which is located under Vatnajökull. This area recently made the world news when an eruption started in its neighbouring Holuhraun. These kind of subglacial eruptions can cause glacial lake outburst floods or jökulhlaup when huge amounts of meltwater burst forward and damage everything in their way.



(image below right from Almannavarnir)

Data Storage Tags - DSTs

Star-Oddi has been manufacturing and developing DSTs since 1993. The data loggers are used for various studies, such as fish tagging, fishing gear studies and oceanography. You can find our whole product range [here](#). The following sensors are available:



-  Temperature
-  Pressure
-  Conductivity
-  Tilt
-  Magnetic field strength
-  Acoustic receiver
-  Light Intensity

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