ICED and Sea Ice during IPY

ICED and sea ice

Some of the strongest expressions of climate change have been noticed in Antarctica. In some areas sea ice has markedly decreased, in others it has increased. Sea surface temperatures in the west Antarctic Peninsula region have increased significantly over the last 50 years. These and other such changes affect the delicate balance of life in the Southern Ocean ecosystem.

Changes in sea ice can have a direct impact on ecosystems through shifts in the amount of habitat available for ice–associated animals. Recent research revealed a decline in tiny shrimp–like creatures (krill) across the Scotia Sea associated with changing sea ice conditions. This study also showed that as the krill have decreased salps (which live in warmer, less productive water) have increased. Such changes have knock–on effects through the Southern Ocean food web. Other effects of the changing conditions have been found in studies of biogeochemistry, fish populations and in the foraging and breeding performance of marine mammals and birds.

Understanding more about how climate processes affect the marine ecosystem of the Southern Ocean is of great importance and forms a key focus of the ICED programme. ICED is forging new links between scientists working in different areas to improve understanding of the links between climate and biology.

ICED is concerned with Southern Ocean ecosystems, is working in partnership with the European Network of Excellence EUR-OCEANS Southern Ocean System and has strong links with Arctic Ocean research through the IPY. The ICED programme will continue for a decade and will build on the important findings from the IPY.

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Pack ice in the Weddell Sea (British Antarctic Survey)

ICED-IPY sea ice projects

ICED is leading a cluster of projects during IPY http://www.iced.ac.uk/science/ipy.htm . Scientists belonging to three of these ICED-IPY projects are carrying out specific research to find out more about sea ice:

Atmospheric inputs of organic carbon and pollutants to the polar ocean: rates, significance and outlook – ATOS
This Spanish-led study contributes to OASIS and GEOTRACES in addition to ICED. ATOS will examine the effects of sea ice melting, and the associated release of substances including contaminants, on the marine ecosystem.
For more information contact Carlos Duarte, email: carlosduarte@ifisc.uib.es
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Study of Antarctic Sea Ice Ecosystems - SASIE
This Russian-led study involves year-round monitoring of sea ice using satellites and ships. The contribution of different types of sea ice to biological production in both open sea and coastal areas will be investigated to find out more about the role of sea ice in polar ecosystems. Comparisons will be made of sea ice ecosystem dynamics in both the Antarctic and Arctic (through PAICEX - PanArctic Ice Camp Expedition).
For more information contact: Igor Melnikov, email: migor@online.ru
tel: +7 916 604 3131
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Biogeochemistry of Antarctic Sea Ice and the Climate System - BASICS
This Belgian-led study will fill gaps in our understanding of sea ice biogeochemistry and related physical processes. It forms part of a larger IPY project “Antarctic Sea Ice”, working towards characterisation of Antarctic sea ice thickness around the entire continent to provide a baseline for monitoring future changes. The BASICS team are currently at work in the Southern Ocean.
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http://www.utsa.edu/lrsg/Antarctica/SIMBA and http://polarbelgium.blogspot.com/

Belgian ice-coring team at work (Jean-Louis Tison).