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the Changing Arctic and Subarctic Environment

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CASE

the Changing Arctic and Subarctic Environment

a Marie Curie Initial Training Network on marine biotic indicators of recent climate changes in the high latitudes of the North Atlantic









# **Key Research Issues**



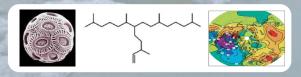




Sea-ice, water temperature, and stratification of the water column are the most important physical elements explaining the marine ecosystem responses to **climate changes in the Nordic Seas.** 

**CASE** aims at addressing some of the key following questions:

- Is the present **global warming and its amplification** in the Arctic and Subarctic domains a **unique event** at the scale of the Earth recent history (last 10 000 years)?
- How do past **decadal to centennial-scale natural climate changes**, as recorded in marine sediments and ice cores, stand in the context of the present human-induced modulation of climate?
- How did Holocene variability in key physical elements affect the structure and diversity of the planktonic ecosystem in the Arctic and Subarctic domains?



# **Structure and Objectives**

Proxy validation, calibration (surface sediment, water column)

Application of calibrated marine biotic proxies to fossil material (sediment cores)

Quantification of empirical data

Transient paleoclimatic simulation and

model-data comparison

Deliverables

Marine biotic indicators of recent climate changes in the high latitudes of the North Atlantic WP1 Surface circulation changes from phytoplankton skeletal remains

WP2 Surface water productivity changes from bulk organic properties

WP3 Water mass properties from stable isotopes in foraminifers

WP4 Sea-ice reconstructions from phytoplankton biomarkers

WP5 Reconstruction of surface to bottom water masses from foraminiferal assemblages

WP6 Transient Arctic climate modelling experiments

Workpackages

**CASE** is a Marie Curie **Initial Training Network** (01.04.2010 – 31.03.2014) which provides research and training opportunities for **12 Early Stage Researchers** in the field of **paleoceanography** and **paleoclimatology**.

It implements a multidisciplinary and intersectorial training on **biotic proxies** and **modelling** of **past marine environments** in the form of generic and specialized **courses**, **workshops**, and **open conferences**.

#### **CASE** Objectives:

- Assemble paleoclimate data for the Holocene through field programmes in the Nordic Seas,
- Integrate paleoclimate information with modern biological and climate modelling data,
- Train a new generation of European polar scientists,
- Develop a **network** of European experts in polar research to build structures focused on **long-term collaboration** in Arctic science.

## **Upcoming Events**

2nd progress meeting, Amsterdam, January 2012

Specialized course "Introduction to climate modelling and application in paleoclimate", Amsterdam, January 2012

Mid-term Open conference coupled with "EGU 2012", Vienna, April 2012

Specialized course "Marine biotic proxies, organic geochemistry, biomarkers and application to paleoceanography", Plymouth, October 2012

Generic course "Skills development program", Plymouth, October 2012

**Specialized course** "Isotope geochemistry, stable light isotopes, radiogenic isotopes, application to paleoenvironmental reconstructions", Kiel, May 2013

Synthesis workshop, Kiel, May 2013

Final Open Conference, Bordeaux, February 2014