



The European Commission

Community Research

Energy, Environment
and Sustainable Development



Fifth
Framework
Programme

MAIA

Monitoring the Atlantic Inflow toward the Arctic

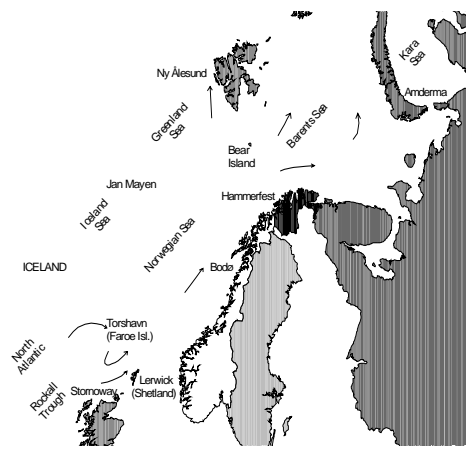
What is MAIA?

Monitoring the Atlantic Inflow toward the Arctic (MAIA) is a research project within the Fifth Framework Programme of The European Commission (Contract EVK2-CT-1999-00008). The project is part of the Energy, Environment and Sustainable development Programme: to better exploit existing data sets and observing systems. The project started January 2000 and will last until December 2002. It is a European extension of a Nordic collaboration within the *Nordic Arctic Research Programme*.

The objective of MAIA

The overall *objective* of MAIA is to develop an inexpensive, reliable system based on coastal sea-level data for monitoring the inflows of Atlantic Water to the northern seas.

Available observation systems, including standard tidal stations, will be used to obtain transport estimates with a time resolution of less than a week and show that the method is generic and can be applied to a similar monitoring of other regions.



Use of MAIA results

The user-oriented Steering Committee of MAIA includes representatives from the offshore petroleum industry, fisheries, environment, weather forecasting, ocean monitoring and climate studies.

The potential results of MAIA for predicting sea surface temperature and ice-front position over weeks, based on transports of warm Atlantic Water to the region of interest, could enhance long-term weather forecasting.



Foinaven FPSO working West of Shetland

For the petroleum industry MAIA can provide a means to calculate the long-term variability of the Atlantic inflow to put short-term measurements into perspective. This will lead to more reliable estimates of extreme current speeds in areas where it is an important design parameter. MAIA can also provide more reliable boundary conditions for numerical models of the shelf seas from the North Sea to the Kara Sea, north of Siberia, and improve their value as a forecasting tool for operational purposes, as well as a tool for establishing long-term data series of ocean currents. The results can also provide a correlation between easily observable oceanic parameters and the ice extent in the Barents Sea, which can be used for ice cover forecasts on a time scale of months to seasons.

Commercial fisheries are pursued in sea areas influenced by the Atlantic inflow to the Arctic by the European Community, Nordic and Russian Federation nations. These fisheries are of great socio-economic importance and have in

the past been managed by international agreements based upon annual scientific stock assessments and population predictions. There is a growing impetus towards introducing multi-species interactions and environmental influences to fisheries management.



Fishing the Nordic Seas

As to the environment, the transport routes for Atlantic water toward the Arctic will provide valuable information for assessing the fate of pollutants in northern European shelf seas.

The results of MAIA are directly relevant to the World Climate Research Programme's climate studies: Arctic Climate System Study (ACSYS) / Climate and Cryosphere Programme (CliC) and Climate Variability (CLIVAR).



Changing arctic climate?

The European component of the Global Ocean Observation System (EuroGOOS) is concerned with identifying the potential synergy from a range of measurements. It has a strong and continuing interest in measuring the strength of the thermohaline circulation, monitoring deep-water formation, convection, and northward transport. MAIA represents first and foremost added value to existing measurement/monitoring programmes.