



Permafrost and gas hydrate related methane release in the Arctic and its impact on climate change - European cooperation for long-term monitoring: COST Action PERGAMON (www.cost-pergamon.eu)

Jens Greinert (1), Tina Treude (2), and PERGAMON Members (3)

(1) Royal NIOZ, Texel, Netherlands (greinert@nioz.nl), (2) IFM-GEOMAR, Kiel, Germany (ttreude@ifm-geomar.de), (3) www.cost-pergamon.eu

The Arctic is a key area in our warming world as massive releases of terrestrial and oceanic methane could increase atmospheric methane concentrations much faster than expected. The vast Arctic shelf might become a major emitter of methane in the future. Only a few projects are engaged in research on methane seepage in this area. The exchange of information about ongoing and planned activities in the Arctic with respect to gas hydrate destabilization and permafrost thawing is low within the EU and almost non-existent at an international level. The aim of the COST Action PERGAMON is to promote networking internationally within the EU and beyond: data integration of terrestrial studies from wetlands and permafrost regions marine research on gas release from seeps due to decomposing gas hydrate and/or permafrost melting and atmospheric investigations carried out by monitoring stations and via satellite is urgently needed to achieve a better understanding of methane emission processes in high latitude areas.

The “official” main objective of PERGAMON is to quantify the methane input from marine and terrestrial sources into the atmosphere in the Arctic region, and ultimately to evaluate the impact of Arctic methane seepage on the global climate. This will be achieved by studying the origin and type of occurrence (dissolved/free gas, gas hydrate) of different methane sources (both on land and in the sub-seabed) as well as methane migration mechanisms, biogeochemical turnover, release mechanisms, and finally by quantifying the flux into the atmosphere.

Biannual meetings and open workshops/conferences that will be announced throughout the scientific community serve as a platform to exchange and proliferate knowledge on methane in the Arctic. At present, fourteen European countries are partners in PERGAMON, several non-COST country institutions are currently applying to participate (e.g. the US and Russia). PERGAMON aims to be open for new members, suggestions and input at any time of the Action. PERGAMON officially runs until November 2013 with a final meeting early in 2014.