SOURCE APPORTIONMENT OF CLIMATE-FORCING BLACK CARBON IN ARCTIC AEROSOLS BY COMPOUND-SPECIFIC RADIOCARBON ANALYSIS

Fact Sheet

Project Information

Arctic BC14

Grant agreement ID: 298507

Project closed

Start date
14 May 2012

End date
13 May 2014

Funded under
Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 181 418,40

EU contribution
€ 181 418,40

Coordinated by
STOCKHOLMS UNIVERSITET
Sweden

This project is featured in...

Objective

Anthropogenic climate warming is particularly enhanced in the Arctic. The climate forcing agents are CO2, tropospheric ozone, methane, halocarbons and carbonaceous aerosols. A key component is airborne black carbon (BC), which is a highly condensed carbonaceous aerosol released from incomplete combustion of organic matter. Arctic acts as a repository of BC after long-range transport from other emission source areas. Arctic climate is more vulnerable to BC than other regions because of its impact on the albedo of snow, glaciers and sea-ice; accelerating melting and increasing sensitivity to warming. Knowledge about BC sources is a prerequisite for an effective mitigation of the Arctic climate warming but unfortunately the relative contribution of different combustion sources of BC transported to the Arctic is still poorly understood.

This project is intended to assist society in targeting efficient mitigation of Arctic climate warming through a reduction of BC emissions. Knowledge about BC sources is a prerequisite for an effective mitigation. In the present research project the sources of Arctic BC will be apportioned with the dual-isotope (13C+14C) approach applied to one key location in western Arctic (Zeppelin mountain, Svalbard) and one in the little studied yet vast Eastern Arctic (Tiksi, Yakutia). Natural abundance radiocarbon analysis allows quantitative apportionment between fossil fuel vs biogenic and biomass combustion sources and stable carbon isotope is informative of the relative importance of wood and grass e.g. crop residues. A reduction in emissions of BC would lead to a slowdown or at least delay in the global warming and in particular a delaying of the rapid melting in the Arctic.

Fields of science (EuroSciVoc)

natural sciences > earth and related environmental sciences > atmospheric sciences > climatology > **climatic zones**

natural sciences > chemical sciences > organic chemistry > **aliphatic compounds**

agricultural sciences > agricultural biotechnology > **biomass**

agricultural sciences > agriculture, forestry, and fisheries > **forestry**

natural sciences > chemical sciences > organic chemistry > **organohalogen compounds**

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

FP7-PEOPLE-2011-IEF - Marie-Curie Action: "Intra-European fellowships for career development"

Call for proposal

FP7-PEOPLE-2011-IEF
See other projects for this call

Funding Scheme

MC-IEF - Intra-European Fellowships (IEF)

Coordinator

STOCKHOLMS UNIVERSITET

EU contribution

€ 181 418,40

Total cost

No data

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Region

Östra Sverige > Stockholm > Stockholms län

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

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Permalink: https://cordis.europa.eu/project/id/298507