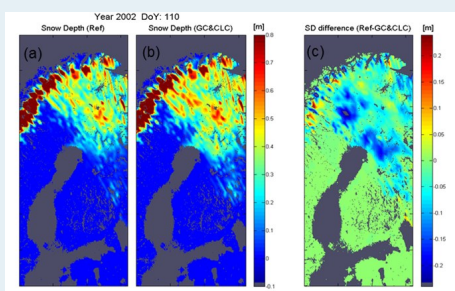


More results

Example of the effect of land cover on model parameters. (a) Snow cover from REMO- model run with USGS land cover and (b) with the combination land cover (Finnish National CORINE-land cover, European CORINE land cover and GlobCover) (c) and the



difference in snow depth.

Data Access

Data is disseminated using OGC web services. For more information and to view and download the carbon balance maps visit:

<http://erdas-apollo.fmi.fi>

Coordinating Beneficiary

Finnish Meteorological Institute



Associated Beneficiaries



Finnish Environmental Institute



Laboratoire des Sciences du Climat et

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**MONITORING AND
ASSESSMENT OF CARBON
BALANCE RELATED
PHENOMENA IN FINLAND
AND NORTHERN EURASIA**



*SnowCarbo EU life+ project
demonstrates an innovative
approach to net Carbon
balance mapping in the
northern Eurasian regions*

Introduction

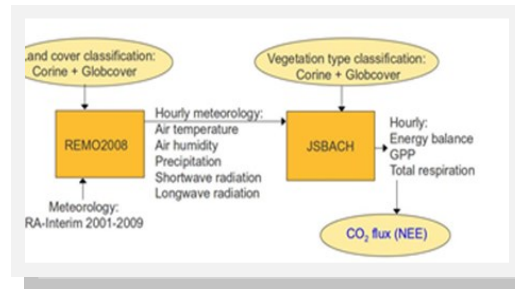
The main objective of the SnowCarbo project is to implement and demonstrate a new innovative approach for the net carbon balance mapping in the northern Eurasian region combining of different information sources describing snow evolution, phenology, land cover, CO₂ fluxes and concentrations. The implemented method combines local in situ observations and global Earth observation (satellite) data together with land cover class information in a new way. The annual maps of carbon balance produced by SnowCarbo can be used to aid the definition of the European and national adaptation strategies to climate change impacts and to support the formulation of the environmental legislation and regulations.

Objectives

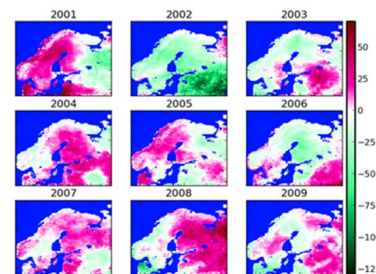
1. Provide accurate map information on net carbon dioxide balance in boreal forest zone in order to assess the real levels of carbon sinks and sources for future climate controlling treaties and policy making
2. Provide and demonstrate methodologies to extract anthropogenic influence from natural background CO₂ sources in order to enable the development new legislative means for CO₂ regulation. These methodologies include the use of Earth observation data as a comprehensive data source (together with models and in situ data).
3. Provide information for the future needs of required in situ, Earth observation and land cover data needs of continental scale carbon balance mapping/monitoring (focusing on northern areas)

Key results and outputs

- A novel earth observation satellite data-aided modeling tool for the monitoring of annual carbon balance: A modelling framework predicting present day land ecosystem CO₂ balance for Nordic countries and surroundings (i.e. for Northern Europe) was developed.



- Digital carbon balance maps covering years from 2001 to 2009: Digital carbon balance maps covering years from 2001 to 2009 are produced.



Yearly CO₂ balance of years 2001-2009 in the original model grid with the resolution of 0.167 degrees. Ecosystem sources of CO₂ are indicated in red and sinks in green. The values are given in terms of grams of carbon per area (g(C)/m²).

Results continued...

- Northern-Eurasian land cover information: Land cover classification gives the spatial distribution of land cover types and surface parameters allocated for each land cover. These characterize each land cover category used by the models. Several sets of gridded land cover maps were produced in different resolutions (scales) and geographical coverage.



- Extraction of carbon balance-related indicative features: Time-series of Snow Covered Area (SCA) and Normalized Difference Vegetation Index (NDVI) were produced from Moderate Resolution Imaging Spectroradiometer (MODIS) observations, describing the status of snow cover and vegetation, both of which are important components in the carbon exchange between atmosphere and soil and vegetation.

