



LIFE Project Number

LIFE07 ENV/FIN/000133

Progress Report

Covering the project activities from 01/01/2011 to 15/06/2011

Reporting Date

30/06/2011

LIFE+ PROJECT NAME or Acronym

Monitoring and assessment of carbon balance related phenomena in Finland and northern Eurasia

Data Project

Project location	Helsinki
Project start date:	01/01/2009
Project end date:	31/12/2012
Total budget:	2155627 €
EC contribution:	1046759 €
(%) of eligible costs	49.09

Data Beneficiary

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List of abbreviations

AMSR-E	Advanced Microwave Scanning Radiometer – Earth Observing System
ASCAT	Advanced Scatterometer
ASD	Analytical Spectral Device
AVHRR	Advanced Very High Resolution Radiometer
CEA-LSCE	Commissariat à l'énergie atomique – Laboratoire des Sciences du Climat et de l'Environnement
CO ₂	Carbon dioxide
CORINE	Coordination of information on the environment
EC	European Commission
ECMWF	European Centre for Medium-Range Weather Forecasts
ENVISAT	Environmental Satellite
EO	Earth Observation
ESA	European Space Agency
EU	European Union
FMI	Finnish Meteorological Institute
GAW	Global Atmospheric Watch
GMES	Global Monitoring of Environment and Security
GSE	GMES Services Element
JSBACH	Jena Scheme for Biosphere-Atmosphere Coupling in Hamburg
MERIS	Medium Range Imaging Spectroradiometer (onboard ENVISAT satellite, ESA)
mmu	minimum mapping unit
MODIS	Moderate Resolution Imaging Spectroradiometer (onboard Terra and Aqua Satellites, NASA)
NDVI	Normalized Difference Vegetation Index
QuikSCAT	Quick Scatterometer
SCA	Snow Covered Area
SMMR	Scanning Multichannel Microwave Radiometer
SSM/I	Special Sensor Microwave Imager
SWE	Snow Water Equivalent
SYKE	Suomen ympäristökeskus (Finnish Environmental Institute)

1 Progress

1.1 Actions

1.1.1 Action 1: Project management and monitoring

Completed Deliverables & Milestones till 30.06.2011 from Project Management can be listed as follow,

Deliverables:

- **Inception Report**
- 1st monitoring report
- First-year progress report
- 2nd monitoring report
- 18 month progress report
- 3rd monitoring report
- **Midterm progress report**
- Carbon footprint report (first contributions)
- 4th Monitoring report

Milestones:

- Project meetings
- Management meetings
- Steering group meetings

Summary on future tasks can be listed below,

1. Model intracomparison - among land cover maps
2. Model intercomparison - REMO, JSBACH, ORCHIDEE
3. Comparison with observations
4. Comparison of carbon-balance-related features between modeling and satellite-derived time-series
5. Model simulation results will be mapped to show the atmospheric load of the anthropogenic emissions. Biospheric component will also be mapped and shown for different seasons, as well as the total column average from satellite measurements
6. REMO results to surface concentration observations in Pallas and Sodankylä will be compared and specifically examine those high CO₂ episodes, which may be of anthropogenic origin. Other species (CO, NO_x, BC etc.) assist in determining whether the observed high CO₂ episodes were truly anthropogenic.

Gantt chart for actions of SnowCarbo project can be shown in figure 1.

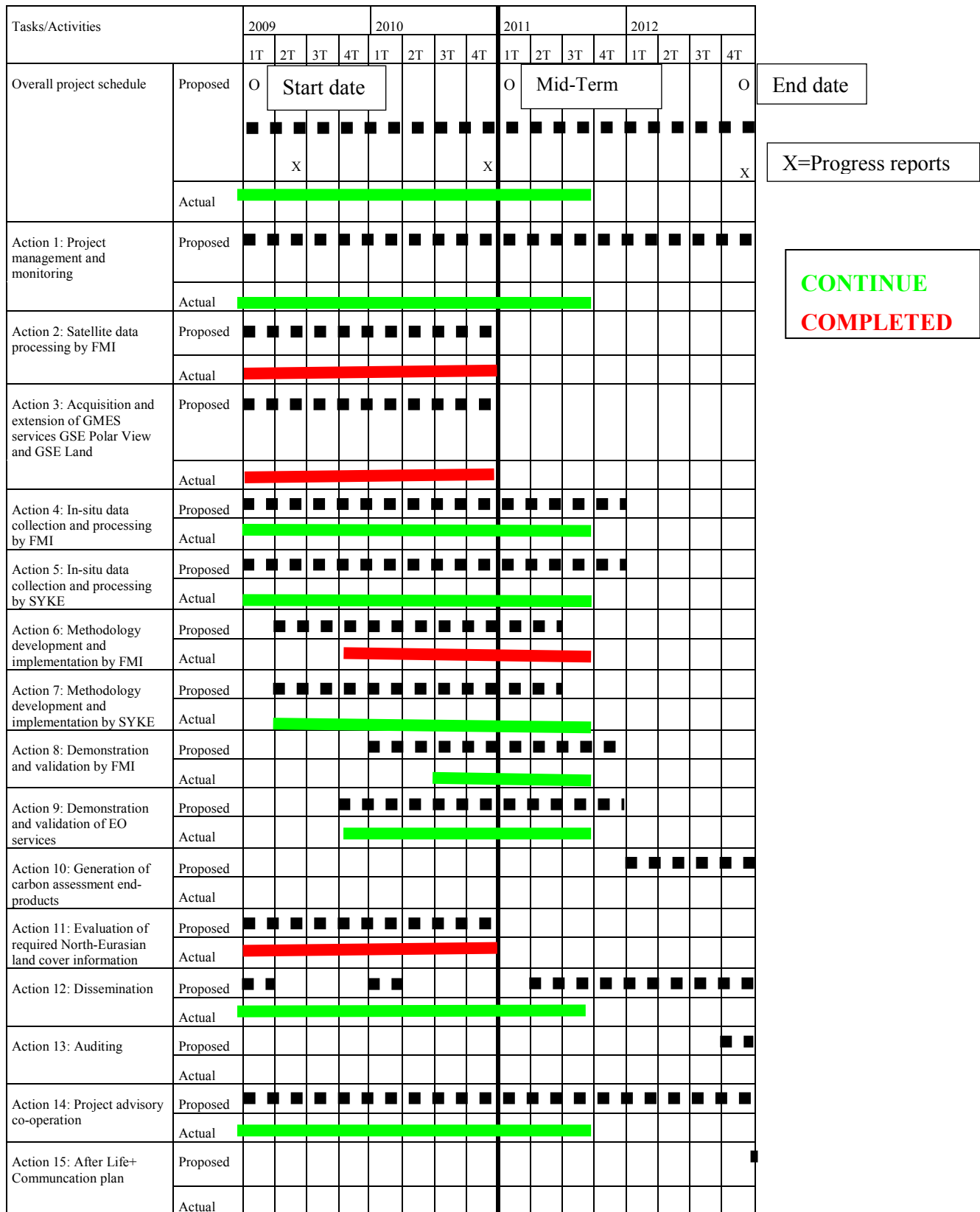


Figure 1: Gantt chart for actions of SnowCarbo project.

1.1.2 Action 2: Satellite data processing by FMI

Action 2 is completed.

1.1.3 Action 3: Acquisition and extension of GMES-services GSE Polar View and GSE Land

Action 3 is completed.

1.1.4 Action 4: In-situ data collection and processing by FMI

Gridded time-series of meteorological data covering the whole model domain is adopted from the ECMWF database (from 2001 to 2007). CO₂ and energy flux measurements have been running as planned.

1.1.5 Action 5: In-situ data collection and processing by SYKE

4 field measurement campaigns at Sodankylä were executed: 2 in 2009 and 2 in 2010.

The data from the field campaign was checked, processed and included in the existing datasets.

1.1.6 Action 6: Methodology development and implementation by FMI

Soil-Vegetation-Atmosphere carbon exchange simulation module, which use high resolution land-use and vegetation data together with environmental parameters obtained via remote sensing and traditional sources are applied for the modelling framework.

1.1.7 Action 7: Methodology development and implementation by SYKE

Processing of dedicated daily time-series for selected areas of interest describing a) the extent of snow cover during the melting period and b) the vegetation status during the growing season was completed for the years 2009-2010. The beginning of growing season for years 2009-2010 was estimated from NDVI and SCA time-series and compared to in situ observations.

1.1.8 Action 8: Demonstration and validation by FMI

First results of methodology demonstration and validation for selected time periods/regions are ready.

1.1.9 Action 9: Demonstration and validation of EO services

Analysis of the significance of the effect of snow coverage and NDVI- index anomalies to carbon flux completed. Comparisons of NDVI and phenological observations completed. Comparisons between the snow cover from vegetation-climate models and snow cover from remote sensing and in-situ data first results are ready.

1.1.10 Action 10: Generation of carbon assessment end-products

Activities will be started in 2012.

1.1.11 Action 11: Evaluation of required Northern-Eurasian land cover information

Evaluation on the land cover needs was made. Different datasets were produced and accuracy assessments were made.

1.1.12 Action 12: Dissemination

1st project brochure (updated) version is postponed till 30.06.2012. The reason for this there are no final products available. The final products for SnowCarbo will be ready starting from May, 2012.

End-User /Stakeholder consulting workshop will be held on December 14, 2012 at the Finnish Meteorological Institute's premises. We started to contact possible presenter of the workshop.

1.1.13 Action 13: Auditing

This action is only performed at the end of the project.

1.1.14 Action 14: Project advisory co-operation

Model inter-comparison - REMO, JSBACH, ORCHIDEE is planned shown in figure 2.

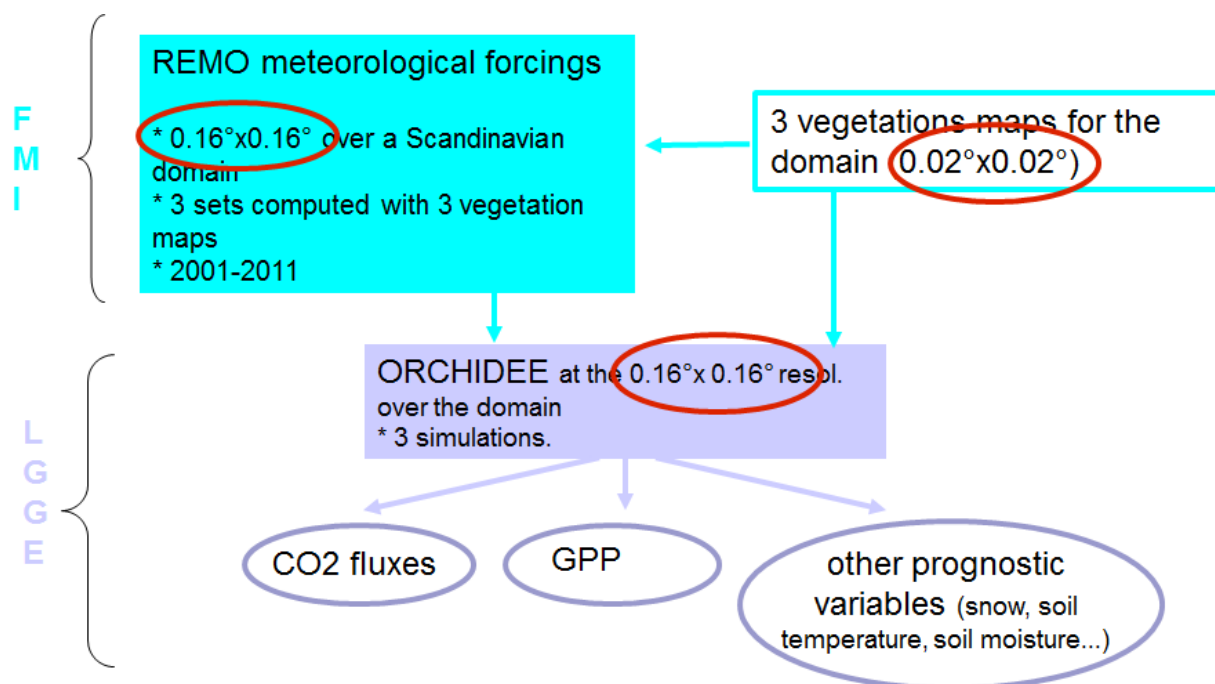


Figure 2: Model inter-comparison- REMO, JSBACH, ORCHIDEE

1.1.15 Action 15: After Life+ Communication plan

The detailed plan for communications and actions after the end of the Life+ project will be made during the last project year in 2012.

1.2 Availability of appropriate licences and authorisations

All necessary software licences and authorisations to use observation data and models are available for the project team.

1.3 Envisaged progress until next report

Envisaged progress until next report can be found under **Timeline** in the project website Project website: <http://snowcarbo.fmi.fi>