



6-month progress report

Period: 1 September 2004 to 28 February 2005

Prepared by: David Salas y Melia on: 1 March 2005

For partner: CNRM

In WP: 4.2

Partner's key personnel in this WP

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Partner's resources used in this period	Funded	Unfunded
Person months effort	0,4	0,4
Approximate total costs	3 000,00 €	3 000,00 €

Summary of achievements this period:

Two main tasks were achieved:

1) The production of a global soil moisture and snow mass climatology over the period 1986-1995 has been initiated in the framework of the Global Soil Wetness Project. This project provides a global 3-hourly atmospheric forcing that is used to drive the ISBA land surface model of CNRM. The resulting land surface climatologies are currently being validated against available observations (in situ measurements of river discharge, satellite measurements of snow cover) before starting the ensembles of seasonal hindcasts with GSWP versus interactive boundary conditions of soil moisture.

2) The modelled depletion of sea ice during the second half of the 20th century (CNRM's IPCC AR4 data) is close to observations, in terms of magnitude, but it is also consistent with the recently observed decrease of the amount of multiyear ice. This allowed to carry out preliminary work about the behaviour of the Arctic sea ice cover, and to get insight about how it may be affected by climate change during the 21th century. This is a first step before focusing on the modelled mechanisms of sea ice variability during the late 20th century, transient climate change and 22nd-23rd century climate stabilizations.

Summary of anticipated future problems and solutions (if any):

Two ensembles of boreal summer hindcasts should be completed in 2005, with interactive and GSWP boundary conditions of soil moisture respectively. The timing of the experiments will however depend on our ability to validate the GSWP climatology over the next few weeks and/or months. Beyond 2005, other ensembles of seasonal hindcasts should

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also focus on the impact of snow mass boundary conditions on the boreal winter and/or spring climate variability.

Any issues to be raised with, or advertised to, other WPs/RTs:

- 1) The boreal summer hindcast experiments will be coordinated with those that are planned in RT4.4 where the focus will be however on land surface initial conditions rather than boundary conditions.
- 2) A study performed about large sea ice anomalies (Feb.-Jul 05) will also contribute to characterize and validate the variability of Arctic sea ice and its linkages to atmospheric and ocean variability. This work will be a starting point for further studies taking place in WP4.2.