

## SPECIAL PROJECT FINAL REPORT

<b>Project Title:</b>	Analysis of the coupling between the ocean and atmosphere large scale circulation regimes from annual to decadal time scales.
<b>Computer Project Account:</b>	spDEIFMB
<b>Start Year - End Year :</b>	2012 - 2014
<b>Principal Investigator(s)</b>	Univ.-Prof. Dr. Ulrich Cubasch Dr. Ingo Kirchner
<b>Affiliation/Address:</b>	Freie Universität Berlin, Institut für Meteorologie
<b>Other Researchers (Name/Affiliation):</b>	Dr. Gerd Bürger Dr. Tim Kruschke

## **Summary of project objectives**

(10 lines max)

Global and regional models are used in many projects at FUB to study different aspects of these interactions, the coupling of stratosphere, troposphere and ocean, the interaction of Indian monsoon and extreme events in Europe, the evolution of Rossby waves and its interaction with planetary waves. The combination of our model data with reanalysis and observations (e.g. ERA40, ERA-INTERIM), which are available at the ECMWF archive system, will help to analyse the processes behind the climate variability over Europe. The aim is to include observation based data sets into a framework for the standardised evaluation of the used model system. This will enable a direct and comprehensive evaluation of simulations. The integrated application of the evaluation system within the model system will guarantee the efficient use of computer resources. Furthermore, the use of standardised evaluation methods will support the development process and optimisation of the used model system.

## **Summary of problems encountered**

In the final project period no relevant resources at ECMWF were used.

## **Experience with the Special Project framework**

No relevant informations.

## **Summary of results**

Hydrological forecast with statistical methods (Gerd Bürger) more details please see Reports 2013 and 2014

Decadal prediction (MiKliP, Tim Kruschke) more details please see Report 2014

## **List of publications/reports from the project with complete references**

Dobler, C., G. Bürger, and J. Stätter (2013), Simulating future precipitation extremes in a complex Alpine catchment, *Natural Hazards and Earth System Sciences*, 13, 263-277.

Bürger, G., D. Reusser, and D. Kneis (2009), Early flood warnings from empirical (expanded) downscaling of the full ECMWF Ensemble Prediction System, *Water Resources Research*, 45(10), W10443.

Kruschke, T., H.W. Rust, C. Kadow, G.C. Leckebusch, U. Ulbrich, 2014a: Evaluating decadal predictions of northern hemispheric cyclone frequencies, *Tellus A*, 66, 22830, <http://dx.doi.org/10.3402/tellusa.v66.22830>

Kruschke, T., H.W. Rust, C. Kadow, W.A. Müller, H. Pohlmann, G.C. Leckebusch, U. Ulbrich, 2014b: Probabilistic evaluation of Northern Hemisphere winter storm frequencies in the MiKlip decadal prediction system. To be submitted to *Meteorologische Zeitschrift* until 31/07/2014

Other References:

Leckebusch, G.C., D. Renggli, U. Ulbrich, 2008: Development and application of an objective storm severity measure for the Northeast Atlantic region. *Meteorologische Zeitschrift*, 17(5), 575-587(13), <http://dx.doi.org/10.1127/0941-2948/2008/0323>

## **Future plans**

No relevant informations.