Helmholtz Research School on Mechanisms and
Interactions of Climate Change in Mountain Regions
KIT/IMK-IFU, Garmisch-Partenkirchen

MICMoR

MICMoR Technical Short Course

Advanced Statistical Methods for Geoscientists with Special Focus on Climatology

Department of Physical Geography and Quantitative Methods,
University of Augsburg, Augsburg
October 6-9, 2015

Contents

This Technical Short Course addresses some important methods in advanced Statistics, therefore basic knowledge in statistics and also in programming with R is required. The course includes both introductory lectures concerning theoretical fundamentals as well as practical exercises with a main focus on topics in climate research. There are four parts dealing with i) fundamental techniques in multivariate statistics like empirical orthogonal functions (EOF), principal component analysis (PCA) or common factor analysis (CFA); ii) calibration and validation of multivariate statistical models; iii) different techniques of statistical downscaling (including transfer functions as well as synoptic approaches); iv) statistical bias correction of climate information from global and regional climate models.

Lecturers

University of Augsburg, Dept. of Physical Geography & Quantitative Methods:
Prof. Dr. Jucundus Jacobeit (lecturer in charge)
Dr. Christoph Beck
PD Dr. Elke Hertig
PD Dr. Andreas Philipp
Dr. Joachim Rathmann

*Karlsruhe Institute of Technology, Institute of Meteorology & Climate Research -
Atmospheric Environmental Research (KIT/IMK-IFU), Garmisch-Partenkirchen:*
Dr. Patrick Laux

Siemens AG, Research and Technology Center, München:
Dr. Stefanie Vogl

Date

Tuesday, 6 October 2015, 9 a.m. - Friday, 9 October 2015, 5 p.m. (4 full days)

Venue:

University of Augsburg, Department of Physical Geography and Quantitative Methods, Alter Postweg 118, 86159 Augsburg
Building B, Room 1014

KIT
Karlsruhe Institute of Technology

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Who can participate?

The course is open to a maximum of 24 participants. It is directed primarily at graduate students and postdocs, with a priority for doctoral students of MICMoR Research School, GRACE Graduate School, KIT/IMK-IFU and the Deptartment of Physical Geography & Quantitative Methods in Augsburg. Requirements: Basic knowledge in mathematics/statistics, programming and R; proficiency in English.

Application

To apply, please send an email with a short motivation statement to the MICMoR Coordination Office (E-mail: elija.bleher@kit.edu). **Application Deadline is 10 August 2015.** There is no tuition fee. However, participants must cover travel and accomodation costs.

What to bring

All participant should bring their own laptop with R installed.

For further reading

Wilks, D.S. (2006): Statistical Methods in the Atmospheric Sciences, Academic Press.
von Storch, H.; Zwiers, F.W. (2001): Statistical Analysis in Climate Research, Cambridge University Press.
Jolliffe, I.T. (2002): Principal Component Analysis, Springer.
Ligges, Uwe (2009): Programmieren mit R. Springer.

Draft Schedule:

Tuesday, 6 October 2015 (9:00 - 17:00):
Fundamental techniques in multivariate statistics

Wednesday, 7 October 2015 (9:00 - 17:00):
Calibration and validation of statistical models

Thursday, 8 October 2015 (9:00 - 17:00):
Statistical downscaling techniques

Friday, 9 October 2015 (9:00 - 17:00):
Statistical bias correction of climate model information