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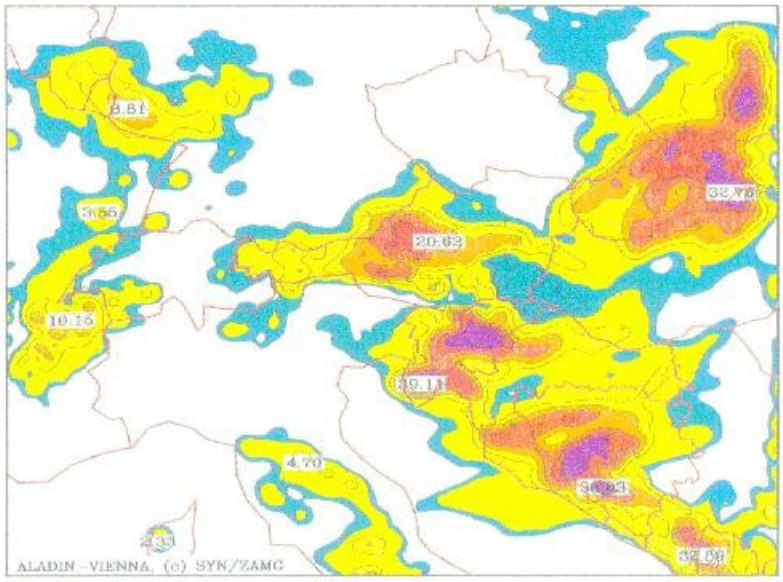

Possible Impacts of Climate Change on Water Resources

LVA. Nr. 816.342

Block: Beginn 28.4.2009

Aim of the Course

The objective of this course is to present a framework for the assessment of global change processes on the hydrology and on the water resources at the basin scale.

Subject

Climate change scenarios are based on simulations of global circulation models. Their spatial resolution is in the range of a few hundred kilometres grid length and therefore topography and land use patterns are only roughly represented in these models. It is impossible to draw conclusions for the possible changes at the basin scale, especially in a mountainous environment. Therefore a methodology, subsumed as downscaling concepts, is necessary which could provide relevant information at the basin scale. The various techniques are described and their pro's and con's are assessed. The downscaled time series of rainfall and temperature serve as an input to hydrological models which simulate the main flow paths of water within a catchment. Changes in the duration of snow cover, snow melt induced runoff, evapo-transpiration, infiltration and groundwater recharge are simulated together with the various runoff components. The consequences with respect to floods and droughts are analysed.

Further, impacts on the vegetation, on land use and on water related uses like agriculture, forestry and hydropower generation can be analysed. Various case studies from international projects are used to demonstrate the applicability of the techniques for different climatic regions

Schedule:

(1) **Di: 28.04.09 08:30-10:30 EH04**
Nachtnebel (IWHW-BOKU): Water Balances at Different Scales
(2) **Mi: 29.04.09 11:00-13:00 EH03**
Nachtnebel (IWHW-BOKU) Hydrological modelling of river basins
(3) **Do: 30.04.09 12:00-14:00 EH03**
Holzmann (IWHW-BOKU) Soil – water – plant processes and interactions
(4) **Do: 30.04.09 14:00-16:00 EH03**
Holzmann (IWHW-BOKU) Hydrological processes in glacierized mountain areas
(5) **Di: 05.05.09 08:30-10:30 EH04**
Formeyer (IM-BOKU) Climate of Austria
(6) **Mi: 06.05.09 11:00-13:00 EH03**
Böhm (ZAMG) Historical development of climate
(7) **Do: 07.05.09 12:00-14:00 EH03**
Matulla (ZAMG) Future climate scenarios for Central Europe
(8) **Do: 07.05.09 14:00-16:00 EH03**
Haiden (ZAMG) Shortterm weather forecast (Aladin und EZMWF)
(9) **Di: 12.05.09 08:30-10:30 EH04**
Formayer (IM-BOKU) Climate processes and models
(10) **Mi: 13:05.09. 11:00-13:00 EH03**
Holzmann (IWHW-BOKU) Impact of climate change on surface hydrology
(11) **Do: 14.05.09. 12:00-14:00 EH03**
Fuchs (IAN-BOKU) Impact of climate change on alpine hazards
(12) **Do: 14.05.09 14:00-16:00 EH03**
Nachtnebel (IWHW-BOKU) Impact of climate change on runoff and hydropower
(13) **Di: 19.05.09 08:30-10:30 EH04**
Nachtnebel (IWHW-BOKU) Impact of climate change on the water balance - Summary