



DFG-Research project (GR 1432/11-1):

Reconstruction of the younger climate and landscape history in the Pirin Mtns. (Bulgaria)

Researcher:

Dr. Karsten Grunewald, Dr. Jörg Scheithauer (LFZ Dresden e.V.)

Dr. Gerd Helle (FZ Jülich)

Co-operation:

University of Technologies, Institute of Forest Utilization and Forest Technology Tharandt (Prof. C. T. Bues, Dr. J. König, DFI B. Günther)

AWI Bremerhaven / Potsdam

Bulgarian Academy of Science, Sofia (A. Gikov), Direction of Pirin National Park / Bansko

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Abstract:

The climate of the last 500 years in the Pirin Mountains is reconstructed coherently and highly resolved in order to close a regional research gap. The Pirin Massif, composed of marble, schist, gneiss and granite, attains an altitude of nearly 3,000m a.s.l. It is part of the Rila-Rhodopes-Massif and comprises a relatively small area of approx. 35 x 70km in Southwest Bulgaria. These Mountains spatially mark the transition between the Mediterranean and temperate climate zones. From the political-administrative perspective it borders on Greece in the south and on Macedonia in the west. Beside these zonal relationships, strong vertical gradients of nature and utilisation potentials need to be pointed out. The massif and its flanking basins and valleys show characteristic natural and social stages of development for miniature-chambered Southeast European mountainous regions. It should rapidly respond to environmental changes. Therefore, this area can be seen as an indicator, which immediately displays changes in landscape-ecological processes.

The archives of the younger Holocene landscape development in the northern Pirin Mountains are studied using different paleo-geoecological methods. In this process the focus is on dendroecological studies on characteristic tree species at the timber line ecotones (growth rings of *Pinus heldreichii*) and on dating and analysing changes in firn ice layers in glacierets and moraines (isotopes), as well as on the interpretation of climate data. These activities aim at the calibration of the several archives and at the conversion of the collected proxies into estimations of temperature and precipitation.

The complex interrelations shall be cross-linked via spatial-temporal (catena approach) and exemplary descriptions (development of system conceptions, connection of indicators and climate parameters).

Publications:

q.v. section "members" Dr. K. Grunewald and Dr. J. Scheithauer