



BIWEEKLY COLLOQUIUM
Monday, 11th of June 17.00

**Recent Archaeological and Paleoecological Research in the Silvretta Alps,
Austria-Switzerland**
Karsten Lambers, Institute of Archaeology, University of Bamberg

This talk is intended to give an overview of research questions, applied methods, and preliminary results of several interconnected research projects currently being undertaken in the Silvretta Alps on the Swiss-Austrian border.

In 2007, the University of Zurich (Thomas Reitmaier) started archaeological research in the Silvretta region in order to investigate the history of alpine pastoralism, or *Alpwirtschaft*, in this area. While permanent settlements in the Lower Engadin date back at least to the Bronze Age, little was known about a possible economic use of the adjacent alpine zone beyond hunting. A cross-border archaeological survey in the side valleys between Lower Engadin (CH), Paznaun and Montafon (A) yielded more than 200 sites and findspots so far, a surprisingly high number in an area not suitable for permanent occupation. An important part of these sites feature remains of built infrastructure of alpine pastoralism, such as boundary walls, livestock enclosures, huts and cabins, and cheese cellars. Two excavated sites dating to the Iron Age currently constitute the earliest evidence of alpine pastoralism in the Silvretta Alps.

However, the quantity and variety of archaeological sites, including also fire places, rock shelters, trails and other features dating from the Mesolithic to the early Modern Age soon called for further investigations into human resource use in this area, and human-environmental interaction throughout the Holocene in general. Therefore, in 2010 we initiated a complementary research project involving the universities of Innsbruck (Jean Nicolas Haas) and Bamberg (Karsten Lambers) in order to address these questions. In the framework of this project, the archaeological survey of the study region is currently being complemented. At the same time, we are obtaining and analyzing paleoenvironmental data, namely pollen samples and macro remains from bogs and other contexts, as well as soil and sediment samples from a transect through our study area, in order to investigate changing vegetation and climatic conditions as well as landscape development and human impact. Some preliminary results of this project will be presented in this talk.

Finally, the Silvretta sites associated with alpine pastoralism are currently serving as base data to develop computer-based methods to detect such sites in high-resolution satellite images. Though each of the alpine huts and livestock enclosures that we registered is unique, their sizes, groundplans, proportions and contexts show limited variability, rendering them suitable targets for object detection through computer vision. In cooperation with the Department of Computer and Information Science at the University of Konstanz we are currently developing algorithms that are expected to enable the detection of such sites in remotely sensed images of 0.5m resolution in either interactive or automated mode. The background of this research, of which first results will be presented, is the rapidly increasing availability of high-resolution satellite images, which due to certain favorable properties are likely to become an important data source for archaeological survey in the future.

Venue: Lecture room 204, Leibnizstraße 1, CAU Kiel