

Historical and climatological research in the Himalaya region by ^{14}C AMS dating of wooden drill cores from historic buildings

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In recent years, the Geographical Institute of the University Erlangen could sample numerous wooden drill cores from historic buildings in four regions of High Asia and could evaluate them dendrochronologically. Part of the drill cores were collected from monasteries and temples in the Dolpo region of western Nepal, a barely studied region in the Inner Himalaya and situated in the rain shadow of the main Himalayan crest line. Another major part came from temples in Central Tibet.

In many cases tree-ring dating of these drill cores was not possible, indicating that the sample woods exhibit a higher age than the present range of the existing tree-ring chronologies which only reach back to the 11th century. So these samples can be used to extend the tree-ring chronologies of this region, which could help to detect suggested monsoon variations during the Middle Ages. The historic tower buildings of Tibet and Sichuan are a special cultural heritage which has been rarely studied up to now. The knowledge of their exact age could help to better understand the cultural and historical context of their development and their function, and could support the effort to declare them a UNESO World Heritage site.

The Erlangen AMS laboratory has performed ^{14}C – datings via accelerator mass spectrometry on 200 samples of 74 of these drill cores. Using wiggle-matching these drill cores could be dated with enhanced precision, and in many cases important information about the time of construction of these important historic buildings could be obtained for the first time.