

# Geowissenschaftliches Kolloquium

## *Stable isotopes in tree-rings as climate proxies*

Donnerstag, 10. Juli 2014 - 16.15 Uhr

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Trees, as long living plants are governed by environmental and/or climate changes within the human habitat. Most of our present knowledge about the Earth`s climate variability over the last millennium is based on tree-ring studies using tree-ring-width and maximum late wood density. However, these proxies have most successfully been used for climate reconstructions at sites where tree growth is limited by one dominant climatic factor, e.g at boreal or alpine timberline sites. In temperate regions, lowland regions like Europe the influence of climate variables on tree growth is more complex and no simple climate-growth-relations can be found. In this respect, the use of stable isotopes in tree-rings may be particularly promising, as they show other, and stronger relationships with climate quantities, thus provide an additional value for palaeoclimate research as compared to the classical tree ring parameters.

**Dr. Gerhard Helle** studied in Münster, where he did also his Ph.D. in 1997. He worked at Helmholtz Centre Jülich and is since 2009 Senior Scientist at the Section 5.2 “Climate Dynamics and Landscape Evolution” of the German Centre for GeoSciences GFZ.

His research interests are: stable isotope techniques with focus on invention and optimization of methodologies for high-resolution and high-throughput isotope analysis of tree-rings; climate signal and stable isotope transfer from atmosphere, soil and leaves into tree-rings and natural climate variability of the late Glacial/early Holocene period as well as the Common Era, i.e. the last 2000 years; stable isotope variability in tropical timber (Tropical dendroclimatology); response of woody C<sub>4</sub> and C<sub>3</sub> plants to climate change; and dendrochronology of Central Asia.



Layout: FUB GeoPal Medienbüro, Jan Evers 20140707

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