

Thomas Mölg

Klimaforschung / Fachgebiet Physikalische Klimatologie

Kurzes Statement zur Forschung

„Mein Fokus liegt auf der Physik des Klimasystems. Vor allem interessieren mich, in welcher Wechselwirkung verschiedene "Bausteine" des Klimas stehen. In meinem Fall sind das die Verknüpfungen zwischen Atmosphäre, Ozean und Schnee und Eis im Hochgebirge.

Das Entschlüsseln solcher Verknüpfungen hat großes Potenzial, die Funktionsweise unseres Klimas besser zu verstehen – vom Meeresniveau bis in höhere Luftschichten und von kleinräumigen bis hin zu großen Prozessen (z.B. lokale Gletscherschmelze, Luftmassenstau durch Gebirge, über Tausende Kilometer wirkende Strömungen in den tropischen Ozeanen). Dies erweitert die physikalische Grundlage für Projektionen des zukünftigen Klimas maßgeblich und verbessert die Einschätzung, wie der globale Klimawandel in das Klima einer bestimmten Region vordringt.

Meine Forschungen erfolgen daher an der Schnittstelle zwischen Klimatologie, dynamischer Meteorologie und Glaziologie. Methodische Schwerpunkte sind einerseits Messungen im Hochgebirge zwischen ca. 3000 und 6000 Metern, mit denen wir neue Daten aus bisher unbeprobten Luftschichten gewinnen. Andererseits entwickeln wir mathematische Modelle der genannten Prozesse (neu oder weiter) und führen diese auf Supercomputern aus.“

Werdegang und wichtige Zeitmarken

- ./ Diplom- und Doktoratsstudien an der Universität Innsbruck (AUT)
- ./ Wissenschaftler („Postdoc“) an der Uni Innsbruck, University of California – Berkeley (USA) und an der Technischen Universität Berlin (GER)
- ./ „Outstanding Young Scientist Award“ von der American Geophysical Union (2009) und auch von der European Geosciences Union (2011), den zwei weltweit größten Fachverbänden für Geowissenschaften
- ./ „Early Career Award“ der Deutschen Akademie der Wissenschaften (2012)
- ./ Ruf auf die Professur für Klimatologie an der Uni Erlangen-Nürnberg (GER) im Jahr 2014
- ./ Ernennung zum Chefreditor von „The Cryosphere“, einer führenden Zeitschrift der Klimaforschung (2016)

Andere über Thomas Mölg

Auszüge aus anonymen Projektgutachten in der Originalsprache Englisch:

„The applicant is an outstanding young scientist, who has published a number of high quality peer-reviewed publications in high impact journals ... and should be seen as one of the most promising scientists in his field.“ (2012)

“He is very well connected and integrated in the international scientific community and clearly shows very high promise in establishing himself as a leader in atmospheric research.“ (2012)

“The applicant has an outstanding record of scientific achievements as shown by a large number of highly cited publications, awards, invitations to international conferences, and a large number of international and national collaborators.“ (2013)

“I believe that the proposer is an exceptional scientist with very great promise.“ (2013)

“Thomas Mölg has definitely proven himself to be a star scientist at a very young age and has already garnered the respect of the international scientific community.“ (2012)

Thomas Mölg

Climate System Research / Physical Climatology

Short Research Statement

“My focus is on the physics of the climate system. I am particularly interested in the interactions between different “bricks“ of the climate, which are the linkages between atmosphere, ocean, and snow and ice in high mountains.

Deciphering such linkages has high potential to enhance our understanding of the functioning of the climate as a whole – from sea-level to higher air layers, and from small-scale to large-scale processes (e.g., local glacier melt, air mass modifications by mountains, and large-scale flows in and over the oceans, acting over thousands of kilometers). This understanding extends the physical basis for projections of future climate and improves the assessments of how global climatic changes are manifested at, and transmitted to, the regional scale.

My research is realized at the interface between climatology, dynamical meteorology, and glaciology. The main methods are, on the one hand, measurements in high mountains between 3000 and 6000 meters above sea-level, which provide new data from basically unsampled air layers. On the other hand, we are developing mathematical models of the processes mentioned above, and run these models on supercomputing platforms.”

Development and important time marks

- ./ Undergraduate and graduate studies at the University of Innsbruck (AUT)
- ./ Scientist (postdoc) at the University of Innsbruck, University of California – Berkeley (USA), and Technical University Berlin (GER)
- ./ „Outstanding Young Scientist Award“ from both the American Geophysical Union (2009) and the European Geosciences Union (2011), the two largest geoscience unions worldwide
- ./ „Early Career Award“ from the German National Academy of Sciences (2012)
- ./ Appointment of Full Professor of Climatology at the University of Erlangen-Nuremberg (GER) in 2014
- ./ Appointment of Editor-In-Chief for “The Cryosphere”, a leading journal of climate research (2016)

Others about Thomas Mölg

Quotes from anonymous reviewers of research proposals:

„The applicant is an outstanding young scientist, who has published a number of high quality peer-reviewed publications in high impact journals ... and should be seen as one of the most promising scientists in his field.“ (2012)

“He is very well connected and integrated in the international scientific community and clearly shows very high promise in establishing himself as a leader in atmospheric research.“ (2012)

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