

ÁKOS HORVÁTH ▪ Ph.D.

CONTACT INFORMATION

Work

Leibniz Institute for Tropospheric Research
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RESEARCH INTERESTS

remote sensing of cloud properties ▪ radiative transfer ▪ role of clouds in the climate system ▪ environmental optics

EDUCATION

Ph.D. ▪ Atmospheric Sciences ▪ Remote Sensing Minor ▪ 2004 ▪ Advisor: Roger Davies
University of Arizona ▪ Tucson ▪ Arizona ▪ United States
Dissertation ▪ *Differences Between Satellite Measurements and Theoretical Estimates of Global Cloud Liquid Water Amounts*

M.Sc. ▪ Atmospheric Sciences ▪ 1999 ▪ Advisor: Roger Davies
University of Arizona ▪ Tucson ▪ Arizona ▪ United States
Thesis ▪ *On the Feasibility of MISR Cloud-Motion Wind Retrievals*

B.Sc. (with Honors) ▪ Meteorology ▪ 1996 ▪ Advisor: Dezső Dèvènyi
Eötvös University ▪ Budapest ▪ Hungary
Diploma ▪ *Nonlinear Objective Analysis*

RESEARCH EXPERIENCE

Research Scientist ▪ 2011-present
Leibniz Institute for Tropospheric Research ▪ Satellite Remote Sensing Group
Leipzig ▪ Germany

Research Scientist ▪ 2007-2011
Max Planck Institute for Meteorology ▪ Atmosphere in the Earth System
Hamburg ▪ Germany

Research Scientist ▪ 25 October – 26 November 2010
ANT XXVII/1 Expedition ▪ Bremerhaven – Cape Town ▪ RV *Polarstern*

Postdoctoral Scholar ▪ 2005-2007
Rosenstiel School of Marine and Atmospheric Science
University of Miami ▪ Miami ▪ Florida

Visiting Scientist ▪ 22-29 January 2006
Royal Caribbean International Vessel *Explorer of the Seas*

Postdoctoral Scholar ▪ 2004-2005
Jet Propulsion Laboratory ▪ Multi-angle Imaging Group
California Institute of Technology ▪ Pasadena ▪ California

PUBLICATIONS

Seethala, C., J.-F. Meirink, **Á. Horváth**, R. Bennartz, and R. Roebeling (2013), On the diurnal variation of South Atlantic boundary layer clouds from SEVIRI and TMI, *Journal of Geophysical Research*, in preparation.

Horváth, Á. and C. Seethala (2013), View angle dependence of AMSR-E and MODIS cloud liquid water path retrievals, *Journal of Geophysical Research*, in preparation.

Ludewig, E. and **Á. Horváth** (2013), Multi-sensor analysis of cloud-top height in stratocumulus to cumulus transition regions, *IEEE Transactions on Geoscience and Remote Sensing*, in preparation.

Horváth, Á. (2013), Improvements to MISR stereo motion vectors, *Journal of Geophysical Research*, doi:10.1002/jgrd.50466.

Renno, N. O., E. Williams, D. Rosenfeld, D. G. Fischer, J. Fischer, T. Kremic, A. Agrawal, M. O. Andreae, R. Bierbaum, R. Blakeslee, A. Boerner, N. Bowles, H. Christian, A. Cox, J. Dunion, **Á. Horváth**, X. Huang, A. Khain, S. Kinne, M. C. Lemos, J. E. Penner, U. Pöschl, J. Quaas, E. Seran, B. Stevens, T. Walati, and T. Wagner (2013), CHASER: Clouds, Hazards, and Aerosols Survey for Earth Researchers, *Bulletin of the American Meteorological Society*, in print.

PUBLICATIONS - Continued

Lonitz, K. and **Á. Horváth** (2011), Comparison of MISR and Meteosat-9 cloud-motion vectors, *Journal of Geophysical Research*, doi:10.1029/2011JD016047.

Seethala, C. and **Á. Horváth** (2010), Global assessment of AMSR-E and MODIS cloud liquid water path retrievals in warm oceanic clouds, *Journal of Geophysical Research*, 115, D13202, doi:10.1029/2009JD012662.

Egri, Á., **Á. Horváth**, Gy. Kriska, and G. Horváth (2010), Optics of sunlit water drops on leaves: Conditions under which sunburn is possible, *New Phytologist*, 185, doi:10.1111/j.1469-8137.2009.03150.x.

Horváth, Á. (2009), *The Amount of Liquid Water in Global Clouds: Differences Between Satellite Measurements and Estimates From Combined Surface–In Situ Observations*, Saarbrücken: VDM Publishing House, ISBN 978-3-639-17135-8, p.122.

Horváth, Á. and B. Soden (2008), Lagrangian diagnostics of tropical deep convection and its effect upon upper tropospheric humidity, *Journal of Climate*, 21, doi:10.1175/2007JCLI1786.1.

Horváth, Á. and C. Gentemann (2007), Cloud-fraction-dependent bias in satellite liquid water path retrievals of shallow, non-precipitating marine clouds, *Geophysical Research Letters*, 34, L22806, doi:10.1029/2007GL030625.

Davies, R., **Á. Horváth**, and C. Moroney (2007), Cloud motion vectors from MISR using sub-pixel enhancements, *Remote Sensing of Environment*, doi:10.1016/j.rse.2006.09.023.

Horváth, Á. and R. Davies (2007), Comparison of microwave and optical cloud water path estimates from TMI, MODIS, and MISR, *Journal of Geophysical Research*, 112, D01202, doi:10.1029/2006JD007101.

Hegedűs, R., **Á. Horváth**, and G. Horváth (2006), Why do dusk-active cockchafers detect polarization in the green? The polarization vision in *Melolontha melolontha* is tuned to the high polarized intensity of downwelling light under canopies during sunset, *Journal of Theoretical Biology*, 238, doi:10.1016/j.jtbi.2005.05.033.

Horváth, Á. and R. Davies (2004), Anisotropy of water cloud reflectance: A comparison of measurements and 1D theory, *Geophysical Research Letters*, 31, L01102, doi:10.1029/2003GL018386.

Moroney, C. M., **Á. Horváth**, and R. Davies (2002), Use of stereo-matching to co-register multiangle data from MISR, *IEEE Transactions on Geoscience and Remote Sensing*, 40(7), 1541-1546.

Horváth, Á. and R. Davies (2001), Simultaneous retrieval of cloud motion and height from polar-orbiter multiangle measurements, *Geophysical Research Letters*, 28(15), 2915-2918.

Horváth, Á. and R. Davies (2001), Feasibility and error analysis of cloud motion wind extraction from near-simultaneous multiangle MISR measurements, *Journal of Atmospheric and Oceanic Technology*, 18, 591-608.

PUBLICATIONS - Continued

Diner, D. J., R. Davies, L. Di Girolamo, **Á. Horváth**, C. M. Moroney, J. P. Muller, S. R. Paradise, D. Wenkert, and J. Zong (1999), *MISR Level 2 Cloud Detection and Classification Algorithm Theoretical Basis, JPL D-11399, Revision D*.

Holden, J. J., S. E. Belcher, **Á. Horváth**, and I. Pytharoulis (1995), Raindrops keep falling on my head, *Weather*, 50, 367-370.

PRESENTATIONS

Horváth, Á. and K. Mueller, *MISR stereo observations of Kármán vortex streets*, 2013 EUMETSAT Meteorological Satellite Conference & 19th American Meteorological Society (AMS) Satellite Meteorology, Oceanography, and Climatology Conference, 16-20 September 2013, Vienna, Austria.

Ludewig, E. and **Á. Horváth**, *Differences between MISR CTH products in Sc-to-Cu transition areas*, MISR Data Users Science Symposium, 10-11 December 2012, Pasadena, California.

Horváth, Á., *Lagrangian diagnostics of precipitation cells using combined satellite and radar observations*, 2012 EUMETSAT Meteorological Satellite Conference, 3-7 September 2012, Sopot, Poland.

Horváth, Á. and C. Seethala, *View angle dependence of microwave and optical cloud liquid water path retrievals*, International Radiation Symposium 2012, 6-10 August 2012, Berlin, Germany.

Horváth, Á., *Evaluation of upgraded MISR stereo motion vectors*, 11th International Winds Workshop, 20-24 February 2012, Auckland, New Zealand.

Horváth, Á., *Evaluation of MISR stereo cloud top height retrievals*, Third Cloud Retrieval Evaluation Workshop, 15-18 November 2011, Madison, Wisconsin.

Ludewig, E. and **Á. Horváth**, *Multi-sensor analysis of cloud-top height in stratocumulus to cumulus transition regions*, 2011 EUMETSAT Meteorological Satellite Conference, 5-9 September 2011, Oslo, Norway.

Seethala, C. and **Á. Horváth**, *Evaluating 3D effects in 1D VIS-NIR cloud retrievals using LES cloud fields and 3D radiative transfer*, International Union of Geodesy and Geophysics (IUGG) General Assembly, 28 June – 7 July 2011, Melbourne, Australia.

Ludewig, E. and **Á. Horváth**, *Multi-sensor analysis of cloud-top height in stratocumulus to cumulus transition regions*, American Geophysical Union Fall Meeting, 13-17 December 2010, San Francisco, California. /Outstanding Student Paper Award bestowed on E. Ludewig/

Seethala, C., J.-F. Meirink, **Á. Horváth**, R. Bennartz, and R. Roebeling, *Investigating the diurnal variation of South Atlantic boundary layer clouds from SEVIRI and TMI*, European Geosciences Union General Assembly, 3-8 April 2010, Vienna, Austria.

PRESENTATIONS - *Continued*

Ludewig, E. and **Á. Horváth**, *Multi-sensor analysis of cloud-top height in stratocumulus to cumulus transition regions*, MISR Data Users Science Symposium, 9-10 December 2010, Pasadena, California.

Lonitz, K. and **Á. Horváth**, *Comparison of MISR and Meteosat-9 cloud-motion winds*, 2010 EUMETSAT Meteorological Satellite Conference, 20-24 September 2010, Cordoba, Spain.

Lonitz, K. and **Á. Horváth**, *Comparison of MISR and Meteosat-9 cloud-motion winds*, Tenth International Winds Workshop, 22-26 February 2010, Tokyo, Japan.

Horváth, Á. and I. Genkova, *Existing MISR wind characteristics*, WINDS Proposal Kickoff Meeting, 5 January 2010, Mullard Space Science Laboratory, Guildford, United Kingdom.

Lonitz, K. and **Á. Horváth**, *Comparison of MISR and Meteosat-9 cloud-motion winds*, MISR Data Users Science Symposium, 10-11 December 2009, Pasadena, California.

Horváth, Á. and C. Seethala, *Global assessment of AMSR-E and MODIS cloud liquid water path retrievals in warm oceanic clouds*, Earth Observation and Water Cycle Science Conference, 18-20 November 2009, ESA ESRIN, Frascati, Italy.

Horváth, Á. and C. Seethala, *Heterogeneity effects in optical cloud liquid water path retrievals*, MOCA-09 IAMAS-IAPSO-IACS Joint Assembly, 19-29 July 2009, Montréal, Canada.

Horváth, Á. and C. Seethala, *Evaluation of passive satellite remote sensing of cloud liquid water*, IEEE International Geoscience and Remote Sensing Symposium, 12-17 July 2009, Cape Town, South Africa.

Seethala, C. and **Á. Horváth**, *Global comparison of microwave and optical cloud liquid water path retrievals in warm clouds*, European Geosciences Union General Assembly, 20-24 April 2009, Vienna, Austria.

Stevens, B. and **Á. Horváth**, *MPI-M and GlobCloud*, Workshop on European Contributions to Ensuring Long-Term Provision of Essential Climate Variables, 30-31 March 2009, Joint Research Center, Ispra, Italy.

Seethala, C. and **Á. Horváth**, *Evaluation of AMSR-E and MODIS liquid water path retrievals in warm clouds*, American Geophysical Union Fall Meeting, 15-19 December 2008, San Francisco, California.

Horváth, Á. and B. J. Soden, *Influence of Saharan air layer on convective development: The Lagrangian approach*, International Radiation Symposium 2008, 3-8 August 2008, Foz do Iguaçu, Brazil.

Horváth, Á. and B. J. Soden, *Lagrangian diagnostics of tropical deep convection and its effect upon upper-tropospheric humidity*, International Radiation Symposium 2008, 3-8 August 2008, Foz do Iguaçu, Brazil.

Horváth, Á., and B. J. Soden, *Influence of Saharan air layer on convective development*, European Geosciences Union General Assembly, 13-18 April 2008, Vienna.

PRESENTATIONS - *Continued*

Horváth, Á. and B. J. Soden, *Lagrangian diagnostics of tropical deep convection and its effect upon upper-tropospheric humidity*, American Geophysical Union Fall Meeting, 10-14 December 2007, San Francisco, California.

Horváth, Á., *Applications of multi-angle remote sensing in atmospheric, oceanic, and land studies*, Center for Southeastern Tropical Advanced Remote Sensing, 17 April 2007, Miami, Florida.

Horváth, Á., *Differences between satellite measurements and theoretical estimates of global cloud liquid water amounts*, Remote Sensing Systems, 1 November 2006, Santa Rosa, California.

Horváth, Á. and B. J. Soden, *Lagrangian diagnostics of tropical deep convection and its effect upon upper-tropospheric humidity*, Atmospheric Radiation Measurement Program Cloud Modeling Working Group Fall Meeting, 30-31 October 2006, San Francisco, California.

Horváth, Á., *Lagrangian diagnostics of tropical cirrus*, 3rd ENVISAT Summer School – Earth System Monitoring and Modelling, 31 July – 11 August 2006, ESA ESRIN, Frascati, Italy.

Horváth, Á. and B. Soden, *Lagrangian diagnostics of tropical cirrus*, Atmospheric Radiation Measurement Program Science Team Meeting, 27-31 March 2006, Albuquerque, New Mexico.

Horváth, Á. and R. Davies, *Comparison of microwave and optical cloud water path estimates from TMI, MODIS, and MISR*, 2005 EUMETSAT Meteorological Satellite Conference, 19-23 September 2005, Dubrovnik, Croatia.

Horváth, Á. and R. Davies, *Comparison of microwave and optical satellite remote sensing of cloud liquid water*, 5th International Scientific Conference on the Global Energy and Water Cycle, 20-24 June 2005, Orange County, California.

Mazzoni, D., **Á. Horváth**, M. J. Garay, B. Tang, and R. Davies, *A MISR cloud-type classifier using reduced Support Vector Machines*, Eighth Workshop on Mining Scientific and Engineering Datasets, 23 April 2005, Newport Beach, California.

Horváth, Á. and R. Davies, *Cloud liquid water from TMI, MODIS, and MISR*, MISR Science Team Meeting, 7-10 December 2004, Pasadena, California.

Horváth, Á., *Cloud optical depth insights from MISR*, MISR TOA/Cloud Workshop, 5-6 August 2004, Urbana-Champaign, Illinois.

Horváth, Á. and R. Davies, *Cloud heterogeneity effects on optical property retrievals*, MISR Science Team Meeting, 19-20 June 2003, Corvallis, Oregon.

Horváth, Á., R. Davies, and D. J. Diner, *Evaluation of the plane-parallel model from MISR measurements*, Atmospheric Radiation Measurement Program Science Team Meeting, 31 March - 4 April 2003, Broomfield, Colorado.

Horváth, Á. and R. Davies, *MISR-MODIS cloud retrieval comparisons*, MISR Science Team Meeting, 11-13 December 2002, Pasadena, California.

PRESENTATIONS - *Continued*

Horváth, Á., R. Davies, and I. Genkova, *MISR measurements of marine boundary layer clouds: What can we learn from multiangle observations?* 11th Conference on Atmospheric Radiation, 3-7 June 2002, Ogden, Utah.

Horváth, Á., R. Davies, and D. Frank, *Status of MISR winds*, MISR TOA/Cloud Workshop, 23-24 May 2002, Urbana-Champaign, Illinois.

Horváth, Á., R. Davies, and G. Seiz, *Status of MISR cloud-motion wind product*, 6th International Winds Workshop, 7-10 May 2002, Madison, Wisconsin.

Horváth, Á. and R. Davies, *Cloud optical thickness retrievals from multiangle measurements*, International Association of Meteorology and Atmospheric Sciences 2001, 10-18 July 2001, Innsbruck, Austria.

Horváth, Á. and R. Davies, *Simultaneous retrieval of cloud motion and height from MISR measurements*, American Geophysical Union Fall Meeting, 15-19 December 2000, San Francisco, California.

Horváth, Á. and R. Davies, *Comparison of MISR and GOES wind fields*, MISR Science Team Meeting, 11-13 December 2000, Pasadena, California.

INVITED TALKS

Horváth, Á., *View angle dependence of visible/near-infrared cloud liquid water path retrievals*, International Conference on Turbulence, Transfer, Transport and Transformation: Interactions Among Environmental Systems, 24-25 May 2012, Budapest, Hungary.

Horváth, Á., *Application of multiangle MISR data in cloud studies*, Royal Netherlands Meteorological Institute, 17 January 2011, De Bilt, The Netherlands.

Horváth, Á., *Interaction of clouds and radiation*, Instituto Nacional De Pesquisas Da Amazônia, 13-15 August 2008, Manaus, Brazil.

PROFESSIONAL ACTIVITIES

Reviewer for *IEEE Transactions on Geoscience and Remote Sensing* ▪ *Journal of Applied Meteorology and Climatology* ▪ *Journal of Geophysical Research* ▪ *Geophysical Research Letters*

STUDENT MENTORING EXPERIENCE

Chellappan Seethala, Ph.D. ▪ 2008-2012

Evaluating the state-of-the-art of and Errors in 1D Satellite Cloud Liquid Water Path Retrievals with Large Eddy Simulations and Realistic Radiative Transfer Models

Max Planck Institute for Meteorology ▪ Atmosphere in the Earth System ▪ Hamburg ▪ Germany

/Currently, post-doctoral scholar at Scripps Institution of Oceanography, UC San Diego, USA/

Elke Ludewig, M.Sc. ▪ 2010-2011 ▪ Outstanding Student Paper Award, 2010 AGU Fall Meeting

Multisensor analysis of cloud-top height along stratocumulus to cumulus transition trajectories

Max Planck Institute for Meteorology ▪ Atmosphere in the Earth System ▪ Hamburg ▪ Germany

/Currently, doctoral student at Institute of Oceanography, University of Hamburg, Germany/

Katrin Lonitz, M.Sc. ▪ 2008-2010

Comparison of MISR and Meteosat-9 cloud motion winds

Max Planck Institute for Meteorology ▪ Atmosphere in the Earth System ▪ Hamburg ▪ Germany

/Currently, doctoral student at Max Planck Institute for Meteorology, Hamburg, Germany/

GRANTS ▪ AWARDS ▪ SCHOLARSHIPS

Marie Curie International Reintegration Grant #208245 ▪ 2007-2011

Improving subgrid-scale cloud parameterization in global climate models using remote sensing data. A total funding of €100,000 was awarded by the European Commission.

MISR Team Group Achievement Award ▪ 2001

Presented by the National Aeronautics and Space Administration (NASA) in recognition of the successful development, deployment, and operation of the Multi-angle Imaging SpectroRadiometer (MISR) instrument, science, and data systems.

TEMPUS Fellowship ▪ 1994-1995

Presented by the European Union to attend Master's level courses at the Department of Meteorology, University of Reading, United Kingdom, as part of study abroad program.

SOCIETY MEMBERSHIP

American Geophysical Union

Royal Meteorological Society

American Meteorological Society

HOBBIES

PADI Rescue and Nitrox Diver Certification with 200 logged dives