Curriculum Vitae

THOMAS HAIDEN
Staff Scientist, Head of Forecast Model Department
Division Data, Methods, Modeling
Central Institute for Meteorology and Geodynamics (ZAMG)
Hohe Warte 38, 1190 Vienna, Austria
Phone: +43-1-36026-2322
E-mail: thomas.haiden@zamg.ac.at

EDUCATION

M.D.	Meteorology, University of Vienna	1988
Ph.D.	Meteorology, University of Vienna	1990

PROFESSIONAL AFFILIATIONS

Staff Scientist, Head of Forecast Model Department, ZAMG	2009-present
Staff Scientist, Head of NWP Group, ZAMG	1996-2008
Research Assistant, University of Vienna	1987-1995
Visiting Scientist, NOAA/FSL, Boulder, CO	1999-2000
Visiting Scientist, NOAA/ETL, Boulder, CO	1995-1996
American Meteorological Society, member	2008-present
Austrian Meteorological Society, member	1990-present

COMMITTEE APPOINTMENTS

ICAM Steering Committee	2009-present
Austrian Rep., ECMWF Technical Advisory Committee	2004-2006
Austrian Rep., WMO Commission for Atmosph. Sciences	2002-present

OTHER PROFESSIONAL ACTIVITIES AND HONORS

Leader, Working Group for Model Physics, ALADIN-LACE	2003-2004
Project Scientific Officer, ALADIN-LACE	2001-2003
Coordinator, EWGLAM/SRNWP Lead Center for Adaptation	2000-2007
NRC/NAS Postdoctoral Research Award (USA)	1999
Austrian Representative, EWGLAM/SRNWP	1997-present
Erwin Schrödinger Fellowship (Austria)	1995
Young Scientist Award of the Austrian Meteorological Society	1988

TEACHING

University of Innsbruck	2005-present	Meteorology Institute
University of Agriculture, Vienna	1998-present	Hydrology Institute
University of Technology, Vienna	1991-1998	Hydrology Institute
University of Vienna	1990-2001	Meteorology Institute

I have taught graduate courses in mountain meteorology, hydrometeorology, boundary-layer processes, nonlinear processes in meteorology, and numerical modelling. I have supervised four M.D. theses on topics in numerical weather prediction in complex terrain.

PROFESSIONAL WORK EXPERIENCE

Central Institute for Meteorology and Geodynamics (ZAMG), Vienna, Austria	Staff Scientist: 1996-present Department Head: 2009-present

In 2009 I was appointed Head of the NWP department, which consists of 15 staff members, and 1-2 project scientists. Main research activities include further development of the INCA system, and studies on boundary-layer processes in complex terrain.

Research on boundary-layer processes in complex terrain. In cooperation with the University of Utah (D. Whiteman) I am studying slope flows, cold air pools, and their predictability. The work is based on analysis of observational data obtained from field campaigns (VTMX, METCRAX) as well as analytical and numerical modeling.

Central Institute for Meteorology and Geodynamics (ZAMG), Vienna, Austria	Staff Scientist: 1996-present Divison Head: 1998-2008

I have been on the ZAMG staff since 1996, initially as a member of a small team of 3 scientists, developing forecast applications. I was appointed Head of the team in 1998. During subsequent years I was able to continually enlarge the team, which eventually became ZAMG's NWP Division. At present, the Division consists of 10 staff members, and 1-2 project scientists.

Following is a list of the key research and development activities which I performed and coordinated while at ZAMG.

Integrated Nowcasting through Comprehensive Analysis (INCA). In 2003, I initiated the development of a high-resolution analysis and nowcasting system in the NWP Division. The INCA system combines surface station data, remote sensing data, and NWP model forecasts to generate analyses and nowcasts of temperature, humidity, wind, cloudiness, and precipitation. In addition to the overall coordination of the project, I also designed major parts of its algorithmic software.

Operational flood warning systems in Austria. Triggered by a severe flooding event in Central Europe in the year 2002, a number of research and development initiatives towards integrated hydro-meteorological flood warning systems were initiated. In cooperation with hydrologists from the University of Technology and the University of Agriculture, operational warning systems are being developed for several major river catchments in Austria. My responsibility is to ensure that ZAMG provides state-of-the-art precipitation analyses and forecasts based on nowcasting methods and NWP model output. The work has started in 2003 and is still ongoing.

ALADIN model physics development. Between 2001 and 2004 I coordinated, within LACE (Limited Area Modelling in Central Europe), part of the physics developments in the ALADIN model. The work focused on improving low stratus forecasts and on improvements in the deep convection parameterization.

Prediction of mountain convection. Using the NWP model ALADIN, and high-resolution analyses of the INCA system, the occurrence and trigger conditions for mountain convection are being studied. Different trigger conditions in the ALADIN model are tested, and it is investigated to what extent the INCA analyses provide guidance as to where and when new convective cells will form.

ACuVis. In order to facilitate the analysis and interpretation of high-resolution NWP model forecasts, I initiated and coordinated the development of a flexible visualization system (similar to D2D/D3D at NOAA/FSL).

Orographic precipitation modelling. To improve quantitative precipitation forecasts in Austria's alpine terrain, I developed an operational orographic precipitation model based on previous theoretical work at the University of Vienna. The model, which was based on the seeder-feeder concept, was designed to downscale the ECMWF precipitation forecast in complex terrain.

Pacific Northwest National Laboratory Richland, Washington	Visiting Scientist 2000-2004, 2 months total

DOE Vertical Transport and Mixing Experiment (VTMX). Since 2000, I have been collaborating with C. D. Whiteman at the PNNL on the problem of forecasting cold pools and slope flows. We published common papers on the role of small-scale topographic characteristics in katabatic flow and cold pool formation. I also took part in the Oct 2000 VTMX field experiment in the Salt Lake Valley, Utah.

Czech Hydrometeorological Institute (CHMI) Prague, Czech Republic	Visiting Scientist Feb 2001

Horizontal diffusion in sigma coordinates. Using the ALADIN model, the problem of spurious vertical diffusion of water vapor in steep mountain areas due to sigma-type coordinate systems was studied.

NOAA Forecast Systems Laboratory (FSL) Boulder, Colorado	Visiting Scientist Aug 1999 – Aug 2000

Prediction of mountain cumulus. Funded through a Postdoctoral Research Award of the US National Academy of Sciences, I worked at NOAA/FSL on the problem of mountain cumulus prediction. I developed a cumulus initiation model based on detailed modelling of the mountainous convective boundary layer. I applied the model to the Rocky Mountain area of Colorado and verified the results against GOES VIS satellite data, and ground-based visual observations. My adviser at FSL was J. M. Brown.

Meteo France Toulouse, France	Visiting Scientist Sep 1997

Spin-up problem. Analysing budgets and tendencies I studied the spin-up problem in the ARPEGE/ALADIN NWP system.

NOAA Environmental Technology Laboratory (ETL) Boulder, Colorado	Visiting Scientist Sep 1995 – Aug 1996

Convective boundary layer modelling. Funded through an Erwin Schrödinger Fellowship of the Austrian Ministry of Sciences, I worked at NOAA/ETL on the problem of predicting convective boundary layer (CBL) evolution along the Colorado Front Range. Forecasts of a bulk CBL model were verified against mesonet station data. I also carried out a theoretical analysis of the effects of Bowen ratio and stability on cumulus onset. My adviser at ETL was R. M. Banta.

Institute for Meteorology and Geophysics University of Vienna, Austria	Research Assistant 1987-1995

At the University of Vienna I worked mainly with Prof. Kahlig, on topics in hydrometeorology, climate change, and mountain boundary layer processes.

International Decade of Natural Desaster Reduction (IDNDR). Funded by the Austrian Academy of Sciences, I developed in the years 1990-1995 simplified models of orographic rainfall enhancement and applied them to alpine topography. Using radar data, and theoretical analysis, I studied the role of thermally induced flows on convective cell development over different types of topography.

Climate change assessment. In 1992, I took part in the interdisciplinary study 'Inventory of Human-Induced Climate Change' funded by the Austrian Academy of Sciences. I contributed, together with Prof. Hantel, a Chapter about climate model parameterizations and their intercomparison. I also studied seasonal variations in sensitivity of the alpine snowline with respect to temperature changes.

Probable Maximum Precipitation (PMP). For hydrological applications, I developed in the years 1990-1993 a hierarchy of semi-analytical models of orographic rainfall enhancement and applied them to alpine topography. Predicted mesoscale patterns of PMP were compared against statistically derived PMP estimations based on observational data.

PROGRAMMING SKILLS

C (22 years), Fortran (12 years), UNIX scripts (12 years), IDL / PV-WAVE (3 years)

I have programmed a large number of analytical and numerical model tools and forecast applications (orographic precipitation models, a surface radiation and energy-budget model with shadow casting, boundary-layer models, the INCA analysis and nowcasting system) and I have worked with the code of the limited area model ALADIN.

PEER-REVIEWED PUBLICATIONS

Kann, A., H. Seidl, C. Wittmann, and T. Haiden, 2009: Prediction of continental low stratus with a regional NWP model. *Wea. Forecasting,* **25,** (in press).

Haiden, T., and G. Pistotnik, 2009: Intensity-dependent parameterization of elevation effects in precipitation analysis. *Adv. Geosci.,* **20,** 33-38.

Komma, J., C. Reszler, G. Blöschl, and T. Haiden, 2007: Ensemble prediction of floods - catchment non-linearity and forecast probabilities. *Nat. Haz. Earth Syst. Sci.,* **7,** 431-444.

Steinheimer, M., and T. Haiden, 2007: Improved nowcasting of precipitation based on convective analysis fields. *Adv. Geosci*., **10,** 125-131.

Whiteman, C. D., S. F. J. de Wekker, and T. Haiden, 2007: Effect of dewfall on atmospheric cooling in a small closed basin. *J. Appl. Meteor.*, **46,** 3-13.

Kann, A., and T. Haiden, 2005: The August 2002 flood in Austria: sensitivity of precipitation forecast skill to area size and duration. *Meteorol. Z.,* **14,** 369-377.

Haiden, T., and C. D. Whiteman, 2005: Katabatic flow mechanisms on a low-angle slope. *J. Appl. Meteor.*, **44,** 113-126.

Whiteman, C. D., T. Haiden, B. Pospichal, S. Eisenbach, and R. Steinacker, 2004: Minimum temperatures, diurnal temperature ranges and temperature inversions in limestone sinkholes of different sizes and shapes. *J. Appl. Meteor.*, **43,** 1224-1236.

Haiden, T., 2003: On the pressure field in the slope wind layer. *J. Atmos. Sci.*, **60,** 1632-1635.

Haiden, T., 1997: An analytical study of cumulus onset. *Quart. J. Roy. Meteor. Soc*., **123,** 1945-1960.

Haiden, T., 1996: Generalization of Albrecht's cumulus cloud amount parameterization. *J. Atmos. Sci.,* **53,** 3164-3167.

Haiden, T., 1995: Analytical solution of washout in stratiform clouds. *Contrib. Atmos. Phys.,* **68,** 3-14.

Haiden, T., M. Kerschbaum, P. Kahlig and F. Nobilis, 1992: A refined model of the influence of orography on the mesoscale distribution of extreme precipitation. *Hydrol. Sci. J.,* **37,** 417-427.

Nobilis, F., T. Haiden and M. Kerschbaum, 1991: Statistical considerations concerning probable maximum precipitation (PMP) in the Alpine country of Austria. *Theor. Appl. Climatol.,* **44,** 89-94.

Haiden, T., P. Kahlig, M. Kerschbaum and F. Nobilis, 1990: On the influence of mountains on large scale precipitation: a deterministic approach towards orographic PMP. *Hydrol. Sci. J.,* **35,** 501-510.

Haiden, T. and M. Kerschbaum, 1989: An analytical model of stable upslope rain. *Contrib. Atmos. Phys*., **62**, 327-331.

Haiden, T. and P. Kahlig, 1988: An analytical solution of convective precipitation. *Annales Geophys*., **6**, 225-230.

CONFERENCE PROCEEDINGS AND OTHER PUBLICATIONS

Haiden, T., 2009: INCA – A new operational nowcasting system for mountain areas. Preprints, *WMO WWRP Nowcasting Symposium (WSN09),* Whistler, Canada, 8p.

Haiden, T., 2009: The role of subsidence in valley and basin warming. Preprints, *30th Conference on Alpine Meteorology,* Rastatt, Germany, 2p.

Haiden, T., and A. Kann, 2009: Operationelle Hochwasserprognose. [Operational flood forecasting.] *ÖGM-bulletin* 2009/1, 22-24.

Haiden, T., A. Kann, G. Pistotnik, K. Stadlbacher, and C. Wittmann, 2009: Integrated Nowcasting through Comprehensive Analysis (INCA) - System description. ZAMG report, 60p. http://www.zamg.ac.at/fix/INCA_system.pdf

Haiden, T., G. Pistotnik, L. Haimberger, and N. Filipovic, 2008: Statistische versus Distanzinterpolation in der operationellen Niederschlagsanalyse bei kurzen Dauerstufen. [Statistical vs distance interpolation in operational precipitation analysis for short durations.] Final Report to the Austrian Academy of Sciences, 39p.

Haiden, T., and G. Pistotnik, 2008: Parameterization of elevation effects in short-duration precipitation analysis. Preprints, *13th Conference on Mountain Meteorology,* Amer. Meteor. Soc., Whistler, Canada, 4p.

Haiden, T., and M. Steinheimer, 2008: Improved nowcasting of precipitation based on convective analysis fields. In: *Precipitation: Advances in Measurement, Estimation and Prediction*, S. C. Michaelides, Ed., Springer, 387-415.

Andrecs, P., K. Hagen, E. Lang, U. Stary, K. Gartner, E. Herzberger, F. Riedel, and T. Haiden, 2007: Dokumentation und Analyse der Schadensereignisse 2005 in den Gemeinden Gasen und Haslau (Steiermark). [Documentation and analyses of disasters in 2005 in the communities of Gasen and Haslau (Styria).] BFW-Dokumentation Nr. 6, 73p.

Komma, J., Ch. Reszler, G. Blöschl, and T. Haiden, 2006: Ensembleprognosen von Hochwasserabflüssen. [Ensemble forecasts of flood runoff.] *Wiener Mitteilungen*, **199,** 279-294.

Haiden, T., 2006: Niederschlagsprognosen mit hoher zeitlicher und räumlicher Auflösung: Fortschritte und Probleme. [Precipitation forecasts at high temporal and spatial resolution: progress and problems.] *Wiener Mitteilungen*, **199,** 199-207.

Wang, Y., T. Haiden, and A. Kann, 2006: The operational limited area modelling system at ZAMG: ALADIN-AUSTRIA, *Österr. Beiträge zu Meteorologie und Geophysik*, Heft 37, 33p.

Haiden, T., and F. Wimmer, 2006: Analyse meteorologischer Prognosen während der Hochwasserereignisse im Juli und August 2005. [Analysis of meteorological forecasts during the flood events July and August 2005.] Project report, 21p.

Haiden, T., 2005: Prediction of convective cell initiation in mountainous terrain using a high-resolution analysis system. Proceedings WMO/WWRP Nowcasting Symposium,

Toulouse, 2.13.

Haiden, T., 2004: Mixed layers with steep topography. *Bull. Am. Met. Soc.,* **85,** 946.

Haiden, T., 2004: Extension of the mixed-layer concept to steep topography. Preprints, *11th Conference on Mountain Meteorology,* Amer. Meteor. Soc., New Hampshire.

Haiden, T., and C. D. Whiteman, 2004: Processes leading to inversion buildup in small enclosed basins. Preprints, *11th Conference on Mountain Meteorology,* Amer. Meteor. Soc., New Hampshire.

Whiteman, C. D., S. de Wekker, and T. Haiden, 2004: Boundary layer moisture regimes in small closed basins. Preprints, *16th Symp. on Bound. Layers and Turbulence ,* Amer. Meteor. Soc., Portland.

Haiden, T., 2003: On the performance of ALADIN during the August 2002 floods. *ALADIN Newsletter, 23,* 191-193.

Haiden, T., 2003: Evaluation of analytical predictions of katabatic flow on a low-angle slope. Preprints, *ICAM and MAP Meeting,* Brig, Switzerland, 150-152.

Pistotnik, G., and T. Haiden, 2003: Evapotranspiration effects on mountain convection in ALADIN. *ALADIN Newsletter, 24,* 5pp.

Haiden, T., 2003: Forecasting stratus formation: some insights from 1-d experiments. *ALADIN Newsletter, 24,* 5pp.

Greilberger, S., and T. Haiden, 2003: T2m nowcasting. *ALADIN Newsletter, 23,* 136-137.

Haiden, T., and C. D. Whiteman, 2002: The bulk momentum budget in katabatic flow: observations and hydraulic model results. Preprints, *10th Conference on Mountain Meteorology,* Amer. Meteor. Soc., Park City, Utah, 26-29.

Zhong, S., C. D. Whiteman, and T. Haiden, 2002: How well can mesoscale models capture katabatic flows observed in a large valley? Preprints, *10th Conference on Mountain Meteorology,* Amer. Meteor. Soc., Park City, Utah, 69-72.

Andrade-Leal, R. N., M. Bachhiesl, U. Drabek, D. Gutknecht, T. Haiden, H. Holzmann, K. Hebenstreit, R. Kirnbauer, H. P. Nachtnebel, and J. Precht, 2002: Hydrologische Vorhersagemodelle im operationellen Betrieb der Wasserkraftwirtschaft. [Hydrological forecast models in operational use for hydropower generation.] *Österr. Wasser- u. Abfallwirtschaft,* **54,** 129-134.

Haiden, T., und K. Stadlbacher, 2002: Quantitative Prognose des Flächenniederschlags. [Quantitative prediction of areal precipitation.] *Österr. Wasser- u. Abfallwirtschaft,* **54,** 135-141.

Haiden, T., 2001: High-resolution forecasts of mountain cumulus. Proceedings, *22nd EWGLAM / 7th SRNWP Meeting*, Toulouse, France, 134-138.

Haiden, T., 2001: On the problem of spurious upslope diffusion of water vapour in a sigma-type coordinate system. RC-LACE report, 16p.

Haiden, T., 2001: Orographically triggered convection: a case study. Proceedings, *10th ALADIN Workshop*, Toulouse, France.

Haiden, T., 2000: Mountain cumulus initiation along the Colorado Front Range. Preprints, *Ninth Conference on Mountain Meteorology,* Amer. Meteor. Soc., Aspen, Colorado, 352-354.

Haiden, T. and G. Hermann, 2000: Experiences with the Austrian MOS system. Preprints, *1st SRNWP Workshop on Statistical Adaptation*, ZAMG, Vienna, 10-11.

Stadlbacher, K. and T. Haiden, 2000: Objective combination of precipitation forecasts from two different NWP models. Preprints, *1st SRNWP Workshop on Statistical Adaptation*, ZAMG, Vienna, 35-38.

Haiden, T., 1998: Verification of ALADIN-LACE cloudiness forecasts in Austria. *ALADIN Newsletter, 9,* 13-14.

Haiden, T., 1998: Analytical aspects of mixed-layer growth in complex terrain. Preprints*, Eighth Conference on Mountain Meteorology,* Amer. Meteor. Soc., Flagstaff, Arizona, 368-372.

Haiden, T., H. Seidl, G. Hermann and G. Skoda, 1997: Das Starkniederschlags-Ereignis 4.-8. Juli 1997 aus prognostischer Sicht. [The heavy precipitation event 4.-8. July 1997 from the forecaster's point of view.] *ÖGM-bulletin* 97/2, 1-13.

Haiden, T., 1995: Orographie und Konvektion. [Orography and convection.] *ÖGM-bulletin* 95/2, 8-10.

Haiden, T. and R. Schultheis, 1995: Verfahren zur Abschätzung der Auswirkungen von Klimaänderungen auf den Wasserhaushalt von Einzugsgebieten. [Methods for assessing the effect of climate change on the water budget of watersheds.] *Mitt. Hydrogr. Dienst in Österr.,* **73,** 21-38.

Haiden, T. and P. Kahlig, 1994: Modellierung extremer Niederschläge. [Modeling of extreme precipitation.] *Österr. Wasser- u. Abfallwirtschaft,* **46,** 57-65.

Haiden, T., 1994: Eine optimierte Starkniederschlagsauswertung IV: Niederschlagsinterpolation unter Berücksichtigung orographischer Effekte. [Optimized analysis of extreme precipitation IV: Interpolation of precipitation including orographic effects.] *Mitt. Hydrogr. Dienst in Österr.,* **72,** 47-62.

Haiden, T. and M. Hantel, 1993: Klimamodelle: Mögliche Aussagen für Österreich. In: Bestandsaufnahme anthropogene Klimaänderungen. [Climate models: Possible implications for Austria. In: Inventory on human-induced climate change.] Dokumentation. Verlag Österr. Akad. Wiss., 2.1-2.56.

Nobilis, F. and T. Haiden, 1992: Zur Frage des PMP im Hinblick auf PMF im alpinen Land Österreich. [Concerning PMP with regard to PMF in the alpine country of Austria.] Proceedings of Interpraevent 1992, Bd.4, 141-152.

Haiden, T., P. Kahlig und M. Kerschbaum, 1991: Forschungen zu meteorologisch relevanten Parametern im Hinblick auf den vermutlich größten Abfluß (PMF). [Research on meteorologically relevant parameters with regard to the probable maximum flood (PMF).] Forschungsbericht im Auftrag des Bundesministeriums fur Land- und Forstwirtschaft, Sektion IV, Wien, 77pp.

Haiden, T., P. Kahlig, M. Kerschbaum and F. Nobilis, 1991: Einfluß der Orographie auf Extremniederschläge: ein deterministischer Modellansatz. [Influence of orography on extreme precipitation: a deterministic modeling approach.] *Mitt. Hydrogr. Dienst in Österr.,* **64,** 1-25.

Haiden, T., 1990: An analytical model of moisture transport and cumulus-convection over orography. Proceedings ITAM-90, Part 1. *Veröff. Schweiz. Meteor. Anstalt*, **48**, 305-308.

Nobilis, F., T.Haiden and M. Kerschbaum, 1990: Statistische Untersuchungen zur Frage des vermutlich größten Niederschlags (PMP) in Österreich. [Statistical study on the problem of probable maximum precipitation (PMP) in Austria.] *Mitt. Hydrogr. Dienst in Österr.,* **63,** 27-66.

Kahlig, P., T. Haiden and M. Kerschbaum, 1989: Untersuchungen zum vermutlich größten Niederschlag (PMP). [Investigations on probable maximum precipitation (PMP).] Forschungsbericht im Auftrag des BMfLuF, Sektion IV, Wien, 124pp.

Haiden, T., P. Kahlig, M. Kerschbaum and F. Nobilis, 1989: Zum Einfluß der Orographie auf den vermutlich größten Niederschlag. [On the effect of orography on probable maximum precipitation.] *Mitt. Hydrogr. Dienst in Österr*., **61**, 62-72.

Haiden, T., 1988: Analytische Lösungen zur Wolken- und Niederschlagsbildung. [Analytical solutions of cloud and precipitation formation.] *ÖGM-bulletin* 88/2, 17-19.

PH.D. THESIS

Haiden, T., 1990: Analytische Untersuchungen zur konvektiven Grenzschicht im Gebirge. [Analytical study of the convective boundary layer in mountainous areas.] Vienna, 140pp.

CONFERENCE PRESENTATIONS

Sep 2009	WMO WWRP Nowcasting Symposium (Whistler, Canada): *A new operational nowcasting system for mountain areas.*
Aug 2009	13th AMS Conference on Mesoscale Meteorology (Salt Lake City, USA): *A re-investigation of the role of subsidence in valley and basin warming.*
May 2009	30th International Conference on Alpine Meteorology (Rastatt, Germany): *The role of subsidence in valley and basin warming.*
Apr 2009	EGU General Assembly (Vienna, Austria): *A new approach to real-time combination of radar and raingauge data.*
Apr 2009	EGU General Assembly (Vienna, Austria): *Regional estimation of torrent hazards by analysing weather radar data and catchment characteristics (Pistotnik, Klebinder, Chifflard, Kirnbauer, and Haiden).*
Aug 2008	13th AMS Conference on Mountain Meteorology (Whistler, Canada): *Parameterization of elevation effects in short-duration precipitation analysis. (Haiden and Pistotnik).*
July 2008	Lakeside Conference on Safety in Mobility (Velden, Austria): *INCA - Application of a high-resolution meteorological analysis and forecasting system in traffic and transport* (invited talk).
Apr 2008	EGU General Assembly (Vienna, Austria): *Parameterization of elevation effects in short-duration precipitation analyses (Haiden and Pistotnik).*
Oct 2007	32nd Annual Meeting of the National Weather Association (Reno, Nevada): *High resolution analysis and nowcasting in mountainous terrain.*
Sep 2007	DACH-Tagung (Hamburg, Germany): *Verbessertes Nowcasting von Konvektion mittels hochauflösender Analysefelder. [Improved nowcasting of precipitation based on convective analysis fields.]*
Apr 2006	EGU General Assembly (Vienna, Austria): *Operational ensemble forecasting in the Kamp catchment (Reszler, Komma, Haiden, Blöschl and Gutknecht).*
Apr 2006	EGU General Assembly (Vienna, Austria): *Improved nowcasting of precipitation based on convective analysis fields (Haiden, Steinheimer and Pistotnik).*
June 2005	3rd SRNWP Workshop on Statistical and Dynamical Adaptation (Vienna, Austria): *INCA.*
Nov 2003	13th ALADIN Workshop (Prague, Czech Republic): *Improvement of low stratus forecasts.*

May 2003 ICAM/MAP Meeting (Brig, Switzerland): *Evaluation of analytical predictions of katabatic flow on a low-angle slope.*

May 2003 2nd SRNWP Workshop on Statistical and Dynamical Adaptation (Vienna, Austria): *T2m nowcasting: statistical vs. physical adaptation.*

Sep 2002 VTMX Workshop (Salt Lake City, Utah): *Momentum and heat budget of katabatic flow in the SLC basin (Haiden and Whiteman).*

June 2002 12th ALADIN Workshop (Medulin, Croatia): *a) Experiments with a prognostic convection scheme (Haiden and Greilberger). b) Aircraft icing forecasts with the ALADIN model (Stadlbacher and Haiden).*

June 2002 10th AMS Conference on Mountain Meteorology (Park City, Utah): *The bulk momentum budget in katabatic flow: observations and hydraulic model results. (Haiden and Whiteman).*

Nov 2001 1st FACT Workshop (Innsbruck, Austria): *a) ALADIN mountain convection vs. radar observations: a case study. b) ACuVis: a new visualization of ALADIN.*

Oct 2001 23rd EWGLAM / 8th SRNWP Meeting (Cracow, Poland): *Forecasting mountain convection using ALADIN: a case study.*

Sep 2001 VTMX Workshop (Salt Lake City, Utah): *Inclusion of detrainment in hydraulic drainage flow models.*

Mar 2001 26th EGS General Assembly (Nice, France): *Prediction of mixing height and cumulus initiation over complex terrain.*

Dec 2000 1st SRNWP Workshop on Statistical Adaptation (Vienna, Austria): *Experiences with the Austrian MOS system.*

Oct 2000 22nd EWGLAM / 7th SRNWP Meeting (Toulouse, France): *High-resolution forecasts of mountain cumulus.*

Aug 2000 9th AMS Conference on Mountain Meteorology (Aspen, Colorado): *Prediction of cumulus onset over mountainous terrain.*

Apr 1999 24th EGS General Assembly (The Hague, Netherlands): *Verification of areal precipitation forecasts from a global model (ECMWF) and a limited area model (ALADIN).*

Aug 1998 8th AMS Conference on Mountain Meteorology (Flagstaff, Arizona): *Analytical aspects of mixed-layer growth in complex terrain.*

June 1998 5th ALADIN Workshop – Exploitation and future development of the numerical weather prediction model ALADIN (Prague, Czech Republic): *Strengths and weaknesses of ALADIN-LACE orographic precipitation forecasts.*

April 1998 23rd EGS General Assembly (Nice, France): *Verification of model-predicted mesoscale rainfall patterns in an alpine area*.

Oct 1997 19th EWGLAM / 4th SRNWP Meeting (Budapest, Hungary): *LAM activities in Austria* (Poster).

June 1997 3rd RC LACE/ALADIN workshop on the use of ALADIN products in forecasting practise and verification matters (Budapest, Hungary): *Operational use of ALADIN prognostic variables in an orographic precipitation model.*

April 1997 22nd EGS General Assembly (Vienna, Austria): *A semi-analytical model of orographic rainfall enhancement.*

Sep 1994 International Conference on Alpine Meteorology (Lindau, Germany): *Modeling of orographic upslope rain.*

Sep 1992 International Conference on Alpine Meteorology (Toulouse, France): *An analytical model of orographic rain for hydrological use* (Poster, with M. Kerschbaum).

Sep 1990 International Conference on Alpine Meteorology (Engelberg, Switzerland): *An analytical model of moisture transport and cumulus-convection over orography*.

April 1990 15th EGS General Assembly (Kopenhagen, Denmark): *Thermally induced flow over complex terrain.*

May 1988 13th EGS General Assembly (Straßbourg, France): *An analytical solution of convective precipitation.*

INVITED TALKS (1999-present)

Mar 2008 Center for Natural Disaster Management (Innsbruck, Austria): INCA - *Hochauflösende Analyse und Prognose im Alperaum. [INCA – High resolution analysis and forecasting in the alpine area.]*

Nov 2007 University of Vienna (Vienna, Austria): *Hochauflösende Temperatur- und Feuchteanalyse in INCA. [High resolution temperature and humidity analysis in INCA.]*

Nov 2007 ORF (Vienna, Austria): *Saisonalprognose für Europa – aktueller Forschungsstand. [Seasonal forecast for Europe – research state of the art.]*

Oct 2007 University of Utah (Salt Lake City, Utah): *High resolution temperature and humidity analysis in mountainous terrain.*

Oct 2007 Utah State University (Logan, Utah): *Topics in mountain meteorology research.*

Oct 2007 University of Utah (Salt Lake City, Utah): *Do we understand basin cooling?*

Sep 2007 University of Technology (Vienna, Austria): *Meteorologische Vorhersagen für hydrologische Anwendungen. [Meteorological forecasts for hydrological applications.]*

June 2007 Wegener Center (Graz, Austria): *Das Analyse- und Nowcastingsystem INCA. [The analysis and nowcasting system INCA.]*

Oct 2006 University of Technology (Vienna, Austria): *Niederschlagsprognosen mit hoher zeitlicher und räumlicher Auflösung. [Precipitation forecasts at high temporal and spatial resolution.]*

Mar 2005 University of Technology (Vienna, Austria): *Die Mathematik hinter der täglichen Wettervorhersage. [The mathematics behind the daily weather forecast.]*

Mar 2004 University for Agricultural Sciences (Vienna, Austria): *Modellkonzepte von ECMWF und ALADIN. [Concepts of the models ECMWF and ALADIN.]*

Nov 2003 VERA-Workshop, Universität Wien (Vienna, Austria): *Das ALADIN Modell. [The ALADIN model.]*

Nov 2003 Hagelunwetter-Workshop ACG/ZAMG (Vienna, Austria): *Performance des ALADIN-Modells im Zuge des Hagelunwetters vom 13. Mai 2003. [Performance of the ALADIN model during the hailstorm of 13 May 2003.]*

Oct 2003 StartClim Workshop (Vienna, Austria): *Hochwasser 2002 - Prognosegüte meteorologischer Vorhersagemodelle. [Flood 2002 – Forecast skill of meteorological prediction models.]*

May 2003 DMG/ÖGM Fortbildungstag (Salzburg, Austria): *Hochwasser - Die Qualität der Niederschlagsprognosen. [Floods - The quality of precipitation forecasts.]*

Mar 2003 ÖWAV-Symposium Hochwasser 2002 (Vienna, Austria): *Der meteorologische Ablauf und die Prognosen. [Meteorological development and forecasts.]*

Oct 2002 24th EWGLAM / 9th SRNWP Meeting (DeBilt, Denmark): *The flood event August 2002 in Austria: observations and model results.*

Oct 2002 24th EWGLAM / 9th SRNWP Meeting (DeBilt, Denmark): *The flood event August 2002 in Austria: observations and model results.*

Jan 2002 The Slope Flow Workshop, Corvallis, Oregon: *Recent observations of downslope flows on a low-angle slope near Salt Lake City, Utah. (Whiteman, Zhong, and Haiden)*

Nov 2000 University of Ljubljana (Ljubljana, Slovenia): *Mechanisms in mountain cumulus initiation.*

Nov 2000 Institute of Meteorology and Geophysics, University of Vienna (Vienna, Austria): *Mechanismen der Cumulus-Bildung im Gebirge - Beobachtungen und Modellergebniss. [Mechanisms in mountain cumulus initiation – observations and model results.]*

June 1999 Pacific Northwest National Laboratory (Richland, Washington): *On the role of thermally induced upslope flow in mountain cumulus initiation.*

Apr 1999 Czech Hydrometeorological Institute (Prague, Czech Republic): *Emanuel's cumulus scheme as a candidate for internal downdraft parametrization in ALADIN.*

Mar 1999 Institute of Meteorology and Geophysics, University of Vienna (Vienna, Austria): *ALADIN-VIENNA: Operationeller Betrieb und erste Ergebnisse. [ALADIN-VIENNA: Operational aspects and first results.]*

Mar 1999 University for Agricultural Sciences (Vienna, Austria): *Modellkonzepte von ECMWF und ALADIN. [Modeling concepts of ECMWF and ALADIN.]*

Jan 1999 University for Agricultural Sciences (Vienna, Austria): *Niederschlagsanalyse der Modelle ECMWF und ALADIN. [Precipitation analysis of the models ECMWF and ALADIN.]*