

## **Pradeep Mandapaka**

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### **Education**

- Ph.D., Civil and Environmental Engineering, The University of Iowa, USA, December 2009
- M. Tech. in Satellite Technology and Applications, Indian Institute of Science, Bangalore, India, March 2003
- B.Eng., Civil Engineering, Osmania University, Hyderabad, India, March 2001

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### **Working & Research Experience**

(1) January 2010 – December 2011: Postdoctoral Scientist, Federal Bureau of Meteorology and Climatology (MeteoSwiss), Locarno, Switzerland

- ❖ Part of the IMPRINTS project under the EU FP7 framework
- ❖ Characterizing the space-time structure of rainfall over the European Alps
- ❖ Evaluating the short-term quantitative precipitation forecasting tool (MAPLE)

(2) August 2004 – December 2009: Graduate Research Assistant, IHR-Hydroscience and Engineering, The University of Iowa, USA

- ❖ Evaluating the radar-rainfall products over central United States
- ❖ Performing scaling analysis of remotely sensed rainfall products, river networks and streamflows.
- ❖ Investigating the role of rainfall variability in the statistical structure of peak flows

(3) February 2003 – June 2004: Project Assistant, Department of Civil Engineering, Indian Institute of Science, Bangalore, India.

- ❖ Water balance studies for the Arkavati River basin in southern India using remotely sensed data and Soil and Water Assessment Tool.

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## Research Interests

- Quantitative precipitation estimation and forecasting
- Remote sensing
- Hydrologic scaling
- Uncertainty propagation studies
- Statistical downscaling of regional climate data

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## Honors & Awards

- March 2009: Second place in Mathematical, Physical Sciences and Engineering Division at the 11th Annual James F. Jakobsen Graduate Forums, The University of Iowa, Iowa City.
- March 2006, 2007, and 2008: Third place in Mathematical, Physical Sciences and Engineering Division at the 8th, 9th, and 10th Annual James F. Jakobsen Graduate Forums, The University of Iowa, Iowa City.
- January 2006 and 2007: Center for Global and Regional Environmental Research Graduate Student Travel Award, The University of Iowa, Iowa City.
- August 2004 – December 2009: Graduate Research Assistantship, IIHR–Hydrosience & Engineering, The University of Iowa, Iowa City.
- March 2001: All India second rank in Graduate Aptitude Test in Engineering (GATE-2001) conducted by the Government of India for admission into graduate courses in engineering.

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## Publications

### Journal papers

- Mandapaka, P. V., U. Germann, and L. Panziera (In Press), Diurnal variability of precipitation over complex Alpine orography: Inferences from high-resolution radar observations. *Quarterly Journal of the Royal Meteorological Society*
- Cunha, L. K., P. V. Mandapaka, W. F. Krajewski, R. Mantilla, and A. A. Bradley (In Press), Impact of radar-rainfall errors on estimated flood magnitude across scales: An investigation based on a parsimonious distributed hydrological model, *Water Resources Research*
- Mandapaka, P. V., U. Germann, L. Panziera, and A. Hering (2012), Can Lagrangian extrapolation of radar fields be used for precipitation nowcasting over complex Alpine orography? *Weather and Forecasting*, 27, 28-49.
- Panziera, L., U. Germann, M. Gabella, and P. V. Mandapaka (2011), NORA - Nowcasting of orographic rainfall by means of analogues, *Quarterly Journal of the Royal Meteorological Society*, 137, 2106-2123.

- Mandapaka, P.V., G. Villarini, B.-C. Seo, and W.F. Krajewski (2010), Effect of radar-rainfall errors on the spatial characterization of rainfall events, *Journal of Geophysical Research*, 115, D17110.
- Mandapaka, P. V., P. Lewandowski, W. E., Eichinger, and W. F. Krajewski (2009), Multiscaling analysis of high resolution space-time lidar-rainfall, *Nonlinear Processes in Geophysics*, 16, 579-586.
- Mandapaka, P. V., W. F. Krajewski, R. Mantilla, and V. K. Gupta (2009), Dissecting the effect of rainfall variability on the statistical structure of peak flows, *Advances in Water Resources*, 32, 1508-1525.
- Mandapaka, P. V., W. F. Krajewski, G. Villarini, G. J. Ciach, and J. A. Smith (2009), Estimation of radar-rainfall error spatial correlation, *Advances in Water Resources*, 32, 1020- 1030.
- Villarini, G., P. V. Mandapaka, W. F. Krajewski, and R. J. Moore (2008), Rainfall and sampling uncertainties: A rain gauge perspective, *Journal of Geophysical Research*, 113, D11102.

#### Book Chapters

- Mandapaka, P.V., U. Germann, L. Panziera, and A. Hering (2012), Extending the Lagrangian extrapolation scheme to account for the evolution of rainfall patterns over the complex orography, *Proceedings of weather radar and hydrology symposium, UK, April 2011, IAHS Red Book Series, Volume 351.*
- Mandapaka, P.V., and U. Germann (2010), Radar-rainfall error models and ensemble generators, *Rainfall: State of Science*, Gebremichael, M., and F. Testik (Eds.), *Geophysical Monograph Series, Volume 191, ISBN 978-0-87590-481-8, American Geophysical Union.*
- Mandapaka, P.V., and M. Sekhar (2004), Hydrologic simulation using SWAT model: A case study for TG Halli catchment in Arkavati River basin, Karnataka, *Integrated Water Resources Planning and Management*, Srinivasa Raju, K., A. K. Sarkar and M. Dash (Eds.), ISBN 81-86321-98-5, Jain Brothers, New Delhi.

#### Conference papers

- Mandapaka, P.V., U. Germann, and L. Panziera (2012), Characterizing the diurnal cycle of precipitation over complex Alpine orography using four-dimensional radar observations, *Proceedings of the 7<sup>th</sup> European Conference on Radar in Meteorology and Hydrology, Toulouse, France*
- Foresti, L., L. Panziera, P.V. Mandapaka, U. Germann, M. Kanevski, and A. Pozdnoukhov (2011), Nowcasting by analogues: a generalization using radar data sequences, *35<sup>th</sup> Conference on Radar Meteorology, Pittsburgh, USA.*
- Panziera, L., P.V. Mandapaka, A. Atencia, A. Hering, U. Germann, M. Gabella, and M. Buzzi (2010), Evaluation of precipitation nowcasting techniques for the Alpine region, *10<sup>th</sup> EMS Annual Meeting and 8th European Conference on Applied Climatology, Zurich, Switzerland.*

- Germann, U., L. Panziera, P.V. Mandapaka, A. Hering, and M. Zappa (2010), Analogs, mesoscale wind and airmass stability: the key for nowcasting orographic precipitation, Proceedings of 6<sup>th</sup> European Conference on Radar in Meteorology and Hydrology: Advances in Radar Technology, Sibiu, Romania.
- Atencia, A., J. Bech, T. Rigo, A. Sairouni, J. More, E. Vilaclara, L. Panziera, P.V. Mandapaka, U. Germann, A. Hering, M. Buzzi, M. del Carmen Llasat and L. Garrote (2010), Blending NWP corrected forecasts and radar-based nowcasts, Proceedings of 6<sup>th</sup> European Conference on Radar in Meteorology and Hydrology: Advances in Radar Technology, Sibiu, Romania.
- Mandapaka, P.V., R. Mantilla, and W.F. Krajewski (2010), Effects of radar-rainfall uncertainties on statistical scaling structure of event-based peak flows, Geophysical Research Abstracts, Vol. 12, EGU2010-6114.
- Mandapaka, P.V., R. Mantilla, and W.F. Krajewski (2009), Effects of radar-rainfall uncertainties on statistical structure of floods, Geophysical Research Abstracts, Vol. 11, EGU2009-10964.
- Mandapaka, P.V., R. Mantilla, and W.F. Krajewski (2009), Exploring the feasibility of recovering statistical properties of runoff from the scaling statistics of peak flows, Geophysical Research Abstracts, Vol. 11, EGU2009-11806.
- Krajewski, W.F., Mandapaka, P.V., and R. Mantilla (2008), Spatial downscaling of rainfall: Does it matter for flood forecasting, EOS Trans. AGU, 89(53), Fall Meet. Supplement.
- Mandapaka, P.V., W.F. Krajewski, R. Mantilla and V.K. Gupta (2008), Simulation based investigation of the effects of radar-rainfall uncertainties on scaling of flood peaks in Whitewater basin, Kansas, AGU Joint Assembly, 26-30 May 2008, Ft. Lauderdale, Florida.
- Mandapaka, P.V., W.F. Krajewski, R. Mantilla and V.K. Gupta (2008), Simulation based investigation of the effects of radar-rainfall uncertainties on scaling of flood peaks in Whitewater basin, Kansas, Geophysical Research Abstracts, Vol. 10, EGU2008-A-11072.
- Krajewski, W.F., P.V. Mandapaka, G. Villarini, and P. Lewandowski (2008), Bridging the Scale Gap: Radar and Small-Scale Rainfall Variability, Geophysical Research Abstracts, Vol. 10, EGU2008-A-11161.
- Mandapaka, P.V., and W.F. Krajewski (2007), Multiscaling analysis and modeling of radar-rainfall for hydrological scaling studies, 9<sup>th</sup> International Precipitation Conference, Paris, France.
- Villarini, G., P.V. Mandapaka, and W.F. Krajewski (2007), Rainfall sampling uncertainties: A rain gauge perspective, AGU General Assembly, Acapulco, Mexico.
- Villarini, G., P.V. Mandapaka, and W.F. Krajewski (2007), Evaluation of radar-rainfall uncertainties by a highly dense rain gauge network, AGU General Assembly, Acapulco, Mexico.

- Mandapaka, P.V. and W.F. Krajewski (2007), Evaluation of space-time rainfall models for hydrologic scaling studies, Geophysical Research Abstracts, Vol. 9, EGU2007-03113.
- Villarini, G., P.V. Mandapaka, W.F. Krajewski, and G.J. Ciach (2006), A simulation study to investigate spatial representativeness errors in lognormal fields: Application to rainfall, EOS Trans. AGU, 87(52), Fall Meet. Suppl., Abstract H51D-0514.
- Mandapaka, P.V., W.F. Krajewski, G.J. Ciach, and G. Villarini (2006), Estimation of radar-rainfall error spatial correlation, EOS Trans. AGU, 87(52), Fall Meet. Suppl., Abstract H51D-0515.
- Mandapaka, P.V., W.F. Krajewski and G. Villarini (2006), Effects of sampling on the estimation of spatial correlation structure of normal and lognormal random fields, AGU Joint Assembly, Baltimore, Maryland.
- Mandapaka, P.V., W.F. Krajewski, G.J. Ciach, and G. Villarini (2005), Estimation of radar-rainfall error spatial covariance, EOS Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H33E-1422.