Dr. John Snook

Profile

I became interested in weather while growing up in New England anxiously awaiting the next nor'easter, which led me to the University of Wisconsin – Madison where I obtained a BS and MS in Meteorology. After moving to Colorado in 1984, I worked fifteen years as a meteorologist for a NOAA applied research lab in Boulder. During that time, a PhD was completed in Atmospheric Science at Colorado State University. Private industry followed with endeavors in a meteorological start-up company followed by the formation of an independent consulting company. I recently delivered a complete operational numerical weather prediction system customized for Saudi Arabia National Center for Meteorology.

Academic Training

- Colorado State University - Fort Collins
  Degree: **Doctor of Philosophy** - Atmospheric Science, 1993
- University of Wisconsin - Madison
  Degree: **Master of Science** - Meteorology, 1982
  Degree: **Bachelor of Science** - Meteorology, 1980

Professional Experience

Meteorology

Work with government meteorological departments in Malaysia (MMD), Philippines (PAGASA), Saudi Arabia (NCM), and Colorado, USA to implement operational numerical weather prediction (NWP) systems. Collaborate with the U.S. Forest Service to develop, implement, and maintain an NWP system to support fire weather activities. Provide numerical weather prediction support to ArcVera Renewables, a high-quality technical services company for wind and solar energy. Provide weather expertise to public, private, and government sectors. Ingest weather observations and National Weather Service forecasts for client use. Develop and maintain an in-house operational numerical weather prediction (WRF) modeling system designed to support avalanche center activities. Build complete weather modeling systems designed for specific client applications, including fire operations, avalanche hazard assessment, winter highway maintenance, and energy utilities (wind, gas, oil) management.

Participated in the development of an operational meteorological data analysis and forecast system at a NOAA federal lab. Implemented high-resolution numerical weather models and applied the model output to operational forecast situations, including the full implementation of a weather forecast model at the 1996 Centennial Olympic Games in Atlanta, GA, USA which resulted in a NOAA Bronze Medal award. Implemented techniques to visualize three-dimensional weather data. Developed excellent writing skills while preparing results for reports, scientific conference presentations, and refereed publications.

Computer Science

Extensive background using software programming languages with an emphasis on large data set manipulation, numerical modeling techniques, parallel system implementation, and three-dimensional graphics display. Broad knowledge of scripting languages, including Perl, Python, and UNIX shell commands, applied to automated operations of numerical weather prediction systems. System administration experience with an emphasis in installing open-source LINUX on workstation clusters designed to efficiently run weather models in parallel environments. Database development using MariaDB and web development expertise using HTML, PHP, MySQL, and Javascript to access and display weather products designed specifically to satisfy client requirements. Utilize these skills to build complete front-to-end (computer acquisition, system administration, model implementation, through web product display) numerical modeling systems for operations.

Snow Science

Prepare operational mountain weather and avalanche hazard forecasts for the general public and government agencies. Collect field observations for use in forecast preparation. Generate weather and snow products designed for the avalanche community and post them to a web site. Conduct applied research using a snowpack model. Develop an interface with a meteorological modeling system to prduce season-long snowpack evolution profiles. Participate in avalanche accident investigations and prepare reports.

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Education and Training

Provide weather education presentations to avalanche centers, government agencies, ski areas, and the general public. Teach an annual mountain weather workshop at Colorado Mountain College.

Business

Current Owner/President of NWP Consultants LLC, a meteorological consulting services company. Previous co-founder and Chief Technical Officer of Foresight Weather, LLC. Developed a business plan to provide guidance to the utility industry based on meteorological models. Provide full project management from conception through operational implementation. Unique ability to understand client requirements and to personally build complete systems that satisfy those requirements.

Employment History

Owner/President – NWP [*Numerical Weather Prediction*] Consultants LLC, Keystone, CO (2006 – Present)
Weather and Avalanche Specialist – Colorado Avalanche Information Center, Boulder, CO (2014 – Present)
Research Associate – Colorado State University (2018 – Present)
Adjunct Professor – Colorado Mountain College, Leadville, CO (2017 – Present)
Avalanche Forecaster – Colorado Avalanche Information Center, Boulder, CO (2006 – 2014)
Research Scientist – ATMET, LLC, Boulder, CO (2003 – 2006)
Co-Founder and Chief Technical Officer – Foresight Weather, LLC, Boulder, CO (2000 – 2004)
Research Scientist – Colorado Research Associates, Boulder, CO (1999 – 2003)
Meteorologist – NOAA/Forecast Systems Laboratory, Boulder, CO (1984 – 1998)
Physical Sciences Research Specialist – University of Wisconsin, Madison, WI (1982 – 1984)

Awards, Organizational Memberships, and Certifications

- Recipient of NOAA Bronze Medal (1997) for Olympic Games Weather Support activities.
- National Weather Service Special Distinguished Service Award in recognition of technological contributions made to the Olympic Weather Support Project for the 1996 Olympic Games.
- Recipient of the 1983 Heinz Lettau Award in recognition of the outstanding Master of Science thesis in meteorology at the University of Wisconsin.
- American Avalanche Association, Professional Member 2006 – Present.
- American Meteorological Society, Professional Member 1981 – Present.
- American Institute for Avalanche Research and Education, Level 3 certification, Level 1 Instructor, 2007 – Present.

Relevant Publications

1. Snook, J. S., 2010: Seasonal Weather Predictability: A Look at ENSO and MJO. *The Avalanche Review*, **28**, 16-18.
2. Snook, J. S., E. Greene, N. Nikolov, M. Fajardo, K. Zeller, 2005: High Resolution Weather Products for Avalanche Programs in the western United States. *The Avalanche Review*, **23**, 6-7.
3. Snook, J. S., P. A. Stamus, J. Edwards, Z. Christidis, J. A. McGinley, 1998: Local-domain mesoscale analysis and forecast model support for the 1996 Centennial Olympic Games. *Wea. Forecasting*, **13**, 138-150.
4. Snook, J. S., 1998: Comments on "Regional real-time numerical weather prediction: Current status and future potential". *Bull. Amer. Meteor. Soc.*, **79**, 2747-2748.
5. Snook, J. S., J. M. Cram, and J. M. Schmidt, 1995: LAPS/RAMS: A nonhydrostatic modeling system configured for operational use. *Tellus*, **47A**, 864-875.
6. Snook, J. S., and R. A. Pielke, 1995: Diagnosing a Colorado heavy snow event with a nonhydrostatic mesoscale numerical model structured for operational use. *Wea. Forecasting*, **10**, 261-285.
7. Patlakas, P., C. Stathopoulos, C. Kalogeri, V. Vervatis, J. Karagiorgos, I. Chaniotis, A. Kallos, A. S. Ghulam, M. A. Al-omary, I. Papageorgiou, D. Diamantis, Z. Christidis, J. Snook, S. Sofianos, and G. Kallos, 2023: The Development and Operational Use of an Integrated Numerical Weather Prediction System in the National Center for Meteorology of the Kingdom of Saudi Arabia. *Wea. Forecasting*, **38**, 2289-2319.
8. Meyers, M. P., J. S. Snook, D. A. Wesley, and G. S. Poulos, 2003: A Rocky Mountain Storm. Part II: The Forest Blowdown over the West Slope of the Northern Colorado Mountains—Observations, Analysis, and Modeling. *Wea. Forecasting,* **18,** 662-674**.**