## John Michalakes

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Mesoscale and Microscale Meteorology Division
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### a. Professional Preparation

| | | |
|---|---|---|
| Kent State University | M.S. Computer Science | 1988 |
| Cleveland State University | B.A. English | 1984 |

### b. Appointments

| | |
|---|---|
| NCAR, Mesoscale and Microscale Meteorology Division | 2001 - present |
| University of Chicago Computational Institute, Fellow | 2001 - 2002 |
| Mesoscale and Microscale Meteorology Division, Visitor | 1998 - 2001 |
| Argonne National Laboratory, Mathematics and Computer Science Division | 1989 - 2001 |

### c. Selected Publications


Ruggiero, F. H., J. Michalakes, T. Nehrkorn, G. D. Modica, X. Zou, 2006: Development of a new distributed-memory MM5 adjoint. Journal of Atmospheric and Oceanic Technology, 23, doi: 10.1175/JTECH1862.1, 424-436.

Michalakes, J., J. Dudhia, D. Gill, T. Henderson, J. Klemp, W. Skamarock, and W. Wang: "The Weather Research and Forecast Model: Software Architecture and Performance." Proceedings of the Eleventh ECMWF Workshop on the Use of High Performance Computing in Meteorology. Eds. Walter Zwieflhofer and George Mozdzynski. World Scientific, 2005, pp 156-168

Michalakes, J., Infrastructure development for Regional Coupled Modeling Environments (CWO-03-002), report to sponsor, DoD HPCMO, Contract No. N62306-01-D-7110, (2003).

Michalakes, J. G., M. McAtee, J. Wegiel (2002): Software Infrastructure for the Weather Research and Forecast Model, in proceedings of UGC 2002, June, Austin, Texas, 13 pp.

Michalakes, J., R. Loft, A. Bourgeois (2001): "Performance-Portability and the Weather Research and Forecast Model" in proceedings of the HPC Asia 2001, Gold Coast, Queensland, Australia, September 24-28, 2001. CD-ROM ISBN: 0-9579303-0-5Nehrkorn, T.,

Modica, G., Cerniglia, M., Ruggiero, F., Michalakes, J., and Zou, X.(2001): MM5 Adjoint Development using TAMC: Experiences with an Automatic Code Generator, in proceedings of 14th Conference on Numerical Weather Prediction, American Meteorological Society. pp. 481-484.

Leung, L. R., J. Michalakes, and X. Bian: Parallelization of a Subgrid Orographic Precipitation Scheme in an MM5-based Regional Climate Model, in Computational Science -- ICCS 2001, Springer, New York, 2001, pp. 195-203.

Michalakes, J.: The Same-Source Parallel MM5. Journal of Scientific Programming, 8 (2000), 5-12.

Michalakes, J.: RSL: A Parallel Runtime System Library for Regional Atmospheric Models with Nesting, in Structured Adaptive Mesh Refinement (SAMR) Grid Methods, IMA Volumes in Mathematics and its Applications (117), Springer, New York, 2000, pp. 59-74.

Michalakes, J.: FLIC: A Translator for Same-source Parallel Implementation of Regular Grid Applications, Tech. Rep. ANL/MCS-TM-223, Argonne National Laboratory, 1997.

Michalakes, J., C. Baillie, and R. Skålin, 1997: Regional weather modeling on parallel computers. Parallel Computing, 23, 2135-2142.

**d. Synergistic Activities**

**Honors and Awards**

- UCAR Outstanding Scientific and Technical Achievement Award, 2004
- Best Paper Award (shared), Supercomputing95

**Relevant Professional Activities**

- Principal software architect and developer for Weather Research and Forecast Model; leader of WRF Working Group on Software Architecture Standards and Implementation since project inception in 1998. As part of this activity, works closely with working groups such as the WRF-Chemistry working group facilitation software development and configuration management for application of WRF to specific research and operational areas.
- Lead NCAR investigator and program manager for operational implementation of Weather Research and Forecast Model, U.S. Air Force Weather Agency.
- Organizer: Indo-US Workshop on High Performance Computing for Regional Weather and Climate, June 2005.
- Numerous other activities related to the application of high-performance computing in the area of climate, weather, and related scientific areas.
- Principal developer of massively parallel (MPP) implementation of PSU/NCAR MM5 model.

**e. Collaborators**

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|---|---|
| Bensman, Edward | Notre Dame University |
| Bettencourt, Matthew | Air Force Research Laboratory |
| Black, Thomas | NOAA |
| Chen, Fei | NCAR |
| Chen, Shuyi | University of Miami |
| Coirier, William | CFD Research Corp. |
| Faenov, Kyril | Microsoft Corporation |
| Gopolalakrishan, S. | NOAA |
| Grell, Georg | NOAA |
| Hutchinson, Todd | WSI Inc. |
| Jacob, Robert | Argonne National Laboratory |
| Larson, Jay | Argonne National Laboratory |
| Leung, Ruby | Pacific Northwest National Laboratory |
| Oppe, Thomas | ERDC |
| Rugg, Steven | Air Force Weather Agency |
| Snavely, Allan | San Diego Supercomputing Center |
| Stevens, Rick | Argonne National Laboratory |
| Wallcraft, Alan | Naval Research Laboratory |
| Worley, Patrick | Oak Ridge National Laboratory |
| Zhiyan, Jin | Chinese Academy of Meteorological Sciences (Beijing) |