



Support Scientist HWRF 1
NOAA Environmental Modeling Center (EMC)
College Park, MD

I.M. Systems Group, Inc. (IMSG- <http://www.imsig.com>), a Federal Government Contractor is seeking candidates for a Support Scientist to work at NOAA's National Centers for Environmental Prediction's Environmental Modeling Center (EMC) located in College Park, MD. The successful candidate will support the Environmental Modeling Center (EMC) of the National Centers for Environmental Prediction (NCEP) in carrying out research and development work related to the operational Hurricane Weather Research and Forecast (HWRF) system. The candidate's work will involve the development, execution, testing and evaluation of several different components of the HWRF modeling system that include physics, dynamics, vortex initialization and data assimilation, coupling to ocean, wave, land, storm surge and inundation models.

The candidate will perform the functions of the job in a high-quality, independent and collaborative way, assisting in managing projects, and developing and applying innovative methods for the primary work areas below.

The candidate will work with scientists at EMC, AOML and external collaborators to set up comprehensive tests of the HWRF model and performs evaluations of the results using objective verification metrics and model diagnostics. The candidate will work on several tasks including transitioning HWRF capabilities into more advanced ESMF based infrastructure and multi-scale modeling framework (e.g., NMM-B), improving hurricane dynamics and high-resolution telescoping nesting techniques, implementing advanced hurricane physical parameterization techniques applicable at 1-3 km resolutions and determining areas of improvement needed to increase forecast skill. This work will include:

- Implementing existing moving nest algorithms into ESMF based NOAA Environmental Modeling System (NEMS) framework on different grid projections
- Developing/implementing generalized nesting techniques for global-to-local scale applications
- Developing new or improving existing physical parameterization schemes for multi-scale high-resolution hurricane models
- Developing advanced scripts for flexible end-to-end system integration and automation, and allow for additional functionalities
- Design, setup and execution of pre-implementation tests for periodic operational HWRF upgrades

Required Skills:

Education and Experience:

- Ph.D. in atmospheric sciences or meteorology, oceanic, mathematics or a related physical science; with at least 5 years of experience in the area of hurricane/tropical cyclone modeling

Knowledge, Skills and Abilities:

- Advanced knowledge of tropical meteorology, in particular tropical cyclones.
- Knowledge of the physical and mathematical basis of geophysical modeling (atmospheric and/or oceanic) and experience running a Numerical Weather Prediction model.
- Experience in high-resolution model development in various infrastructures like WRF and ESMF
- Experience in advanced scripting languages (e.g., UNIX, PERL, ksh, PyThon, Ruby etc.)
- Experience in model testing and evaluation and/or knowledge of verification principles.

- Demonstrated skill in performing tasks requiring organization and attention to detail.
- Extensive practical application of computing languages such as Fortran and C, geophysical data formats (NetCDF, GRIB etc.), and graphical display programs such as GRADS, GEMPAK, MATLAB, IDL etc.

Desired Skills:

- Demonstrated experience with the WRF model and ESMF infrastructure.
- Familiarity with the POM and/or HYCOM ocean models, or their equivalents.
- Experience with high-performance computing.
- Demonstrated skill in communicating effectively with scientists of diverse backgrounds on technical details of the work plan and to present results accurately and clearly in both oral and written form
- Ability to work independently and in the team environment
- Initiative to work on complex problems and solve problems creatively.
- Familiarity with operational Numerical Weather Prediction and forecasting environment.
- Familiarity with vortex scale observations from aircraft/satellite measurements and methods to compare model output to these observations

To Apply:

Please submit your resume, the contact information for three (3) references, your salary requirements and a cover letter explaining how your qualifications meet the requirements of the position to jobs@msg.com with the following subject line: **Support Scientist: HWRF-1**

MSG offers an outstanding overall compensation package including health/dental insurance, short term/long term disability insurance, paid-time-off, and a 401(k) plan.

MSG is an Equal Opportunity Employer and Veteran friendly.