



**Support Scientist-Physics**  
NOAA Environmental  
Modeling Center (EMC)  
College Park, MD

I.M. Systems Group, Inc. (IMSG), [www.imsig.com](http://www.imsig.com), a Federal Government Contractor is seeking to fill a full-time position supporting the National Centers for Environmental Prediction (NCEP). The contractor will support the Environmental Modeling Center (EMC) of the NCEP to evaluate new and advanced physics parameterizations for the NCEP forecast models, especially for the unified modeling based on Geophysical Fluid Dynamics Laboratory (GFDL) Finite Volume Cubed Sphere (FV3) dynamic core supported by the Next Generation Global Prediction System (NGGPS) Program. The candidate will work with the EMC scientists and collaborate with the external community to develop and execute diagnostic tools to evaluate physics upgrades on the weather prediction models.

### **Duties:**

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:

- Develop diagnostic tools for physics development and evaluation
- Incorporate new diagnostic tools into the NCEP diagnostic tools system
- Develop new or advance existing physics parameterizations within the NCEP forecast models for multiple applications including earth system coupled models and modeling across different spatial and temporal scales
- Collaborate with the physics community to coordinate the incorporation of new physics schemes, including interaction with Global Modeling Test Bed (GMTB) through participation in the development of Community Common Physics Package (CCPP) and Interoperable Physics Driver (IPD)
- 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 upgrades
- Evaluate and assess the impact of physics parameterization upgrade on the forecast model skills and performance
- Perform regression testing to evaluate the system performance

### **Required Skills:**

Education and Experience:

- M.S. or Ph.D. in atmospheric sciences or related physical or mathematical sciences; with at least 3 years of experience in the area of high-resolution atmospheric modeling and evaluation/development/advancement of physical parameterization schemes

Knowledge, Skills and Abilities:

- Hands-on experience with global modeling, preferably with GFS/CFS and/or NEMS
- Experiences in development and testing of advanced representations of physical processes in numerical models

- Strong knowledge of numerical models operating at various spatial and temporal scales
- Experience in model testing and evaluation and/or knowledge of verification principles
- Demonstrated competency in programming (shell scripting, FORTRAN) and the ability to set up, execute, and validate experiments on parallel computing platforms
- Experiences in geophysical data formats (e.g., GRIB/GRIB2, NetCDF) and graphic display program (e.g., GrADS, GEMPAK, MATLAB, IDL etc.)
- Experience in advanced scripting languages (e.g., UNIX, PERL, ksh, Python, Ruby etc.)
- Ability to work flexibly: independently as well as in a group, and in operational as well as research environments
- Knowledge of the physical and mathematical basis of geophysical modeling and experience running coupled models
- 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
- Demonstrated skill in performing tasks requiring organization and attention to detail

**Desired Skills:**

- Expertise in code optimization on parallel computing environment (MPI, OpenMP)
- Experiences with high-performance computing and ESMF infrastructure
- Knowledge of advanced scale-aware physics
- Initiative to work on complex problems, learn new skills, and solve problems creatively
- Experience with operational Numerical Weather Prediction research and development environment

Please note U.S. citizenship or green card is required for the position.

Please apply directly to our career portal or website: [www.msg.com](http://www.msg.com) or <https://careers-msg.icims.com>, (***NOA 1757-Support Scientist-Physics***) Include your resume, three references with contact information and a cover letter explaining how your qualifications meet the requirements of the position. Please indicate your timeline of availability and preferred salary level for consideration.

MSG offers an outstanding overall Benefit Package including company paid leave, medical, dental, vision, and 401K. MSG is an Equal Opportunity Employer and Veteran friendly.