

variabilities on extreme weather events; Prediction of tropical cyclones near landfall, including track, intensity, and associated precipitation, and hazardous weather; Prediction of marine conditions, including fog, winds, coastal ocean, and open-ocean waves; The effect of topography and other surface forcing on local weather regimes; Locally hazardous weather, especially severe convection, winter weather, and phenomena that affect aviation; and Conditions conducive for the rapid development of wildfires and the dispersion of smoke and other air-quality hazards.

Individual NWS Regions and NCEP service centers have a subset of these science priorities due to differences in factors such as topography, weather regimes, and mission.

### Program Priorities

NOAA will give sole attention to individual proposals addressing the identified science priorities from NWS Regions and NCEP service centers as listed below. Proposals must clearly specify which primary science priorities are being addressed.

Since a goal of this call for proposals is to foster long-term collaborative interactions between a university and NWS operational offices/NCEP service centers, a proposal must be submitted by at least two principal investigators (PIs) from the same college or university. Proposals submitted jointly by two or more separate colleges or universities are not allowed. At least two of the PIs within this program must be full, assistant, or associate college or university professors with substantial documented involvement in the proposal. Proposals should clearly state the role of each PI in the project.

Except for researchers who are associate, assistant, or full professors at the Naval Postgraduate School or other federally funded educational institutions, Federal Government employees are not allowed to be listed as PIs, although collaboration between the academic community and NOAA within the project is strongly encouraged.

A proposal must contain at least two distinct subtasks addressing one or more of the science priorities listed by a NWS Region or NCEP service center. PIs must clearly address the science and technology transfer process contained within the proposal. This includes their interactions with operational NWS units, including weather offices, River Forecast Centers, NCEP service centers, and regional offices, with the specific goal of improving operational services.

The names, affiliations, and phone numbers of relevant NWS regional/NCEP focal points are provided. Prospective applicants should communicate with these focal points for information on priorities within regional science priorities. Focal points cannot assist in the conceptual design and specific elements to be included in a proposal. Applicants should send completed proposals to the NOAA/NWS program office identified earlier rather than to individual focal points.

### NWS Eastern Region Science Priorities

NWS Eastern Region has identified the following science priorities to be addressed by proposals:

The roles of unique geomorphic influences on weather problems such as the type, amount, and intensity of precipitation associated with the complex terrain of the Appalachian Mountains, Atlantic Seaboard, and the Great Lakes. The interaction of these terrain features with large scale weather systems such as winter storms, hurricanes, and closed lows.

The development of more accurate, region-specific conceptual models for tornado, hail, high wind (both convective and synoptic), flash flood, and localized heavy snow events. Detailed investigation of the roles of mesoscale phenomenon such as gravity waves, thermal and moisture boundaries, and localized instabilities during these events. Improved understanding of low-topped severe convection and associated tornado development.

Cloud physics and associated microphysical processes and their role in determining precipitation type and snowfall efficiency.

The relationship of land-falling tropical storms and hurricanes to severe weather and heavy precipitation resulting in flooding and flash flooding.

The processes of snow melt and river ice formation and break-up and their roles in widespread river flooding. The development of high resolution surface analysis systems and the application of these analyses to verification of gridded hydrometeorological forecasts.

The development of improved methodologies for forecasting the onset and dissipation of fog and low ceilings for different geographical locations across the eastern United States.

The processes that lead to high winds, waves, and flooding near the Atlantic Coast, Chesapeake Bay, and Great Lakes. Innovative approaches to formulate, produce, display and deliver high-resolution forecasts and products, an evolving priority of the user community throughout the heavily populated

eastern United States. Develop innovative methodologies to communicate forecast uncertainties to a wide variety of users.

**FOR FURTHER INFORMATION CONTACT:** Kenneth Johnson, NOAA/NWS/Eastern Region Scientific Services Division, 631-244-0136, or on the Internet at [Kenneth.Johnson@noaa.gov](mailto:Kenneth.Johnson@noaa.gov).

### NWS Southern Region Science Priorities

The NWS Southern Region science priorities to be addressed by proposals are as follows:

Development of improved techniques for the prediction of freezing and frozen precipitation events in the NWS Southern Region, including timing, areal extent, intensity and amount.

Development of diurnal lightning and cloud climatologies stratified by weather regime to better predict the onset, spatial coverage, and duration of precipitation, especially under weak synoptic forcing.

Development of improved techniques to forecast and monitor heavy-rain events.

Development of relationships between land falling tropical cyclones and associated severe weather, including heavy precipitation, flooding and flash flooding, throughout the southern United States.

Development of improved techniques to observe and forecast winds and waves in the coastal environment. Improved understanding of the influences of the complex terrain of the southern Appalachians, the Texas Hill Country, the Mexican Plateau, and the Gulf Coast on weather problems such as type, amount, duration and intensity of precipitation and resultant flash flooding.

Development of optimal strategies for using mesoscale models to accurately predict the effects of topography and other surface forcing on local weather. Improved methodologies to better predict the development and duration of stratus, fog and other conditions which result in instrument flight rule (IFR) flying conditions in the NWS Southern Region.

Development of methodologies for use of Doppler weather radar (WSR-88D) and multi-sensor technology to detect/identify storm features leading to, and/or associated with, the development of weak (F0 and F1) tornadoes and waterspouts which are characteristic of tropical and semi-tropical environments.

Development of methodologies for the use of Doppler weather radar and other multi-sensor technology to detect precursor conditions and enhance forecast capabilities for improved