

**Response of the National Weather Service Employees Organization to
proposed S. 1573, *National Weather Service Improvement Act***

The National Academy of Science did not endorse consolidation of weather forecasting into regional forecasting centers. Senator Thune claims that his proposal to consolidate forecasting from 122 Weather Forecast Offices into six regional centers is based on a 2012 Report from the National Academy of Sciences that allegedly “touted the benefits of a regional approach” to weather forecasting. The National Academy made no such recommendation.

In the 2012 report to which Senator Thune refers, the National Academy only recommended that the National Weather Service *evaluate* its organizational structure. The National Academy explained that “it did not have the charge or expertise to provide a recommendation about restructuring.” The Academy wrote that “*although not endorsing any particular strategy,*” it “identified some possible causes of action regarding the future functions and related structure of the NWS.” National Research Council, *Weather Services for the Nation: Becoming Second to None* (2010) at 39-40. Among the possible alternatives identified by the Academy was retaining the existing offices. “The current post-MAR structure of the NWS could be maintained going forward” it wrote. “The most obvious advantage, of course, is continuity. The 122 WFOS could keep their slate of responsibilities covering many fronts. Little or no immediate cost would be involved.” *Id.* at 40.

Among the other possibilities identified by the National Academy was to transfer the responsibility for just one of the many functions performed by the forecasters at the 122 Weather Forecast Offices – the preparation of routine, timed public weather forecasts products – to regional forecast centers. However, the National Academy noted that there were significant risks involved in this alternative. “Local knowledge of phenomena, terrain, and infrastructure is an important factor in forecasting, and it needs to be accounted for in any potential regionalization of functions.” Therefore, the National Academy stated that “an in-depth statistical analysis of the relative comparison of local products to [centralized forecasting products] will be necessary before the NWS considers moving some or all of its public forecasting task to regional centers.” *Id.* at 42. No such analysis has been conducted, and the proposed legislation mandates consolidation without such a study.

The National Academy concluded its discussion of possible office realignments with this important caveat overlooked by Senator Thune: “The reader is reminded that these three possible modes of office realignment are advanced purely for illustrative purposes, ***and the Committee does not endorse any one of them.***” *Id.* at 42.

The consolidation of forecast offices proposed by S. 1573 is inconsistent with the proposal discussed by the National Academy. Section 2(e)(2) of the proposed legislation would require the NWS to transfer all forecasting functions and the forecasting staff from each of the 122 Weather Forecast Offices to the new regional forecasting centers. However, the proposal identified by the National Academy envisioned that the regional forecast offices would *augment, not replace*, local forecasters.

According to the National Academy, regionalized forecasting centers would “free[] up the meteorologists . . . at the field offices to be able to focus on high-impact weather event warning, coordination, communication, and enhanced support for its core partners . . . and diminish the chances of the local staff being overwhelmed during severe weather outbreaks.” According to the Academy, “the responsibility for hazardous weather outlooks, advisories and warnings would still reside at the local offices . . . Field office meteorologists would still be responsible for aviation and marine forecasts.” *Weather Services for the Nation*, at 42. Under the proposed legislation, however, all forecasting activities would be consolidated, and the regional centers would have the responsibility “to forecast the severe weather events typical for the region.”

The six regional weather forecast offices would not “increase efficiency and save money for other weather projects” as Senator Thune claims. Under the consolidation option identified by the Academy, the NWS would have to build and staff large regional forecasting centers in addition to retaining and staffing the existing 122 Weather Forecast Offices. If all forecasting functions and forecasters were eliminated from the existing offices as the legislation proposes, the NWS would still need to maintain residual technical and paraprofessional staff at the existing locations to maintain and repair the collocated local weather radar; to launch weather balloons and quality control their telemetry twice daily; and to maintain the vast network of thousands of cooperative weather observers and their equipment. Relocation costs for NWS employees average \$100,000. There are approximately 1,300 forecasters who would need to be relocated under this legislation, for a total cost that would exceed \$100 million.

The Commerce Committee has not released any cost estimates for this legislation, nor has it explained how savings would result. The legislation would require the transfer of the forecasters and establishment of the regional forecast centers on a strict timeline regardless of whether funds are appropriated for that purpose by future Congresses.

The press release issued by the Commerce Committee incorrectly claims that the legislation “directs the NWS to add warning coordination meteorologists to NWS offices.” Those positions already exist at each of the 122 Weather Forecast Offices, and have since the modernization and restructuring of the NWS twenty years ago.

All existing science indicates that regionalized forecasting will result in a degradation of the accuracy and reliability of the forecasts. In 1982, the National Advisory Committee on Oceans and Atmospheres sent a special report to Congress and the President in which it was highly critical of then ongoing efforts to close weather offices. Although it acknowledged that some weather stations could be closed because their observational services were redundant,

... equivalent quality local weather services cannot, in most cases, be provided by consolidating weather forecasting functions at fewer weather stations, each of which would have a broader geographical responsibility. There is sufficient evidence about the relationship between accuracy of weather forecasts and services to the community, and remoteness from the geographical location for which forecasts and the service are being provided to warrant concern. Weather forecast accuracy and utility generally deteriorate with distance from the location for which forecasts are made. ...

It is also evident that an intimate knowledge of the local terrain and local activities that might be sensitive to weather phenomena are important in providing the kinds of services communities need for protection. ...

Effectiveness is the “name of the game” when protecting the public against the hazards of Nature. We are deeply concerned that in the drive to reduce costs and personnel in the NWS by reducing the number of weather stations, the effectiveness of that service is being dangerously reduced.

NACOA, *The Future of the Nation's Weather Services*, (1982) at 22-23.

In 1996, Professors Roebber, Bosart and Forbes published a study in an American Meteorological Society journal that concluded that experienced forecasters are able to use regional knowledge to their advantage in forecasting temperature and precipitation amount. They wrote that:

... forecasters typically learn how to interpret and modify the output of numerical models in light of their knowledge of local peculiarities of the weather and that this knowledge base undoubtedly becomes degraded as one moves away from the local area. Thus, one might expect that a highly experienced forecaster's skill would trace out a rapidly declining curve as a function of distance from the forecast site.

Roebber, P.J, L.F. Bosart and G.J. Forbes, 1996: Does Distance from the Forecast Site Affect Skill?, *Wea. Forecasting*, **11**, 582, 588. Further research by Professor Roebber found strong evidence that a transition from local to regional scale forecasting degrades forecast skill in forecasting severe weather and precipitation, and that this was most apparent in warm season precipitation when convection dominates. Roebber, P.J, *Locality and Forecast Skill – Heavy Precipitation and Severe Weather*, (2006).

In follow up research, Professor Roebber and an associate studied the NWS's earlier proposal to consolidate forecasting operations. They concluded that there was evidence "that a transition from local to regional scale forecasting of heavy precipitation would lead to a reduction in accuracy," and confirmed Robber's earlier conclusions that "local knowledge can be an important contributing factor when highly skilled forecasters construct forecasts." They wrote that earlier proposals to off-load forecasting functions to neighboring offices during high impact events involves a "tradeoff [that] concerns necessarily forecasting at a greater distance from the verification location and a potential loss of forecast accuracy, as aspect that appears neglected in these discussions." Roebber, P.J and Butt, M.R., *Managing Forecast Accuracy – The Effect of Regionalization on Forecast Performance* (2008).

Congress has previously rejected proposals to consolidate forecasting operations. In 2005 the NWS began to develop a proposal to consolidate forecast offices under the guise of a new "Concept of Operations" or "CONOPS." The Comptroller General issued a report critical of the agency's efforts because it had no defined metrics to ensure that CONOPS would not result in a degradation of services or even that it would produce cost savings. GAO-06-792 (July 2006). Congress was more direct. Following a set of hearings that were critical of the NWS's plans, Congress, in the final Conference Report accompanying the Department of Commerce appropriations act for 2006, directed that "no funds shall be used to implement a plan to consolidate, regionalize, or reduce service hours at Weather Service forecast offices." H. Rept. 109-272, 109th Cong., 1st Sess. at 159.

Congress has already mandated that the NWS evaluate its organizational structure, and that study is ongoing. As part of the FY 2012 appropriations process, Congress directed the NWS to enter into a contract with an independent organization to evaluate efficiencies that can be made to NWS operations. It required that "this review shall include consultations with emergency managers and other users groups as well as NWS employees." Congress required that any recommendations "should not result in any degradation of service to the communities served by local forecast offices . . . nor should such recommendations place the safety of the public at greater risk."

Earlier this year, the NWS contracted with McKinsey and Company to conduct this evaluation, which will study NWS field operations and organizational structure and related workforce issues. The proposed legislation has improvidently trumped the earlier Congressional mandate to develop recommendations for the future structure of the NWS based on input from employees, emergency managers and other user groups.