

EDITORIAL

Weather Verification Papers Requested

As weather forecasting becomes more complex, forecast verification techniques similarly become more challenging, computer intensive, and specialized. The verification community plays an important role in identifying small and critical improvements in weather forecasts, as well as identifying the level of trust that can be placed in specific forecasts. Several areas of forecast verification are rapidly evolving and are addressing new questions. For the community to feel comfortable with possible changes in forecasting, the concepts used for evaluation must be vetted through the peer-review process and accepted or rejected, after consideration, by the full weather forecasting community. *Weather and Forecasting* has always been the home for verification techniques and encourages the submission of papers on verification techniques across the broad spectrum of weather verification efforts.

Some of the new challenges facing the weather forecasting community, which require new or adapted verification techniques, include ensemble techniques for forecasting, human-in-the-loop forecasting, verification from imprecise observation sources, extrapolation of physics packages to different regions of the world, probabilistic forecasting, use of new satellites, evaluation of observing system simulation experiment results, extreme event analyses, anomaly correlation studies, storm-track verification, data-denial experiments, and effects of computer and hardware changes. While the historical concepts in the area of verification are still useful (Panofsky and Brier 1963), continued improvements in the area of verification are needed to support evidence-based decisions on future forecasting approaches.

Currently there are over 50 meteorological institutions, as well as most universities with meteorological departments and innumerable private companies, with verification efforts under way. Some state-of-the-art research institutions that have their own verification systems include ECMWF, NCAR, NCEP, NOAA's Global Systems Division (GSD), UKMO, the Finnish Meteorological Institute (FMI), NSSL, and CAWCR. In some cases, basic techniques are documented in books (Jolliffe and Stephenson 2012; Wilks 2011), but the most-recent improvements in verification efforts are seldom published, more often being recorded only in internal documentation. The most-recent WMO effort to coordinate verification techniques (Gordon and Shaykewich 2000) is over 15 years old. New techniques of verification, whether they are new statistical approaches, new understandings of how to use observational data, novel metrics, or new applications of impact-relevant forecasting, will benefit the entire forecasting community. The sharing of these ideas through peer-reviewed publication will add efficiency to the rapidly changing weather forecasting community and will encourage the development and application of new ideas on verification.

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Most importantly, the publication of these verification techniques will assure that the best decisions are made for improving weather forecasts that are critical to society's security and prosperity.

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