P38 Revised forecasts, how consistent are they?

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The question of consistency of revised forecasts through time often comes up in the context of weather events such as hurricanes or high wind days. For a single event, forecasts are made, then revised as the time of the event nears. Hopefully, the revision reflects new and better information that will yield a better forecast. Nonetheless, if forecasts change frequently or by large amounts, a user may believe they are poor or uncertain. Over time, a user may lose trust in forecasts that are not consistent. This is particularly an issue for decision makers who create plans based on early forecasts (e.g., emergency managers), then must change their plans repeatedly as new forecasts arrive.

Thus, for forecasts that are revised, the consistency in the revisions is an important aspect of forecast quality. Unfortunately, though everyone knows forecast consistency when they see it, the use of objective measures in forecast verification is very limited. A similar problem exists in economic forecasting, where some simple tests are applied to a single time series to measure the consistency. However, these measures do not easily extend to weather forecasts that may be multi-dimensional or a collection of many time series. In this presentation, basic consistency assessments of forecast revision time series are presented. Extensions of these measures to more complex spatial forecasts are examined, with some preliminary examples using object-based attributes tracked through time. In particular, the MODE Time Domain software provides some capability to assess consistency in both space and time for many types of forecasts including probabilities. Particular attention is paid to comparisons of consistency measures between competing forecasts.