

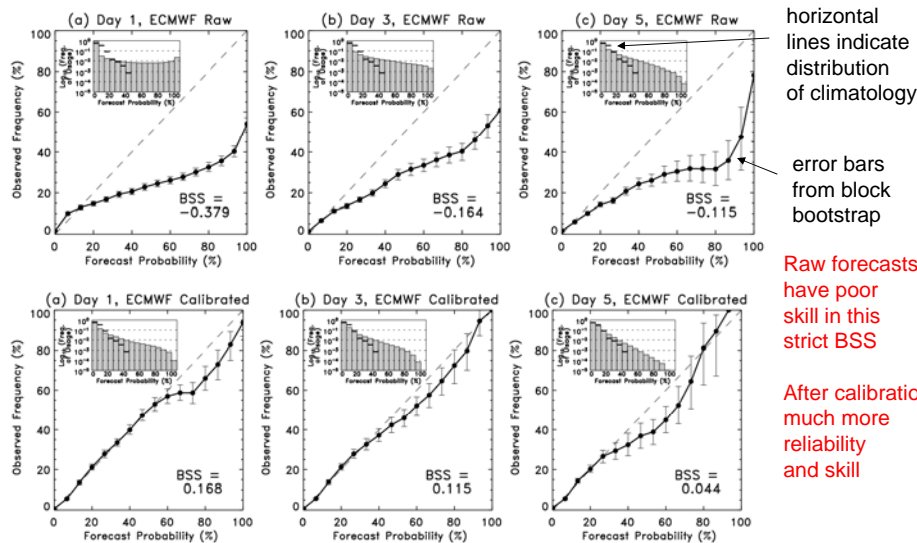
ECMWF precipitation forecast skill with and without reforecast calibration

Tom Hamill¹ & Renate Hagedorn²

¹NOAA/ESRL & ²ECMWF

used 2005 ECMWF reforecast data set, 1x weekly between 1 September and 1 December, 15 members. Calibrated using logistic regression; verification against 32-km North American Regional Reanalysis precipitation (many surface obs + statistical voodoo)

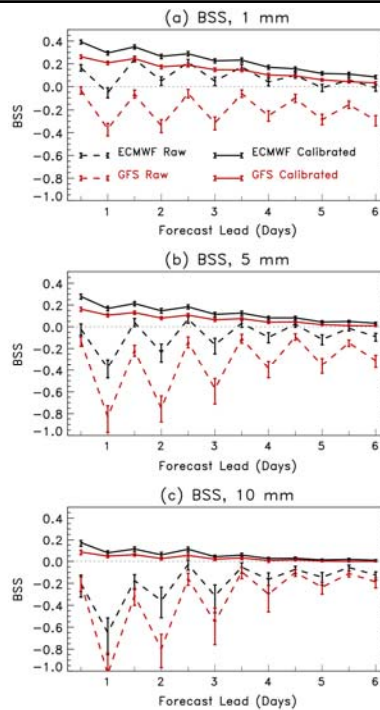
5-mm reliability diagrams, 12-h accumulation



Brier Skill Scores

Notes:

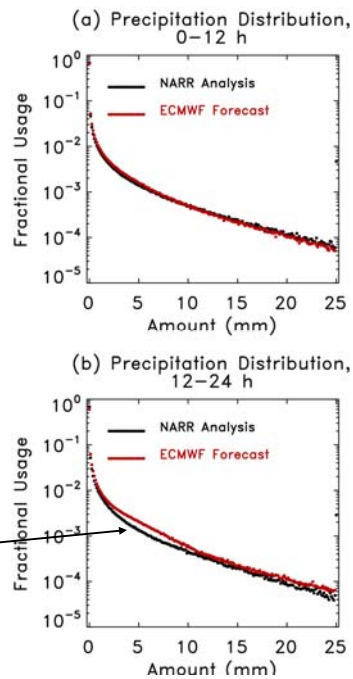
- (1) Diurnal oscillation in raw forecast skill
- (2) Raw forecast skill poor, especially at higher thresholds
- (3) Calibration has substantial positive impact.
- (4) ECMWF > GFS skill.
- (5) Multimodel not plotted, ~ same as ECMWF calibrated



3

Why are 12Z - 00Z forecasts less skillful?

Over-forecast bias in models during daytime relative to NARR

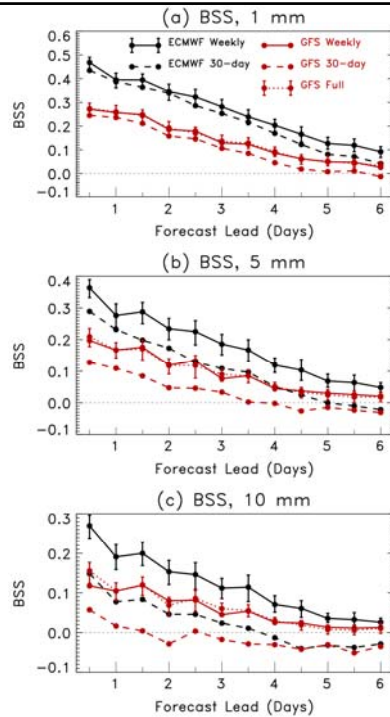


4

Precipitation skill with weekly, 30-day, and full training data sets

Notes:

- (1) Substantial benefit of weekly relative to 30-day training data sets, especially at high thresholds.
- (2) Not much benefit from full relative to weekly reforecasts.



5

References

- Hamill, T. M., J. S. Whitaker, and R. Hagedorn, 2007: Probabilistic forecast calibration using ECMWF and GFS ensemble forecasts. Part II: precipitation. *Mon. Wea. Rev.*136, 2620-2632. Available at <http://tinyurl.com/38jqkv>
- (and many reforecast references therein)

6