

LETTERS TO THE EDITOR

Comments on “Short-term systematic errors in global forecasts: their estimation and removal” by H. J. Thiébaux and L. L. Morone

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We strongly support research on methods of correcting the errors in numerical weather prediction (NWP) models. However, we feel compelled to draw attention to two shortcomings in the recent paper by Thiébaux and Morone (1990).

(1) First we wish to correct several potentially confusing remarks concerning the statistical correction scheme developed by ourselves (Bennett and Leslie, 1981, 1982, 1983). Rather than attempting to reword their description of our work, we note the following. (a) Our empirical orthogonal functions and regression coefficients were developed from daily analyses of mean sea-level pressure (MSLP) for the 6 years 1972–77. However, our scheme also was tested in true forecast mode by partitioning the data into 2 subsets of 3 years each: 1972–4–6 and 1973–5–7. The 1st subset was the dependent data set; the 2nd was the independent data set. The wording of Thiébaux and Morone could be interpreted to mean that we did not do such a test. (b) We carried out separate studies for summer and winter. Thus, our regression schemes included seasonal mean errors, and seasonal regression coefficients. The wording of Thiébaux and Morone could be interpreted to mean that we included only the seasonal mean error.

(2) Our second, and more significant comment is that the procedure, as presented in the journal article, simply does not work consistently. The results presented by Thiébaux and Morone led to such large reductions of model forecast error

that we decided to test their scheme on the Australian Bureau of Meteorology’s operational limited-area NWP model. A bonus was that their scheme is so easy to apply. The Thiébaux–Morone scheme was compared with 3 other methods over the entire year, December 1989 to November 1990. These methods were: the uncorrected NWP model, and the statistical-correction schemes of Bennett and Leslie (1981), and of Glowacki (1988). We note first that both the Bennett–Leslie and the Glowacki schemes were so effective that they were used operationally, the former in 1986 and 1987 and the latter from 1988 to the present. These schemes produced average monthly S_1 skill score reductions of 2.5 and 3.9 points, respectively,

Table 1. *A comparison of the Thiébaux–Morone statistical correction method (T–M) with the uncorrected forecast (U), and the statistical correction schemes of Bennett and Leslie (B–L) and Glowacki (G)*

Method	24-h S_1 score				
	DJF	MAM	JJA	SON	Mean
U	40.1	38.8	37.6	39.3	38.9
T–M	40.3	39.7	36.8	39.6	39.1
B–L	38.2	36.4	35.8	37.0	36.8
G	37.1	35.8	33.9	36.4	35.7

The scores are for the year 1990 and are broken into 4 seasons. DJF is summer (December 1989, January 1990, February 1990) etc.

in SLP forecasts during their periods of operational service. Moreover, they were superior to the uncorrected forecasts on 87.1% and 90.4% of occasions, respectively.

In Table 1, the comparison of the methods is summarized. It is immediately clear that the worst-performed technique overall is the Thiébaux–Morone scheme. It ranked last, and had a deleterious effect on the NWP forecasts in 3 of the 4 seasons, winter being the only exception.

We present these results not to condemn the work of Thiébaux and Morone but rather to inform the meteorological community of the lack of stability of their approach. Moreover, we hope

that it may stimulate an improved version of their scheme that is stable, in the sense of producing consistently positive corrections over long periods of time.

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