CORRIGENDUM

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Two major errors in the extratropical storm track results in Hodges et al. (2003) have recently been identified. Fortunately these errors do not affect the major conclusions of the paper.

The first problem concerns the use of the European Centre for Medium-Range Weather Forecasts (ECMWF) 15-yr Reanalysis (ERA15) mean sea level pressure (MSLP) data used in this study. These data were derived from the ECMWF model level fields using a different method of extrapolation than that used at ECMWF. The result of this is that large errors in pressure are identified over the major orographic regions compared with the MSLP supplied by ECMWF, and when compared with the other reanalyses. This is particularly the case over the Antarctic continent. The result of this is that the planetary-scale filtering that is applied to the data to remove the large-scale background removes a very different planetary-scale structure compared with the other reanalyses. This problem has significantly less impact in the NH. The result of this is that the comparison of the ERA15 MSLP tracking in the SH with the other reanalyses tends to be skewed, in particular close to the Antarctic coast. This shows up in Fig. 4d of the paper, where the mean intensity distribution for ERA15 shows a double-mode structure with much larger intensity values in the tail compared with the single modes of the other reanalyses. In addition, the differences in mean intensity of the other reanalyses compared with ERA15 show large differences around the Antarctic coast. By repeating the analysis using the ECMWF-derived MSLP these problems are removed, and a single-mode distribution of the mean intensities is now produced, as shown in the new Fig. 4d. The differences in the mean intensities around the Antarctic coast are also much reduced, and the MSLP now shows more consistency with the vorticity (ξ_{850}) results shown in the original paper, with ERA15 having weaker mean intensities around the orography (Antarctica) than the other reanalyses. How much of this is still associated with the extrapolation and any residual impact of the large-scale background still needs to be explored.

The second problem identified in this paper arises from a software error identified in a program that provides statistics on how well weather systems compare between different reanalysis track ensembles. The result of this is that an over optimistic view was reported of the locational uncertainty of weather systems. After fixing the software error the choice of the mean separation distance threshold of 0.5° for what was considered a good match was found to be too small. To recover the match/no match statistics in the NH similar to those presented in the original paper the mean separation distance threshold must be increased to 2.0°. This represents a larger uncertainty in location of the weather systems between the different reanalyses than represented by the original threshold. Tables 2 and 3 of summary statistics are reproduced here based on the new ERA15 MSLP data and the software fix. While Table 2 shows similar results to

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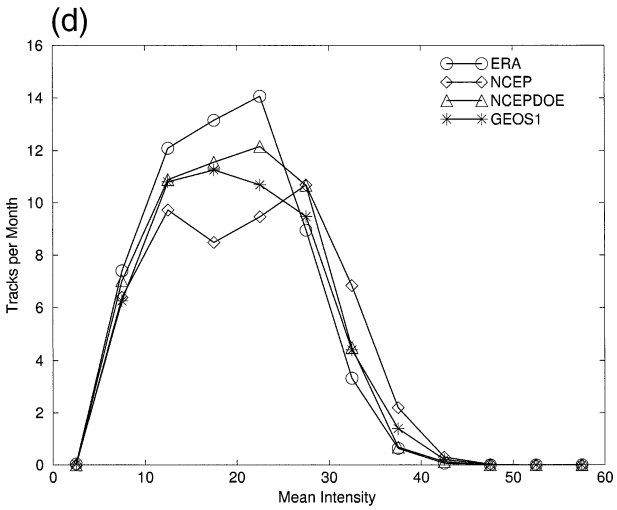

FIG. 4. Cyclonic mean intensity distributions for SH, JJA, MSLP.

TABLE 2. Summary of NH direct track ensemble matching statistics, percentage of tracks that match, and the total number of tracks per month.

	Ensemble 1		Ensemble 2	
	Total number	% Match	Total number	% Match
ERA–NCEP–NCAR (MSLP)	59.4	79.0	59.2	79.5
ERA–NCEP–NCAR (ξ_{850})	135.5	62.0	132.2	63.5
ERA–NCEP–DOE (MSLP)	59.4	79.4	58.8	80.3
ERA–NCEP–DOE (ξ_{850})	135.5	59.1	134.1	59.7
ERA–GEOS-1 (MSLP)	59.2	63.9	58.4	64.8
ERA–GEOS-1 (ξ_{850})	135.5	52.7	150.2	52.4
NCEP–NCAR–NCEP–DOE (MSLP)	59.2	83.4	58.8	83.9
NCEP–NCAR–NCEP–DOE (ξ_{850})	132.2	69.1	134.1	68.2

TABLE 3. Summary of SH direct track ensemble matching statistics, percentage of tracks that match, and the total number of tracks per month.

	Ensemble 1		Ensemble 2	
	Total number	% Match	Total number	% Match
ERA–NCEP–NCAR (MSLP)	59.7	37.3	54.2	41.2
ERA–NCEP–NCAR (ξ_{850})	128.2	27.9	130.4	27.4
ERA–NCEP–DOE (MSLP)	59.7	36.7	57.6	38.1
ERA–NCEP–DOE (ξ_{850})	128.2	22.9	136.3	21.6
ERA–GEOS-1 (MSLP)	59.5	13.2	54.6	14.3
ERA–GEOS-1 (ξ_{850})	128.4	9.8	153.4	8.2
NCEP–NCAR–NCEP–DOE (MSLP)	54.2	54.2	57.6	51.0
NCEP–NCAR–NCEP–DOE (ξ_{850})	130.4	36.3	136.3	34.7

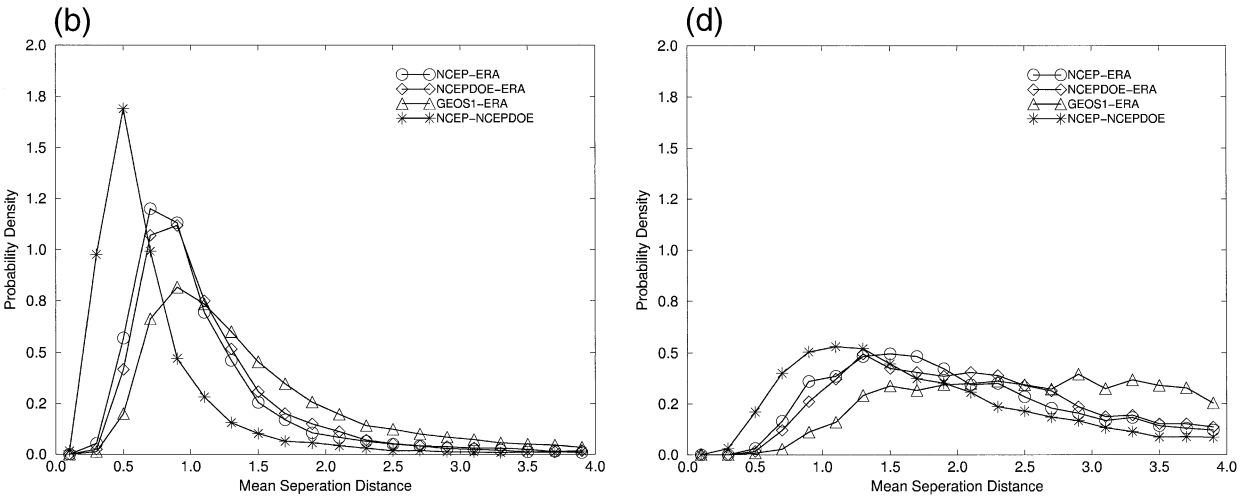

FIG. 6. Cyclonic mean separation distance pdf's for (b) NH, DJF, ξ_{850} and (d) SH, JJA, ξ_{850}.

that originally published, Table 3 shows that there are now more systems that do not match as do match in the SH and in fact the mean separation distance must be relaxed to 4.0° to get match/no match statistics similar to those originally produced. Using the 4.0° threshold in the NH, the percentage of systems that match increases only slightly, the reason for this being apparent in the new Fig. 6b.

The software fix also affects the instantaneous intensity and mean separation distance distributions (Fig. 6). These have also been recalculated for the NH and SH as probability density functions (pdfs) instead of the original frequency plots using the 4.0° threshold. The intensity distributions are very similar in shape to those in the original paper and are not reproduced. The mean separation statistics are shown in the new Figs. 6b and 6d. For the mean separation distances the majority of systems still match well with mean separations less than 1.5° in the NH. There are indications that the locational uncertainty also depends on scale (field) and intensity. In the SH the separation distances show much broader distributions and much longer tails than in the NH, indicating the much larger uncertainty in position of the weather systems in the SH.

REFERENCE

Hodges, K. I., B. J. Hoskins, J. Boyle, and C. Thorncroft, 2003: A comparison of recent reanalysis datasets using objective feature tracking: Storm tracks and tropical easterly waves. *Mon. Wea. Rev.*, **131,** 2012–2037.