

**Review of the manuscript “On the value of reanalyses prior to 1979 for dynamical studies”
by P. Hitchcock**

General Comments

The author presents a detailed comparative analysis of the quality of reanalyses data prior to 1979 and their potential inclusion in dynamical studies. In particular, he focuses on the analysis of relevant fields for the stratosphere-troposphere coupling. The results indicate that reanalysis data in the pre-satellite era is of sufficiently high quality to be considered together with the data of subsequent decades in these dynamical studies.

The manuscript is well written and the topic is certainly interesting for the scientific community, particularly that focused on stratosphere-troposphere coupling. The methodology applied for evaluating the quality of reanalysis data is also very thorough. However, in some cases I find the text a little bit dense particularly when describing Figures 6 and 7 and Section 4 and it would be advantageous for the manuscript to try to simplify that description. Thus, I recommend the publication of the manuscript after the mentioned minor correction and some other slight changes indicated below.

Specific Comments

Page 5 Lines 5-8: The author indicates that the shift of the seasonal peak of SSWs in the satellite era with respect to the whole period (1958-2010) is only just due to the consideration of a longer database. I think the author could discuss a little bit more about this. Otherwise, the reader might get the impression that this is only a possible bias due to the lack of assimilated satellite data in the pre-satellite period. In contrast, it could be also related to multidecadal climate variability. Indeed, there are some studies that have also shown a change in the seasonality of SSWs in model simulations (e.g.: Ayarzagüena et al. 2013). Finally, I would recommend citing here Gómez-Escolar et al. (2012) that already showed the change in the seasonal distribution of SSWs between the pre- and post-satellite periods.

Page 7 lines 23-25: Maybe I am getting something wrong but the largest spreads, at least for the zonal wind, are found in the Northern Hemisphere.

Page 8 lines 11-12: Please indicate why you are selecting different levels for the stratospheric field in the Northern and Southern Hemisphere.

Page 9 lines 20-25: I think the author should be careful with the description of the results in this paragraph. For instance, some fields that are indicated as not shown (δ for T in JJA, (δ for DJF u) are in fact shown and some others described as shown are not (δ for T in DJF, (δ for u in JJA). It would also help if a reference to the plots is included in each case too.

Page 10 lines 32-35: I might agree that data of 1950s may be of interest, but the results for NCEP/NCAR reanalysis for that decade are not shown in Figure 9.

Technical comments

Page 4 Line 21: then \rightarrow than

Page 4 Line 31: I think it would be better to write “from 1958 to 2016”.

Page 5, line 15: means \rightarrow mean.

Page 5, equation 2: in the second sum the upper limit should be N_r instead of N_s .

Page 5 equation 2: Please define N_t

Page 7 line 15: I think it is the winter **upper** stratosphere.

Page 7 line 25: in many regions in \rightarrow in many regions it

Page 8 line 25: Southern Hemisphere

Page 10 line 26: Please delete at.

Page 10 line 30: Please include) after 9.

Page 11 line 6: reduced \rightarrow reduce.