

Author's Comment

The required point-by-point response to the reviews is provided with a reply (as supplement pdf file) to each referee, respectively. As recommended by almost all referees the paper is comprehensively restructured and rephrased. A general view of the modifications related to main subjects specified by almost all referees is given with an Author's general reply that was previously uploaded to the discussion platform. Thus, a list, as required "of all relevant changes made", may be summarized as in the following:

In summary, the text is generally and in parts strongly restructured. Sentences, that appeared parenthetical were shortened or were divided into fractions. Subsections were implied for improving the structure and readability of the article. The estimate was recalculated yielding new values and new constraints. The discussion of the new results required new text replacing sections of the initial manuscript version. Figure 1 and Figure 6 were modified as a consequence of the referee's advices. New literature references are implied and a detailed description of the vortex index is provided in the revised version. Furthermore, we understand the discussion of the mechanism (diabatic dispersion) driving the vertical transport in the lowermost vortex region as too important to be disregarded from this paper. Therefore, the discussion concerning this topic is revised and should have improved in readability.

Once more, we acknowledge the efforts spent by all referees and the editor, and also all provided helpful comments and constructive suggestions to improve this paper.