



Prof. Zahar Makhover: Relevant contributor to the early tropopause studies

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Tropopause features have been the subject of increasing interest because of intensified research on stratosphere-troposphere exchange. Another reason for this interest is the possible use of tropopause features as fingerprint for climate change. Finally, tropopause characteristics are of interest for such applications as climatology of aircraft traces etc. In that context the review of the information previously accumulated about the tropopause plays an important role for the appropriate design of research on this topic. In that sense, the contribution from Prof. Zahar Makhover, a leading expert on tropopause studies in the former USSR (and later -in Russia), - is known much less than it is worthy of notice, with very few citations of his numerous studies. Probably the main reason is the language barrier, because his monographs and papers were written in Russian, without needed translation, if any. Prof. Makhover conducted himself a set of important studies. Moreover, he did a lot to give a separate status to studying climate of tropopause as of specific part of atmosphere.

The heritage of Prof. Makhover includes his own research of tropopause phenomenon, on one hand, and integration and syntheses of the numerous studies conducted by former Soviet researchers and by foreign researchers, as well as by other contemporaries to him, on other hand.

This paper is to provide an assessment of his main achievements and his heritage. The topics mentioned in the paper include:

- the spatial and temporal structure of the tropopause temperature and altitude

-special research attention to the tropopause variability from annual and seasonal scales to intra-monthly and daily scales

- seasonal features of tropopause climatology

- research on the role of QBO, synoptic conditions and annual solar cycle on tropopause features.

The paper provides citations, graphical and tabular materials from Prof Makhover's monographs and papers.