



Applicability of Dzerdzevski's atmospheric circulation classification to northern-hemispheric climate variations

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Hemispheric-scale classifications of atmospheric circulation conditions are rarely applied in climatology. This may be related to a comparably weak regional focus, conceptual difficulties and homogeneity issues. Yet, such concepts may be worthy tools for investigating teleconnections and very large-scale circulation changes. The Dzerdzevski classification of non-tropical north-hemispheric atmospheric circulation conditions is internationally known since the 1960s, available from 1899 and continuously updated. The concept consists of four circulation groups, divided into 13 circulation types and split into 41 “elementary circulation mechanisms”. They are based on the number and location of blockings and the trajectories of cyclones/anticyclones and troughs/ridges.

This contribution introduces the classification concept and discusses frequency variations of circulation classes since 1901, compared with trends in other known indices and conceptions. The applicability to temperature variations is checked and connected to the location of barometric minima and maxima. Preliminary results show large frequency fluctuations in all seasons, the strong increase of southerly air masses into the polar region being the most remarkable feature. Distinctive temperature anomalies form paramount over the continents, being most pronounced in North America and over Siberia. A clear maximum (minimum) of spatial extent and signal magnitude occurs in winter (summer). Results might be used to advance input variables of global climate models, e.g., to improve their reproduction of teleconnections.