Geophysical Research Abstracts
Vol. 14, EGU2012-58, 2012
EGU General Assembly 2012

On the relationship between the climate variability in middle-low latitudes of the Southern Hemisphere and central Antarctica over the past 350 years

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Based on data of geochemical and glaciological investigations in snow pits and on snow cores, stack series of air temperature and snow accumulation rate variability in central Antarctica (Vostok station vicinities) have been obtained for the last 350 years. It has been shown that these parameters varied quasi-periodically with the wavelength of 30-60 years superimposed on the slight positive trend. The correlation of these series with the circulation indices of Southern Hemisphere has allowed to establish some regularities in the climatic variability of low to high latitudes. We suggest that the central Antarctic climate is mainly governed by the type of circulation in the SH: under conditions of zonal circulation negative anomalies of temperature and precipitation rate are observed, while during meridional circulation the sign of anomaly is opposite. It has been noted that in the 1970s the sign of the relationship between many climatic parameters has changed that is likely related to the rearrangement of the climatic system of the SH. It has been also established that during the past 350 years such climate shifts have happened at least 6 times.
This work was supported by Russian Foundation for Basic Research grant 10-05-93106.