



## Long term changes in the polar vortices

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As part of the EU project PVC (Polar Vortex Change) NILU has acquired the ERA-15 data set for several meteorological parameters. This data set goes from 1979 - 1994. In conjunction with the current CANDIDOZ project ERA-40 data have been acquired. These long time series of data can be used for several useful studies of the long term development of the polar vortices. Several “environmental indicators” for vortex change have been calculated, and a climatology, and possible trends, for these parameters will be presented. These indicators can act as yardsticks and will be useful for understanding future changes in the polar vortices. Examples of indicators are: vortex mean temperature, vortex minimum temperature, vortex mean PV, vortex strength (PV\*area), vortex break-up time, maximum wind speed, amount of air passing through regions where  $T < TNAT$ . Data for the south polar vortex have also been analysed. The vortex area has been studied for several isentropic levels. There is no significant change in the vortex area for the months of September and October. For November and December there are significantly increasing trends at all the 6 investigated levels (400, 425, 450, 475, 500 and 550 K).