



Possibilities for extended-range forecasting based on stratospheric predictors

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Observations show that, during winter, the time scale of memory of the stratosphere is about one month. Also, variations in the stratosphere and the troposphere are coupled. This indicates that during winter the stratosphere is a predictor of the troposphere at the monthly time scale. In this talk first different mechanisms of the stratosphere-troposphere coupling will be described, particularly PV-induction, Rossby wave propagation and wave-mean flow interaction. Next, results will be shown on the skill of stratospheric predictors in predicting near-surface quantities at the extended range (~ 10 days-2 months). These results are computed from ERA-40 reanalysis data. The predictors are polar cap averages of the stratospheric geopotential and temperature, and the predictands are geographical fields of the geopotential, the zonal wind and the temperature near the surface.