



A ten day 3D backward trajectories climatology for the Uccle ozone sounding time series at different pressure levels (1969-2001)

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Ten day 3D backward trajectories have been calculated for air parcels arriving at different pressure levels at the Royal Meteorological Institute (RMI) at Uccle (50°48'N, 4°21'E, 100 m a.s.l.) for the time period 1969-2001 on days where an ozone sounding took place. These air parcel trajectories are calculated with the APTRA model available at the European Centre for Medium-Range Weather Forecast (ECMWF). The trajectories are used to identify natural clusters of air masses, arriving at Uccle. A non-hierarchical clustering method has been applied on the obtained 10 day 3D backward trajectories in function of the season (DJF (winter), MAM (spring), JJA (summer) and SON (autumn)), different time periods and different time resolutions (2.5 days, 5 days and 10 days) for the 900 hPa level. It was possible to derive distinctive clusters of ozone concentrations for different origins of air masses during different seasons. The best results were obtained for a time resolution of 5 days for the summer and spring season at the 900 hPa level. Within the significant clusters a thorough examination of trends is performed.