



Impact of long range transport on tropospheric ozone budget in the Western Mediterranean region during the ITOP experiment

G. Ancellet, F. Ravetta and A. Colette

Service Aéronomie, IPSL/CNRS, Université Pierre et Marie Curie, 4 place Jussieu, 75252 Paris cedex 05, France, (gerard.ancellet@aero.jussieu.fr, fax: +33 1 44 27 37 76)

Many studies and especially the European ESCOMPTE experiment in 2001 have shown that ozone layers with concentrations exceeding the background values by 20-30 ppb are always present in the free troposphere over Southern Europe in Summer. The link with the intercontinental transport of polluted air masses is still an opened question. During the ITOP (Intercontinental Transport of Ozone and Precursors) experiment, vertical profiles of ozone, water vapor and aerosol backscatter were routinely performed up to the tropopause at Observatoire de Haute Provence in Southern France during 3 weeks in July 2004. Three case studies show ozone production in air masses sampled previously by the aircraft during the ITOP/ICARTT experiment. Cross analysis of the ozone/water/aerosol data have been useful for a first identification of the observations influenced by the long range transport and not by local processes. The aerosol backscatter lidar measurements made possible the identification of the air masses related to the Alaskan forest fire events. The analysis of the air mass histories has been performed by several means ranging from backtrajectories, Lagrangian particle dispersion model at various resolution and reverse domain filling techniques. The comparison with the aircraft measurements will be also discussed.