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The Retro database for observations

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Through the EU FP5 funded project on Reanalysis of the Tropospheric chemical composition over the past 40 years, Retro, a database for observations has been set up at NILU. The database is set up as an automatic system that handles all upload and download of data through a web-interface. Information is provided on-line and data are stored in a standardized format. Tools for reformatting of data are provided through the web portal: http://nadir.nilu.no/retro. The data are converted to and archived in the HDF4.1r3 format, and the metadata definitions from the ENVISAT Cal/Val activity are reused and expanded for Retro. This was chosen to maintain the compatibility with the ENVISAT Cal/Val database and the possibility of cloning the existing technical solutions developed by NILU for that project. The same data format is furthermore used for the POET and the ASSET project.

A major task for has been reformatting of old data into the new common format. The first effort consisted of converting 11500 ozone sonde files that was archived at the NILU NADIR data centre though the coordinated project Easoe, Sesame and Theseo. These are mainly European stations. Later followed the conversion of ˜50000 ozone sonde files from the World Ozone and UV Data Centre (WOUDC / WMO-GAW). All the data from the Climate Monitoring and Diagnostics Laboratory (CMDL / NOAA) data centre has also been downloaded and the complete series of CO data and most of the surface O3 has been converted. These data are originally reported on a multitude of data formats and the development of an automatic conversion routine has been very demanding. Metadata are furthermore difficult to obtain for some of the measurements and much of the information has to be manually inserted in the conversion routines (hard-coding). Finally, a program has been developed to export data from the European Monitoring and Evaluation Programme (EMEP) database on observations. The program is fully generic and features advances search criteria and options for filtering and sorting data. All data are automatically exported into HDF

files. The program will be used to export O3, NO2, NH3, N2O, SO2, etc data from the database. The measurements are quality assured and dates back to the early seventies.