THE EXPERIMENT "INTERCOMP 2000" IN MELPITZ - AN EUROTRAC-2 ACTIVITY

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INTRODUCTION

The IfT invited the AEROSOL community to take part in an intercomparison field experiment at the research station Melpitz in April 2000. For ten days eight different groups of the community have collected and characterized particles with different techniques at the same place. The research station Melpitz is an ideal place because the flat old meadow offered to all participants identical conditions.
These conditions were marked by different meteorological periods which can be derived from back trajectories

1. North Atlantic non polluted air (06-Apr; 07-Apr)
2. North Atlantic slightly polluted air (08-Apr; 09-Apr)
3. East European influenced polluted air (10-Apr; 11-Apr)
4. West European influenced air (04-Apr; 05-Apr; 12-Apr; 13-Apr)

and furthermore the wind velocity, precipitation, and temperatures.

To compare the collection techniques and the analytical procedures in the laboratories the program started at 9:00am at April-04 with 24h, 12h or shorter time resolution up to 10 min for the automatic analyzers.

RESULTS

The particle mass determination was investigated using filter sampling, impactor sampling and the ELPI technique. An example of the filter sampler comparison is demonstrated in the figure 1, which demonstrates the excellent unison of these samplers and the laboratory work of the participating institutes.
The region of Melpitz is not influenced by local emissions during the measurement period. So the influence of long range transport and the regional meteorological conditions are the main parameters for the concentration level of PM. The comparison of April-06 and April-11 is an example for these

important influences. The main parameters are compared in table 1, where the concentration level of the PM is explained by the back trajectories and the regional weather.

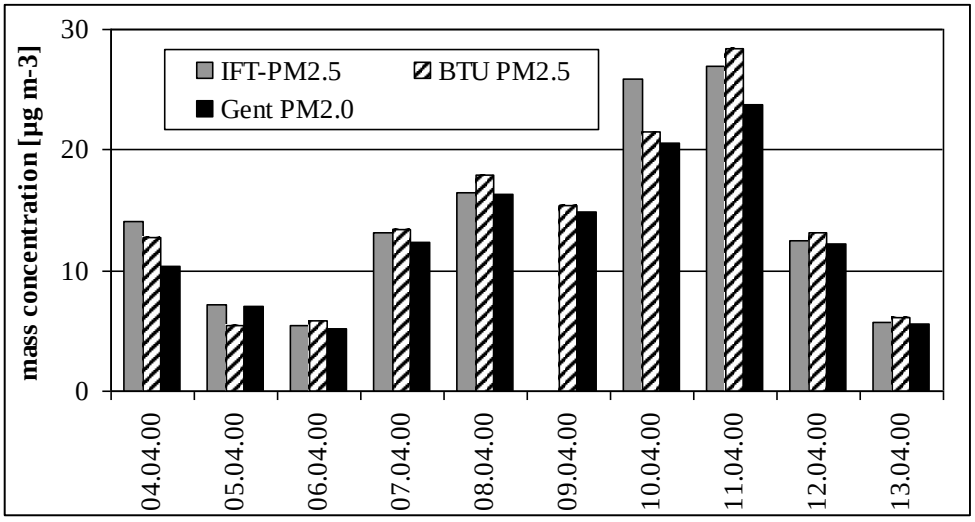

Figure 1: Mass concentration of daily means of the filter sampler results (BTU and IfT used the Digitel DHA-80 and Gent a low flow sampler)

The local wind speed as a parameter for turbulence and mixing layer height and the time over land mass are important parameters for the particle mass concentration of an air parcel. Depending on these two parameters and the back trajectories the difference in particle load is to explain.

Table 1: Comparison of main parameters of the two extreme days during the experiment time (particle mass concentrations in Fig. 1)

Parameter	**April-06**	**April-11**
mean wind velocity (m s^{-1})	3.27	1.27
time over land mass during the last 5days (h)	**40**	**115**
mean local wind direction (deg)	310	135
preciptiation [mm]	0	1.2
temperature maximum [°C]	9.5	12.8

Chemical analyses have been carried out to analyse the contents of organic and elemental carbon, selected organic single substances (PAH), ionic components, heavy metals and water. These data were completed by size distribution and number concentration measurements and discussend in other contributions.
Filter samples have been sent to further groups at JRC Ispra, CESI Milan, TU Vienna and ISAO Bologna for OC/EC-measurements.

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