

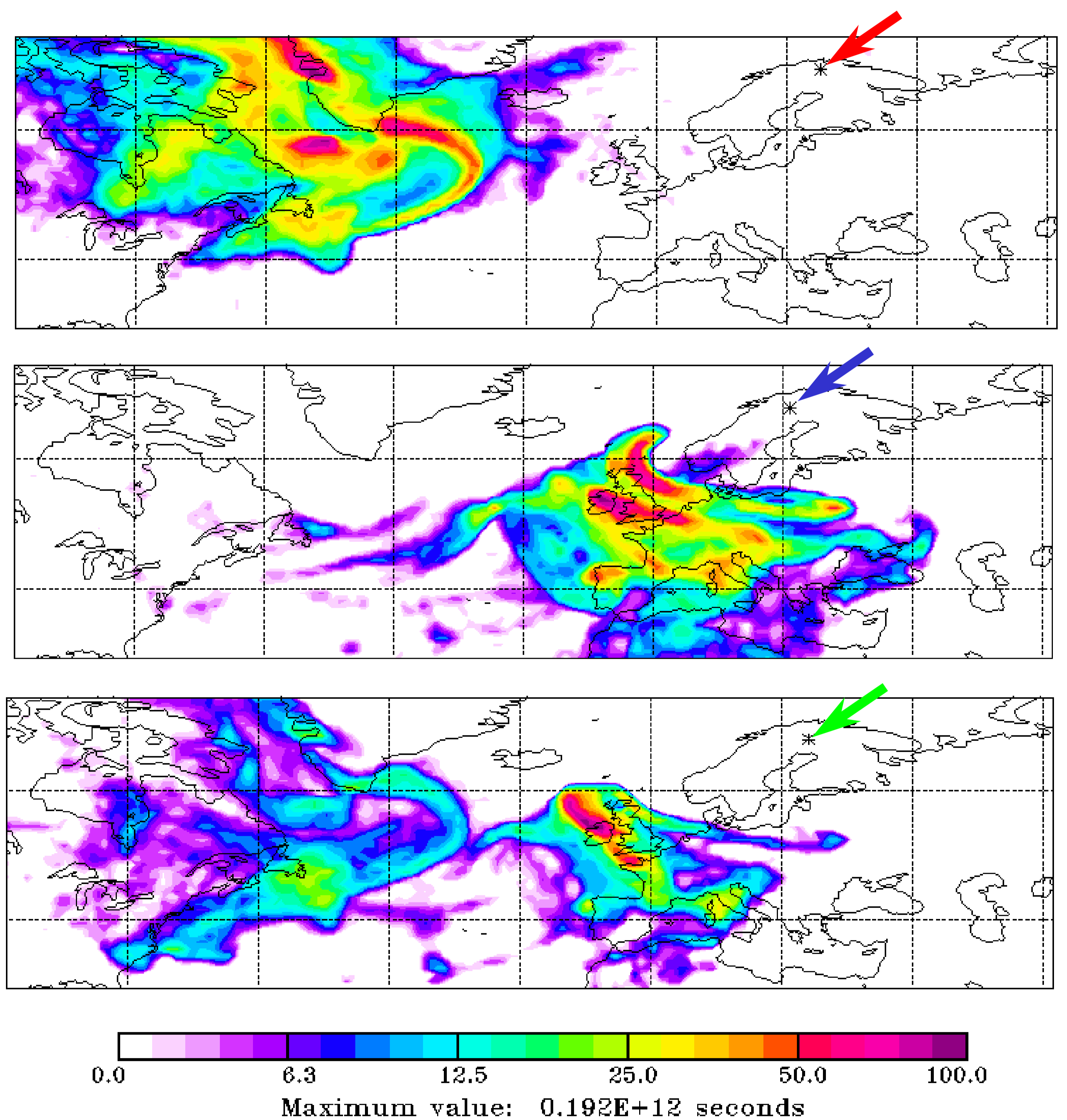
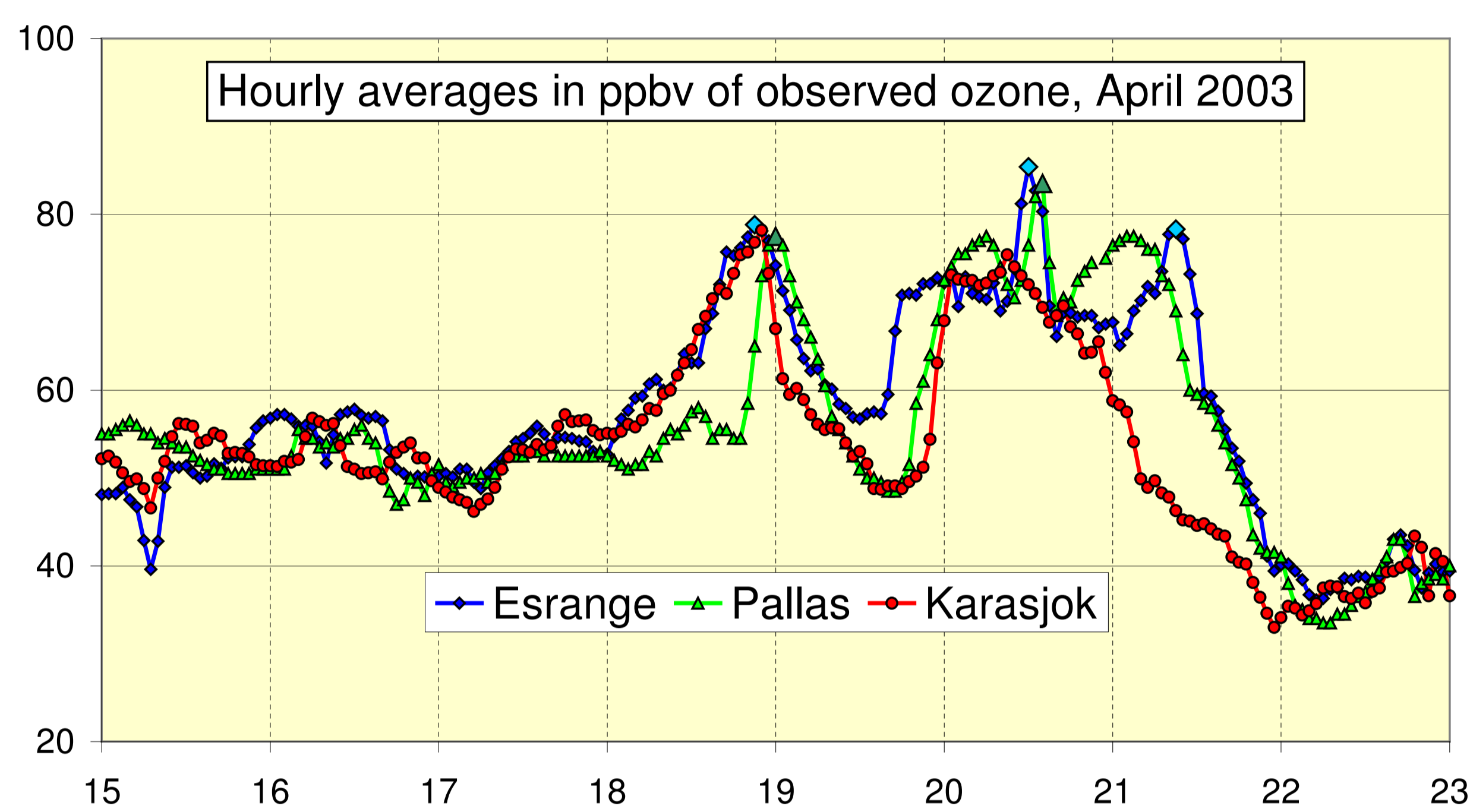
An exceptional Ozone episode in northern Fennoscandia

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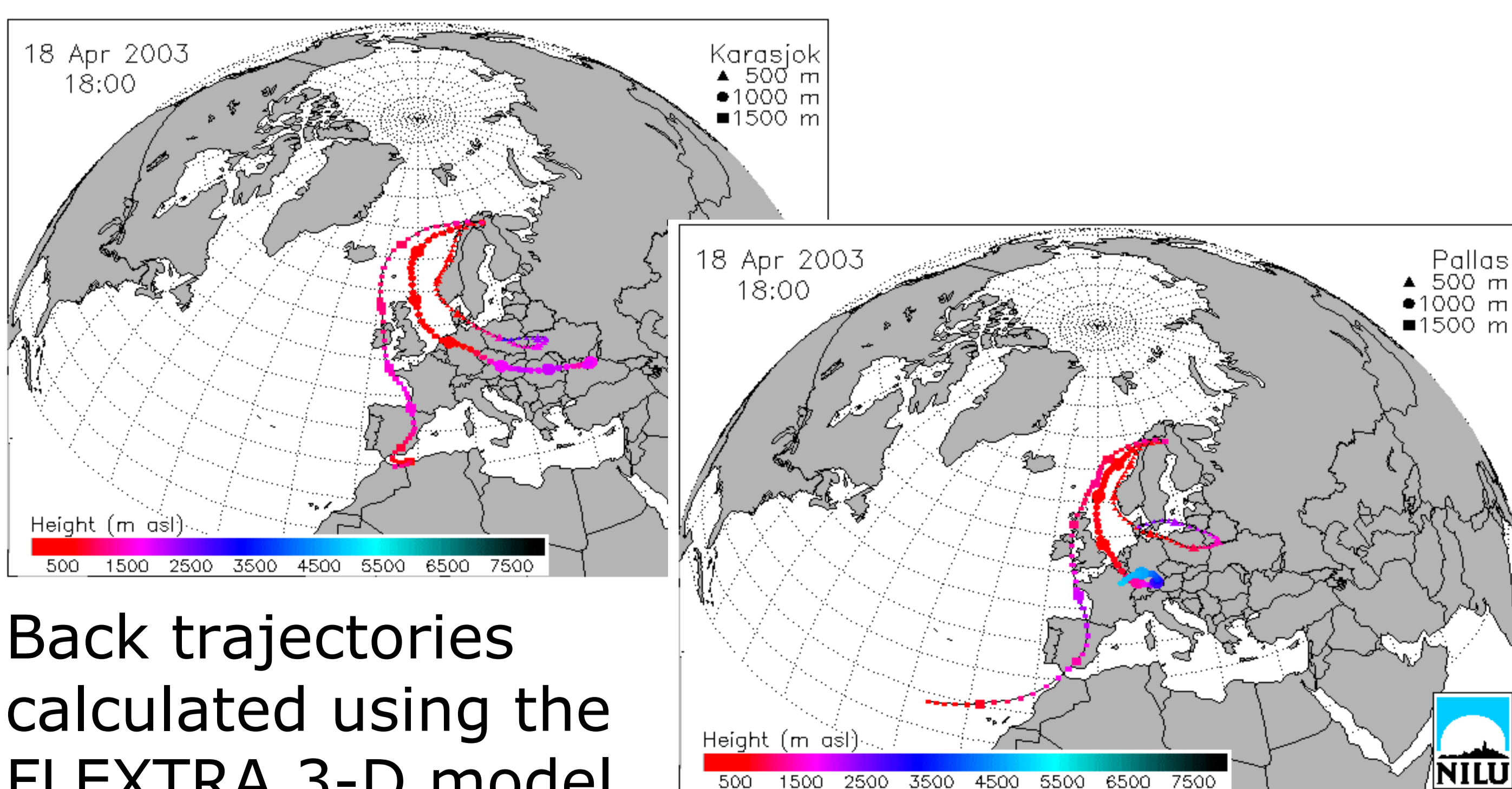
In northern Fennoscandia events of photochemical episodes are rare. However, in April 2003 such an occasion was observed during four consecutive days. Results from FLEXPART and FLEXTRA runs show Central Europe as the source of the polluted air masses in connection with the enhanced ozone. In between transport of cleaner air masses from the North-Atlantic took place.



Two models have been used:

The FLEXTRA 3-D trajectory model and the particle dispersion model FLEXPART, which were both run backward in time. FLEXPART enables a more detailed source-receptor analysis than simple back trajectories.

The Figure to the right shows the sum of the residence times in the footprint (lowest 300m in the model layer) over the last 20 days of all particles arriving at **Karasjok** (top panel), **Esrange** (middle panel) and **Pallas** (bottom panel) on 21 April between 06 UTC and 12 UTC on a 1°x1° grid. The residence times are given in relative units of the maximum residence time below the panels.



Back trajectories calculated using the FLEXTRA 3-D model.

Conclusions

- The enhanced concentrations of ozone observed during 4 days in April 2003 at three monitoring sites in northern Fennoscandia are clearly caused by photochemical episodes in relation to transport of air masses originating over Continental Europe and the UK.
- The FLEXPART model, ran in backward mode to establish a detailed source-receptor analysis, was proven a useful tool in the interpretation of the observations.
- This study reveals that even neighboring sites are occasionally exposed to air masses of totally different origin.