



Koninklijk Meteorologisch Instituut

Institut Royal Météorologique

Königliches Meteorologisches Institut

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Homogenization of the European Ozonesonde Time Series

TOAR-II Workshop 8 March, Cologne

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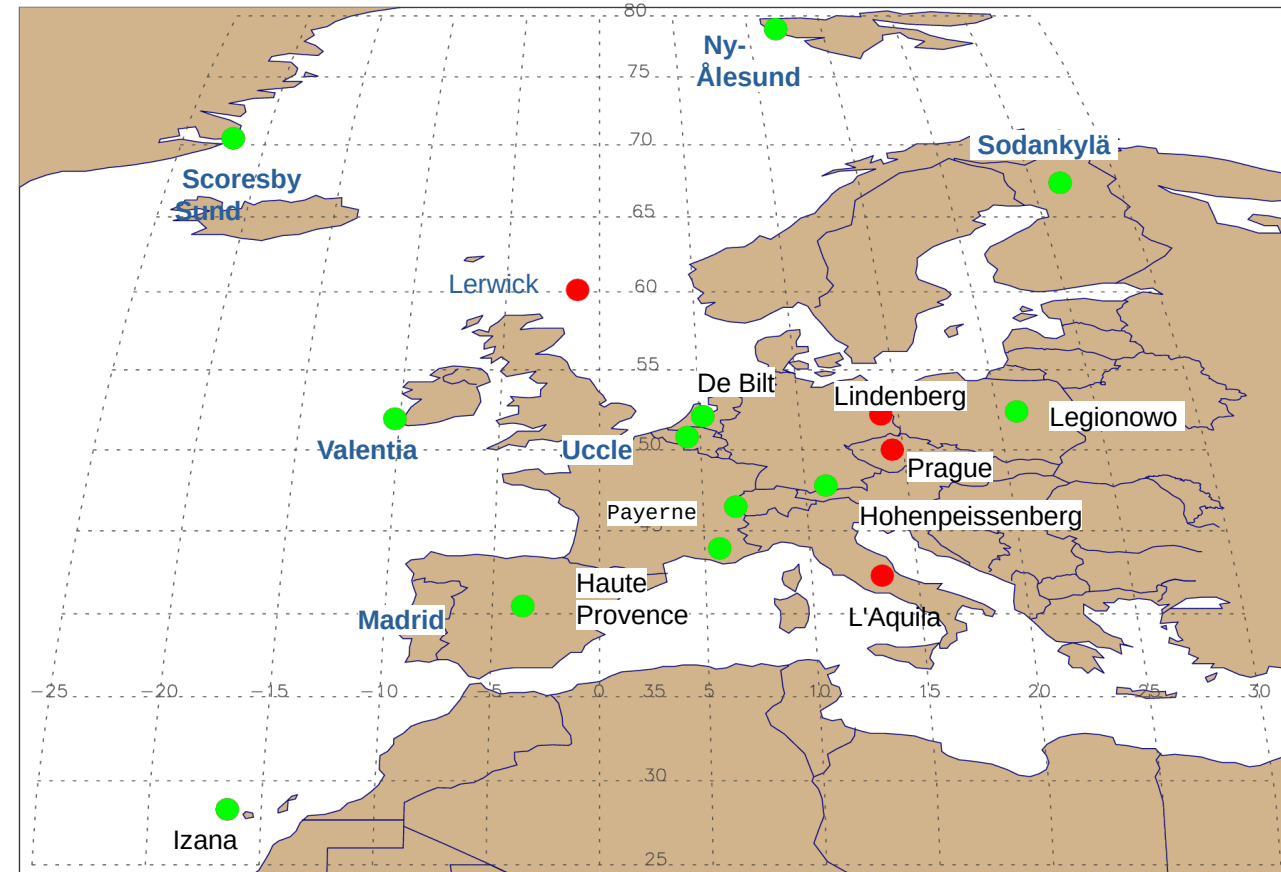
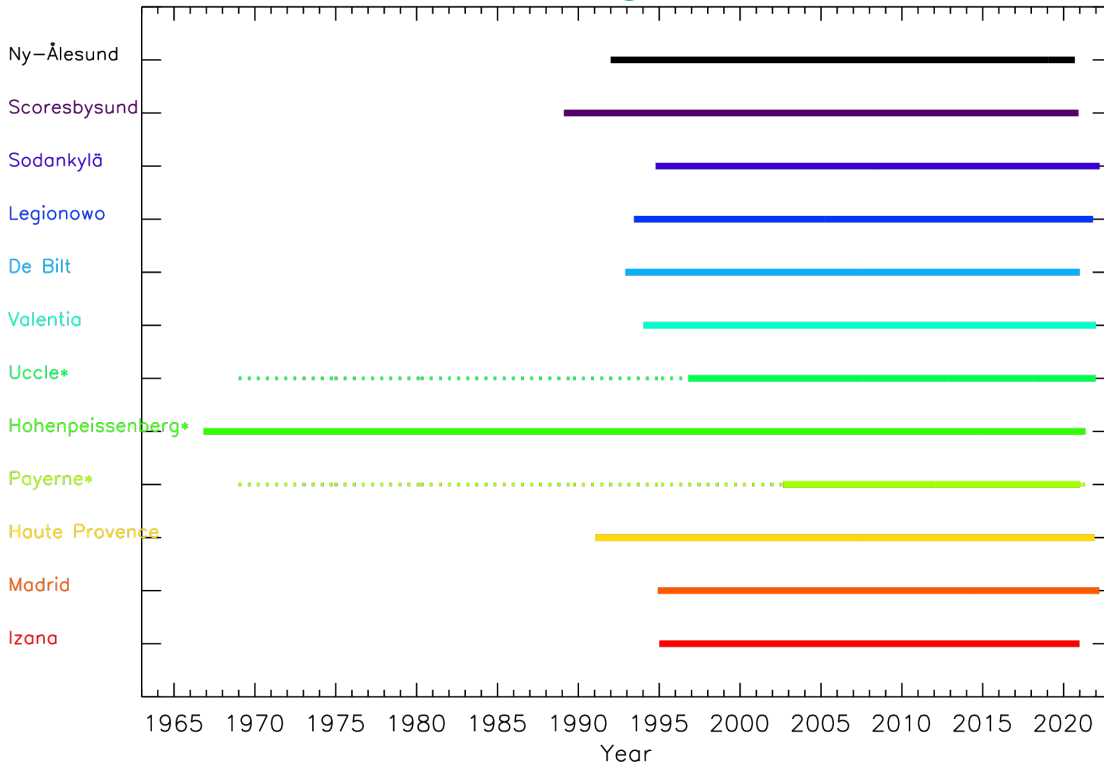
Royal Meteorological Institute of Belgium



Status of the European Sites

✓ Canadian, NOAA, SHADOZ sites are homogenized

Available Homogenized EU Sites



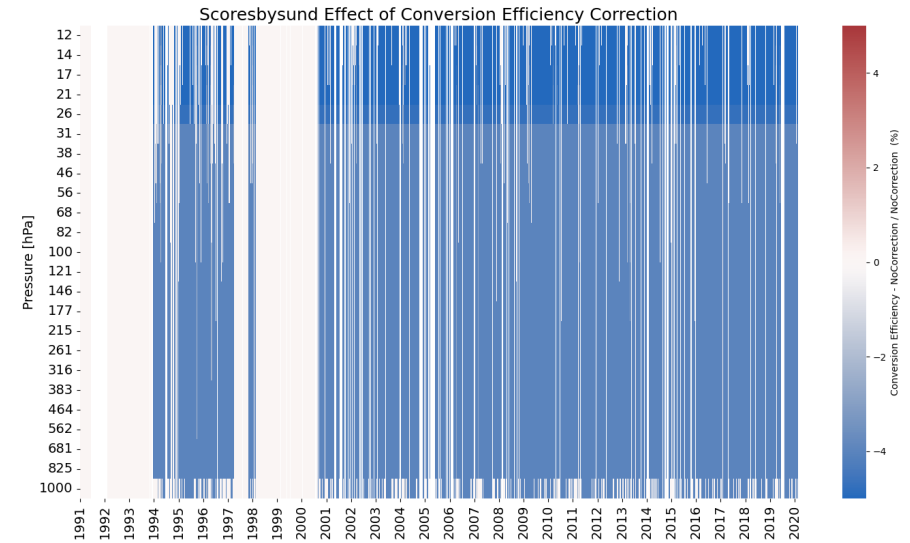
➔ Remaining EU sites in red on the map

➔ Lerwick, L'Aquila, Prague on progress

Principles of homogenization

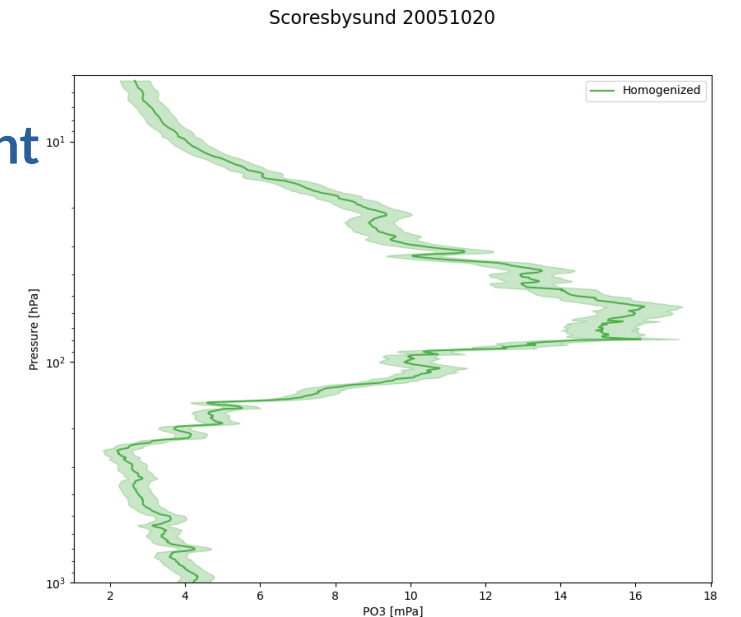
correcting for biases due to changes in

- ECC ozonesonde type (SPC, EN-SCI)
- sensing solution strength/volume
- pump temperature measurements
- pre-flight procedures (background current, pump flow rate)
- post-processing (pump efficiency correction tables,
- total ozone normalization, etc.)



providing uncertainties for each ozone partial pressure measurement

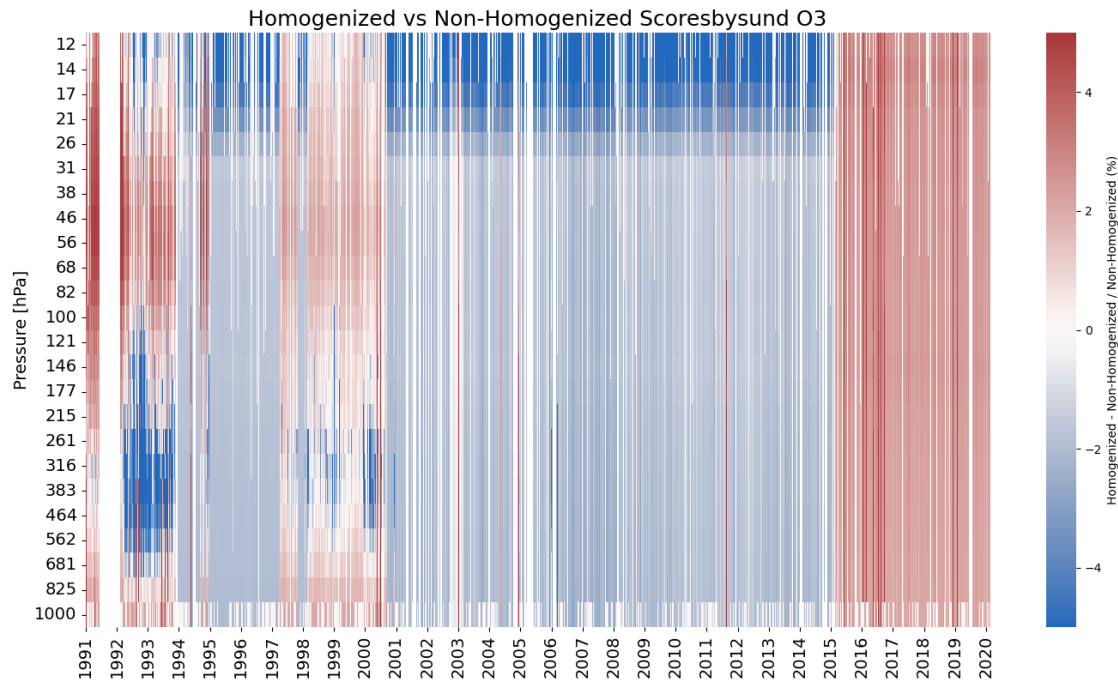
providing raw observations (“currents”) needed for re-processing



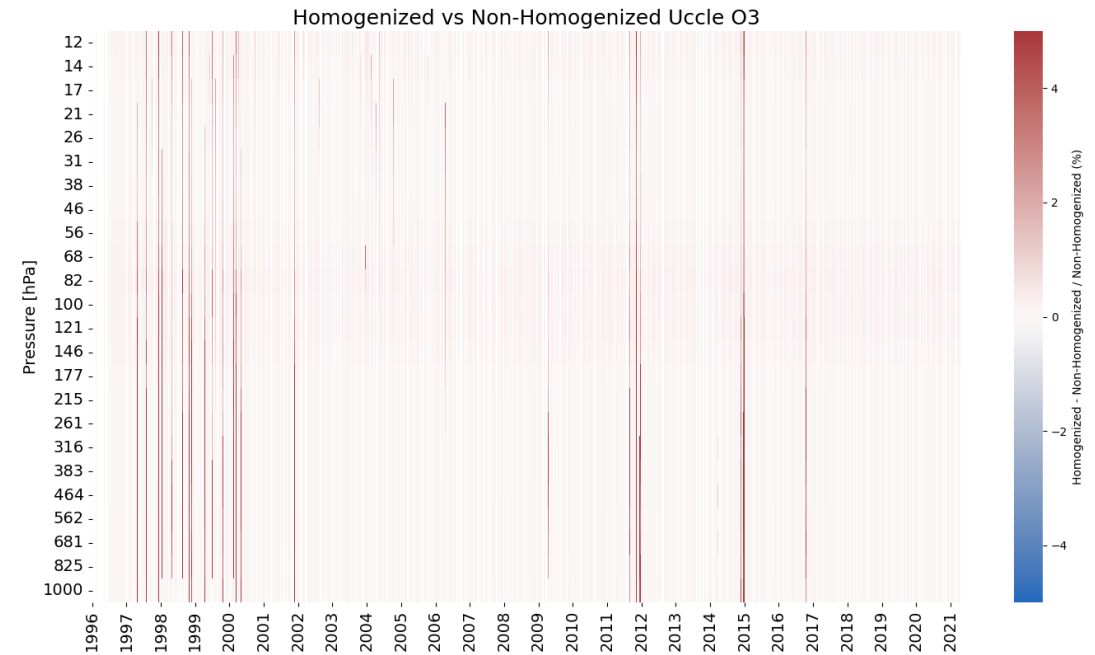
Effect of Homogenization on Ozonesonde Data

- Depending on the preparation methods and changes during time-series, homogenization may have a large or marginal effect!

Scoresbysund

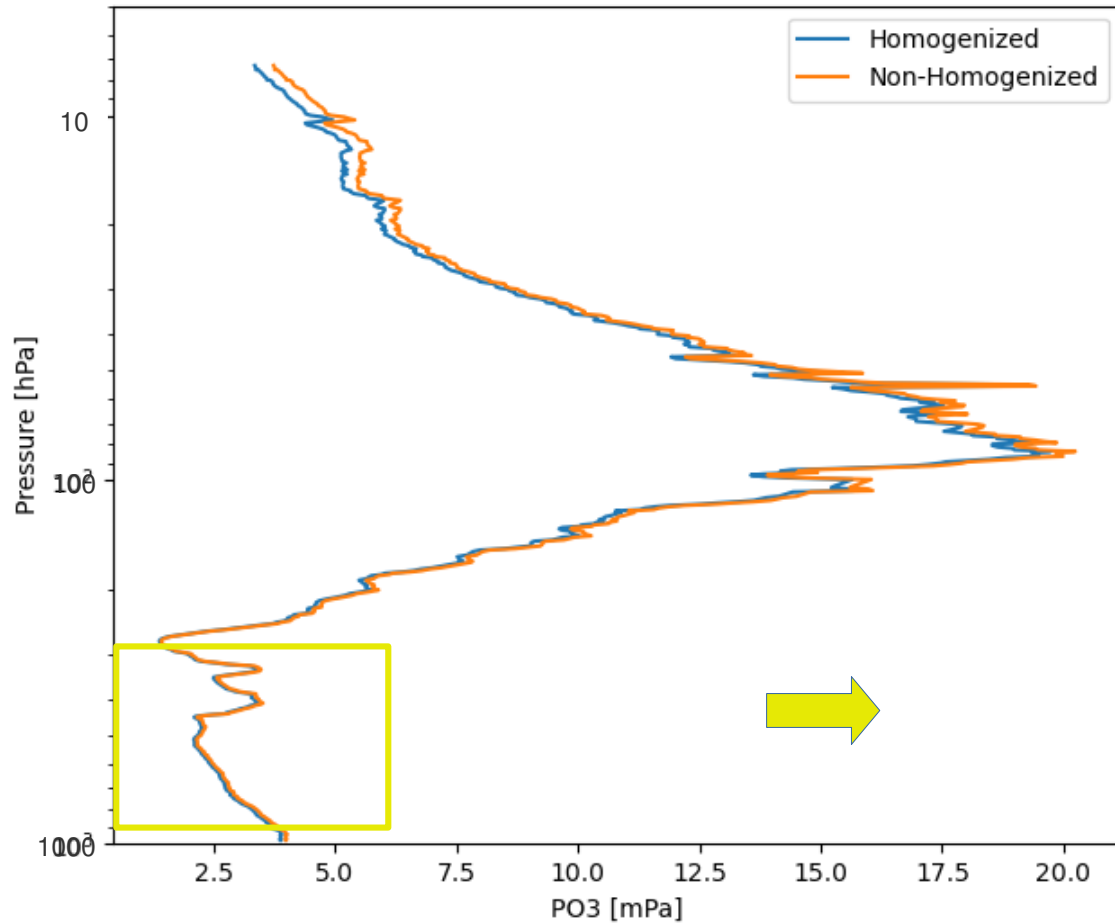


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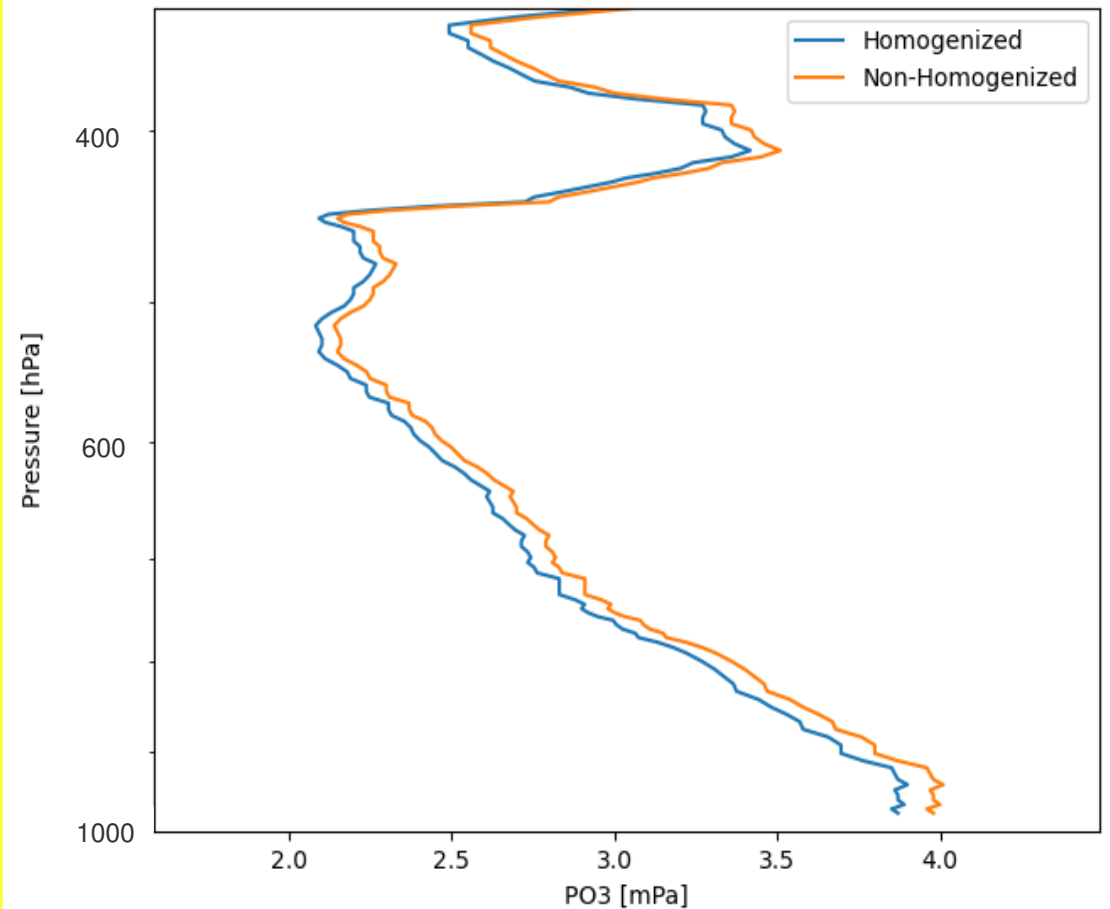


Effect on Ozone Partial Pressure Profiles

Scoresbysund 20050105

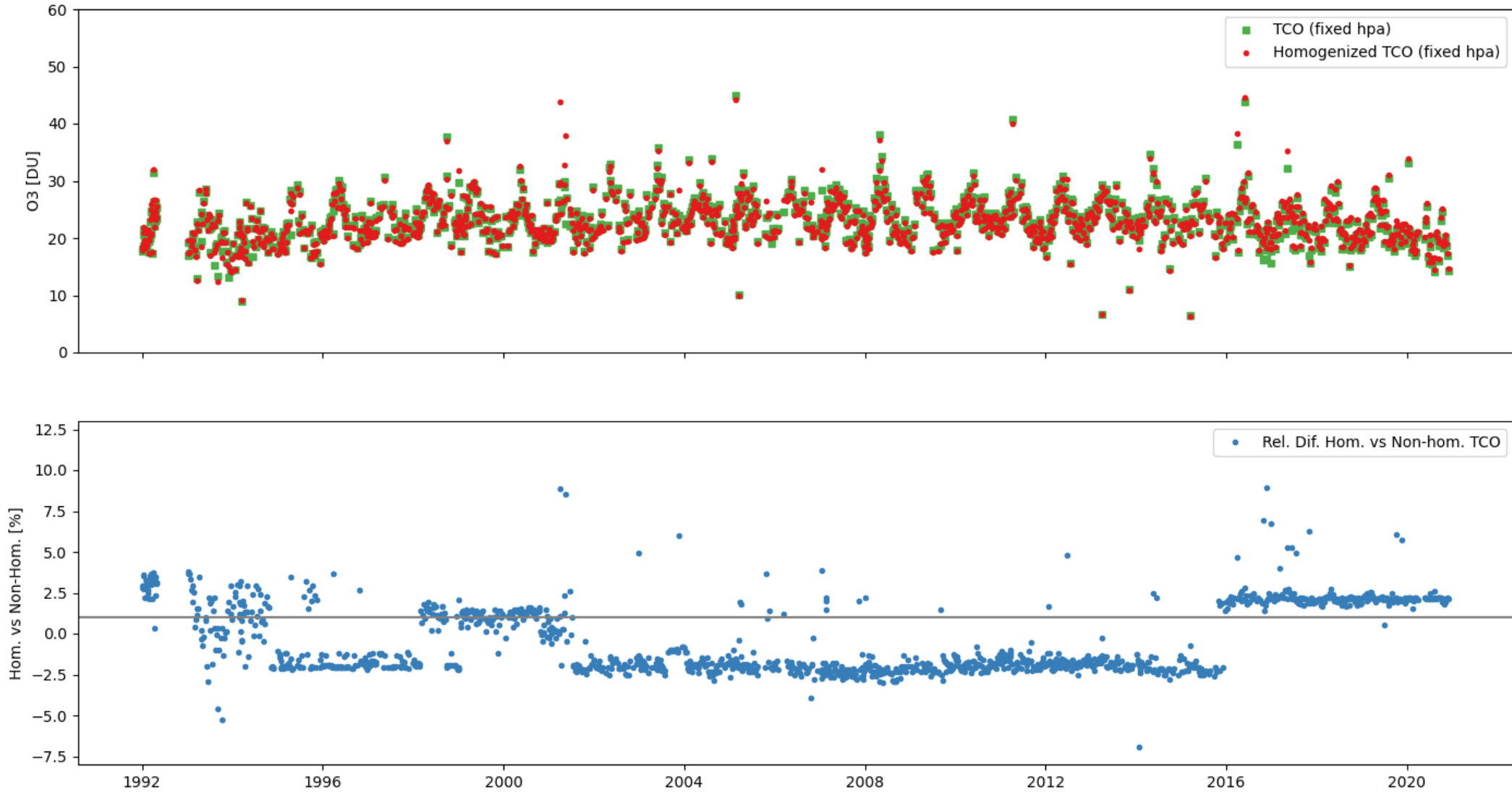


Scoresbysund 20050105



Effect on Tropospheric Column Ozone (TCO)

Scoresbysund TCO Values





Paper Draft Outlook

- Description of the homogenized EU stations (processed by station PI + RMI)
- Validation of homogenized time records (IAGOS, MLS)
- Inter-comparing nearby stations (e.g. Lindenberg-Prague, OHP-Payerne-Hohenpeissenberg, etc)
- Calculating vertical tropospheric ozone trends and tropospheric column trends (compliant with TOAR-II guidelines)



THANK YOU

The Royal Meteorological
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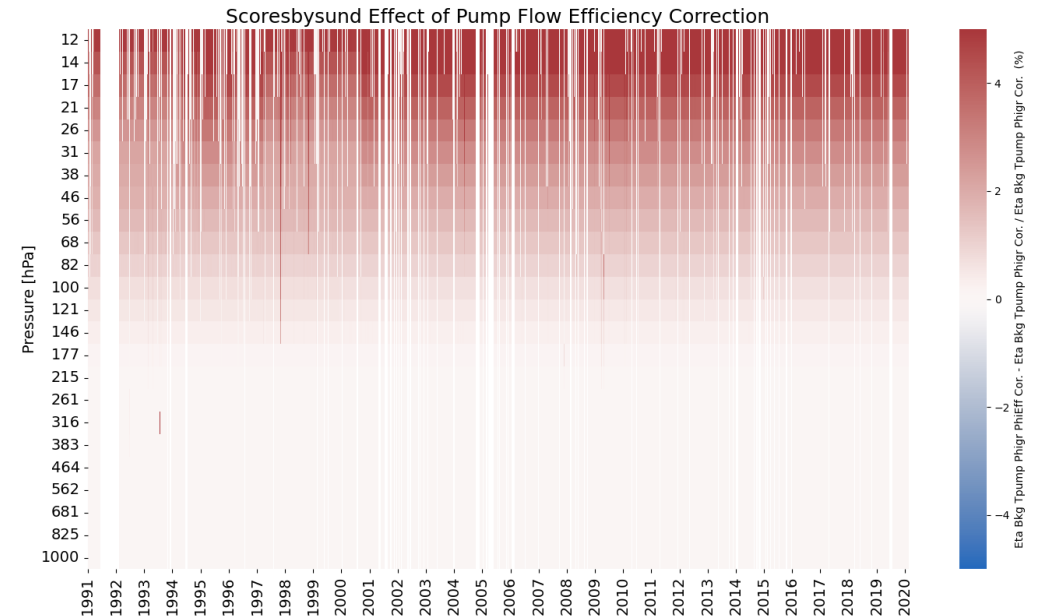
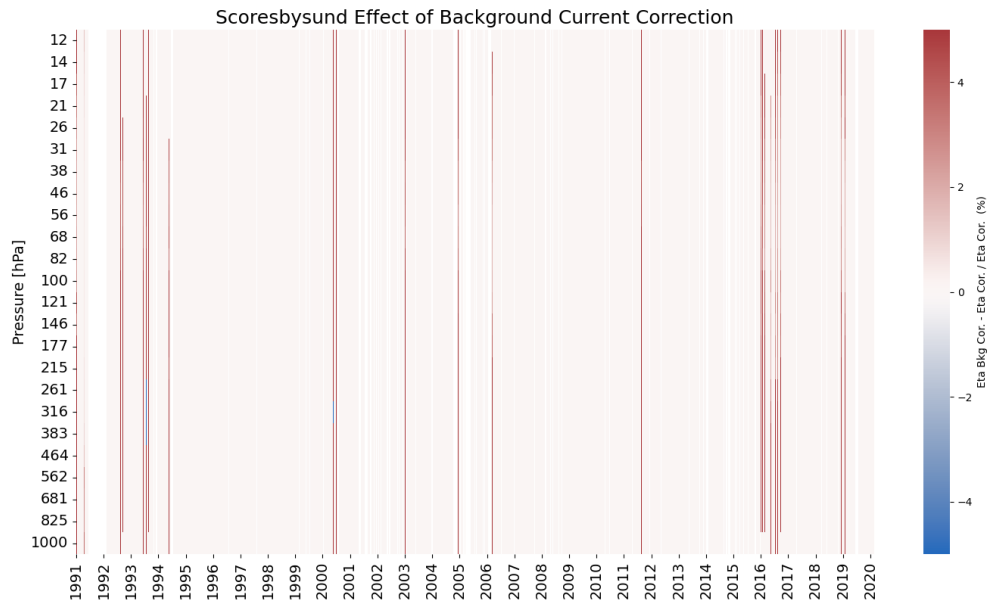
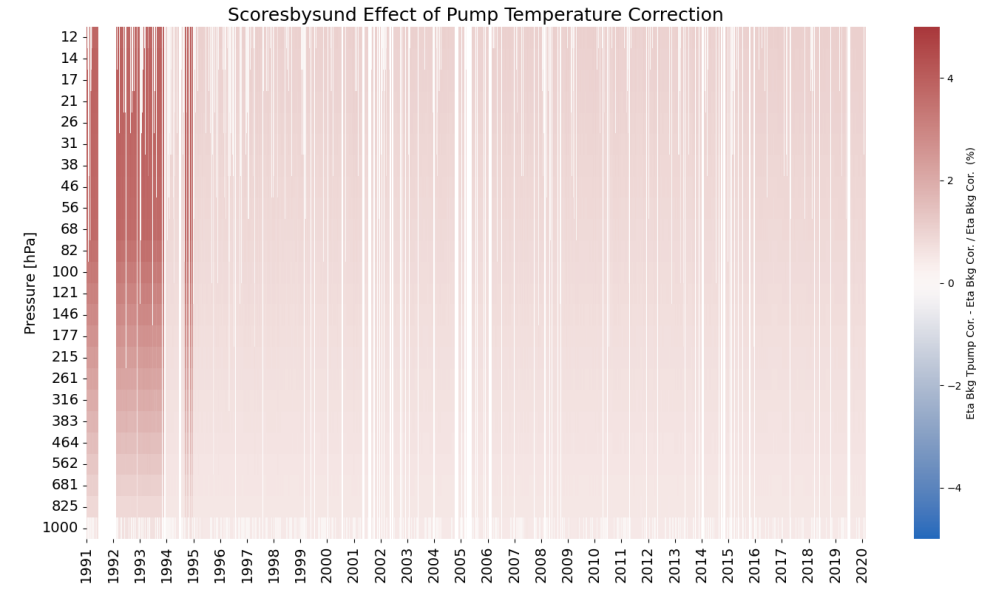
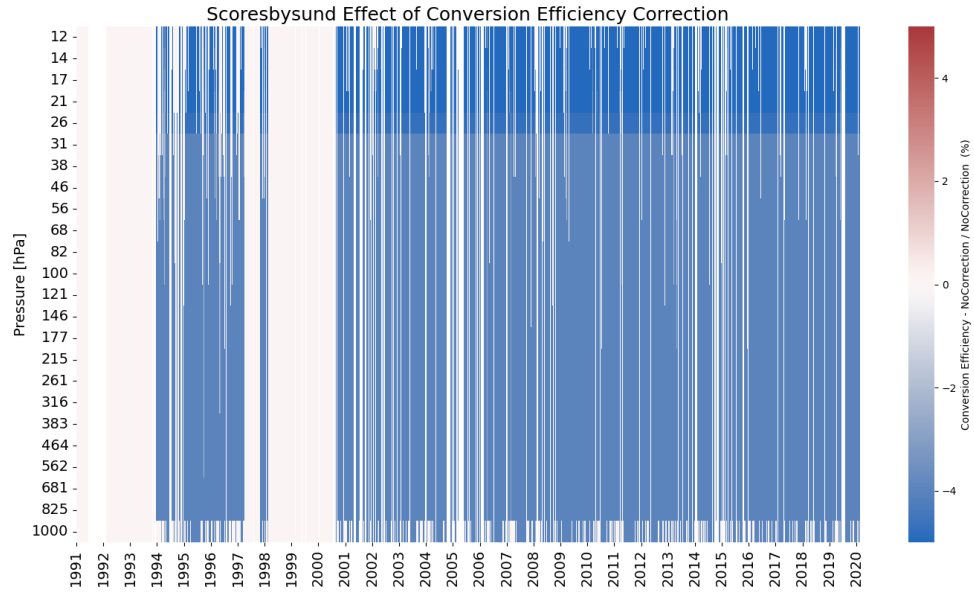
The RMI provides reliable public service realized by empowered staff and based on research, innovation and continuity.

Het KMI verleent een betrouwbare dienstverlening aan het publiek en de overheid gebaseerd op onderzoek, innovatie en continuïteit.

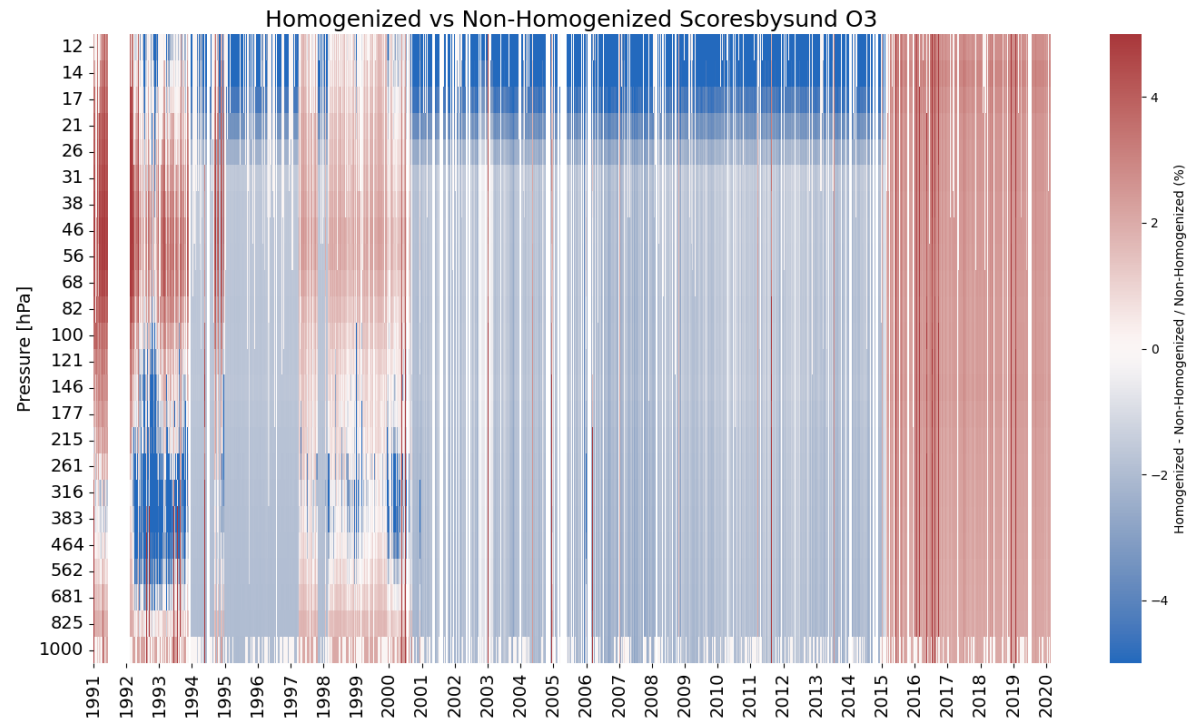
L'IRM fournit un service fiable basé sur la recherche, l'innovation et la continuité au public et aux autorités.

Vertrauenswürdige Dienstleistungen für Öffentlichkeit und Behörden begründet auf Forschung, Innovation und Kontinuität.

Effect of each O3S-DQA Correction

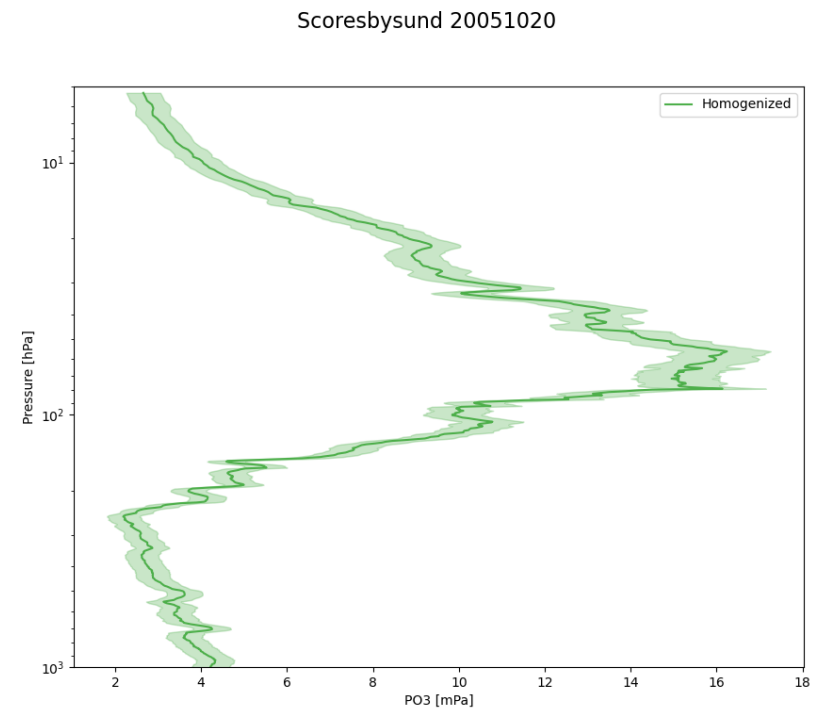


Overall Effect of Homogenization



+ O3 partial pressure uncertainties

+ Raw data



Scoresby Sund TOC and TCO Values

