

TRENDS OF BLACK CARBON AND ULTRAFINE PARTICLES IN GERMANY - LONG TERM OBSERVATIONS OF THE GERMAN ULTRAFINE AEROSOL NETWORK (GUAN)

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LOCAL, REGIONAL AND GLOBAL SOURCES OF AIR POLLUTION
Measurements, monitoring and policy guidance
Ljubljana, Slovenia

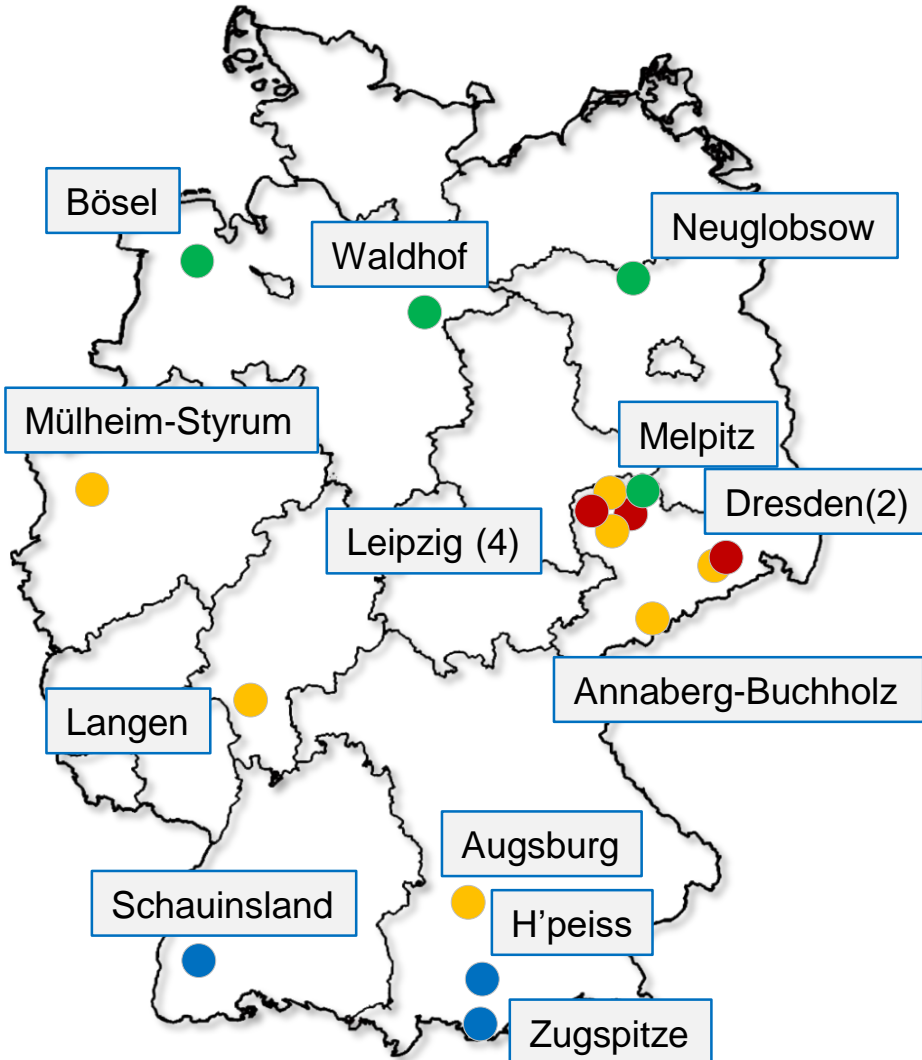
Member of



GUAN – German Ultrafine Aerosol Network

GUAN is a joint initiative of governmental authorities and research institutions

- to establish measurements of **ultrafine aerosol particles** (UFP < 0.1 μm)
 - Particle number size distribution (10 – 800 nm)
 - Black Carbon mass concentration
- to do measurements with a **high quality assurance**
- to perform measurements in **different environments**
- **GUAN is a contribution network to ACTRIS**



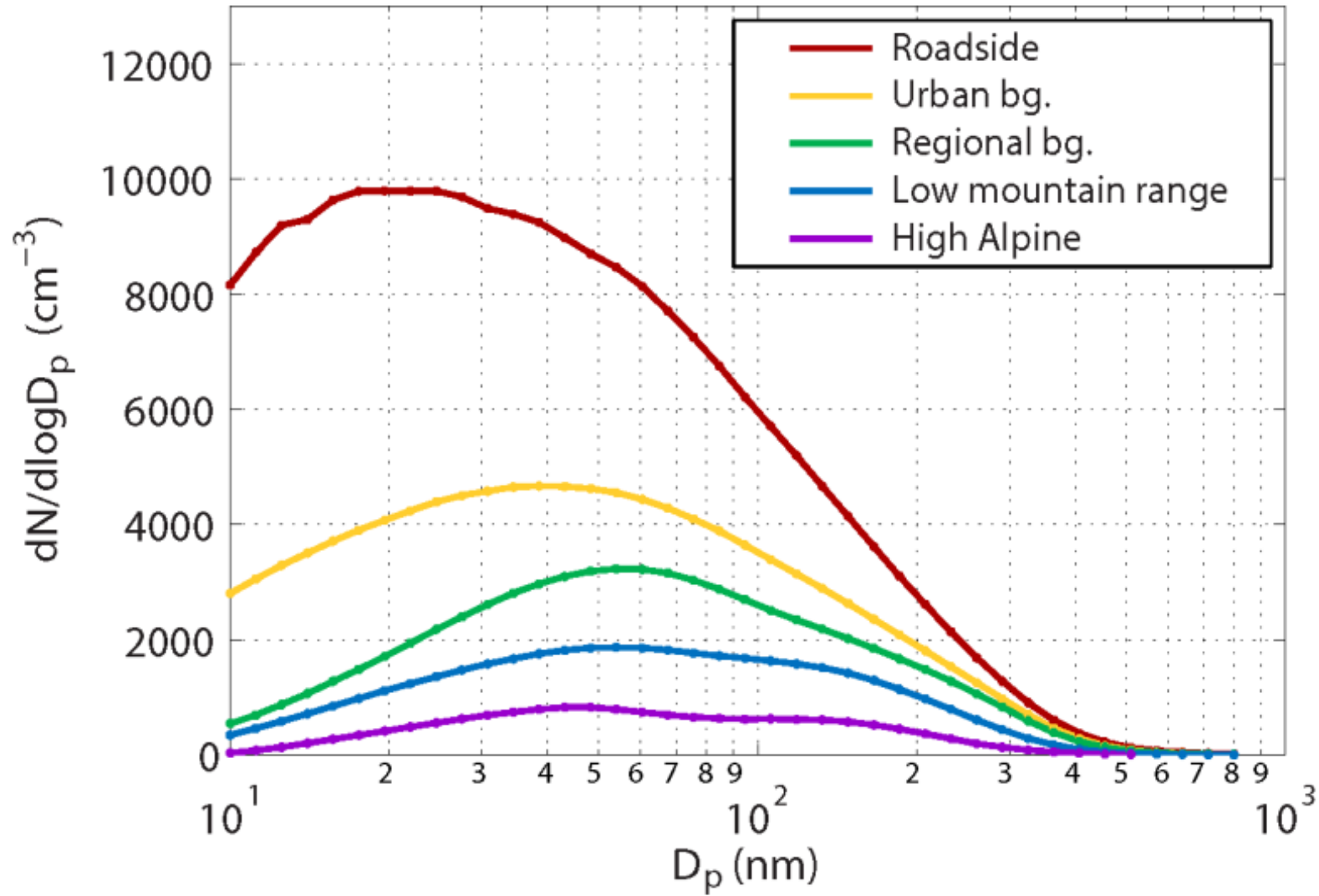
GUAN-program since 2008

- Particle Size Spectrometer
- Balck Carbon Monitor

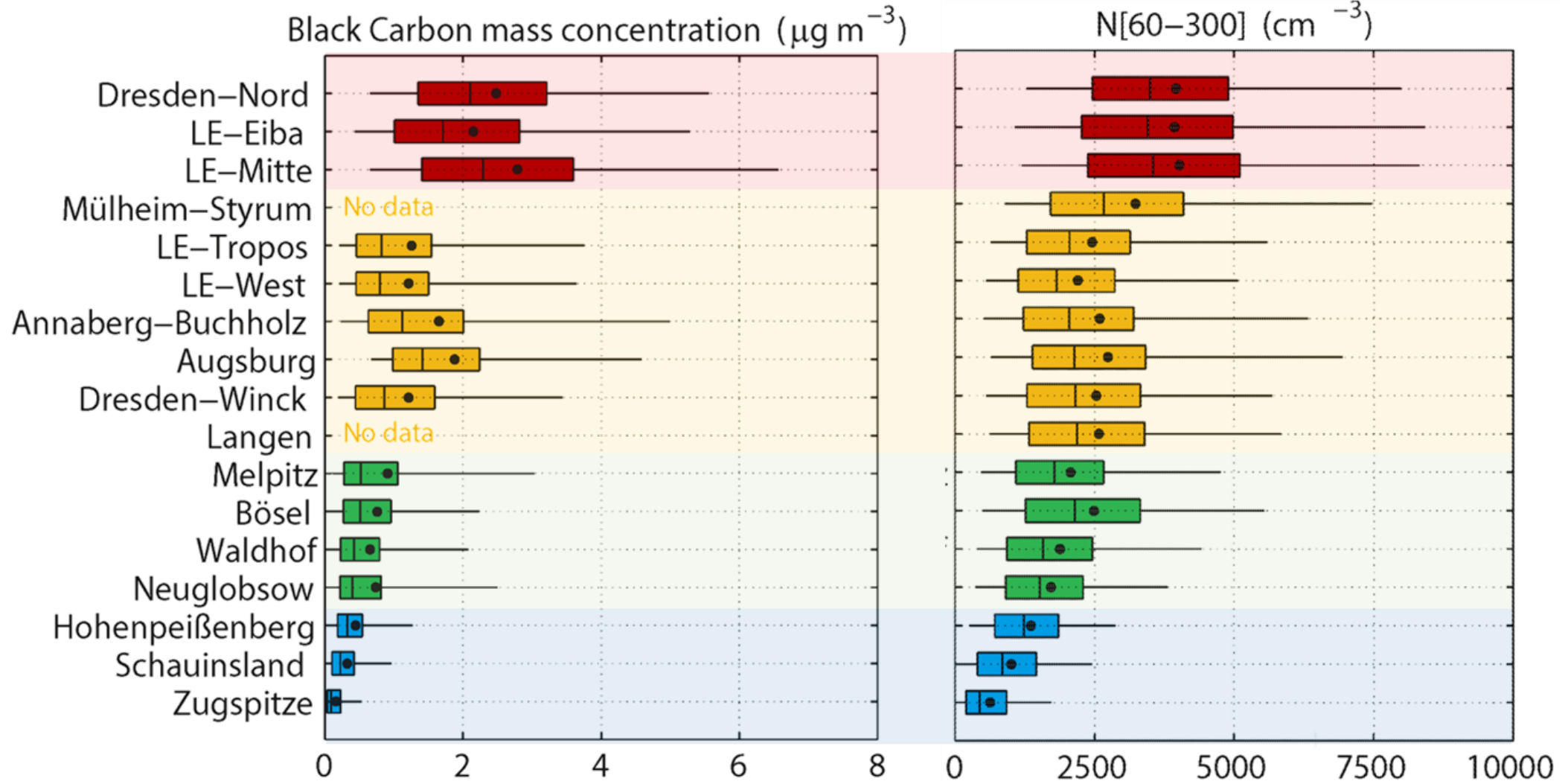
Road Side	Dresden-Nord LE-Eiba LE-Mitte
Urban Background	LE-TROPOS LE-West Augsburg Mülheim Langen
Regional Background	Bösel Melpitz Waldhof Neuglobsow
Mountain Background	Hohenpeissenb. Schauinsland Zugspitze

Concentrations

GUAN – Particle Number Size Distribution

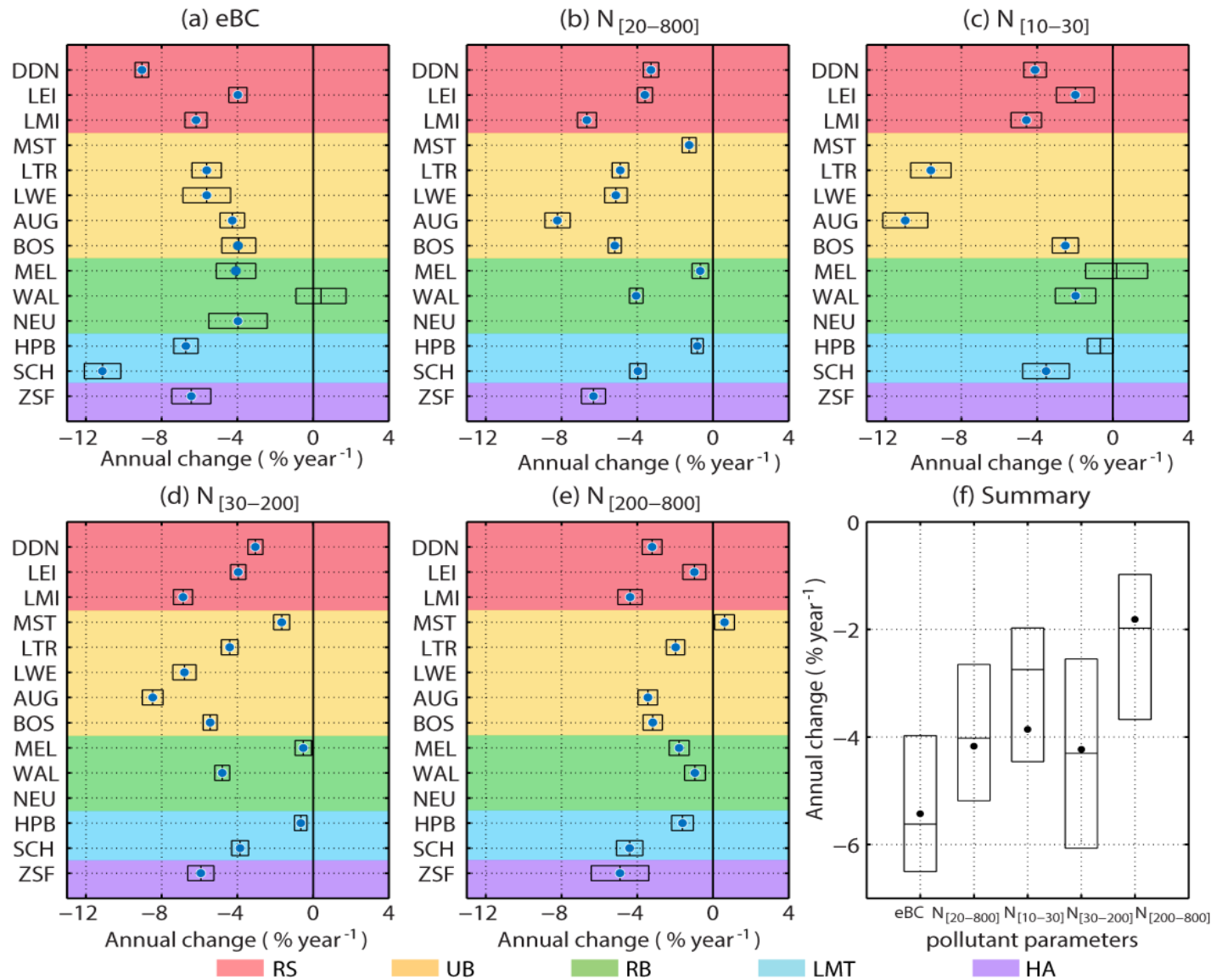


GUAN – Concentration Ranges

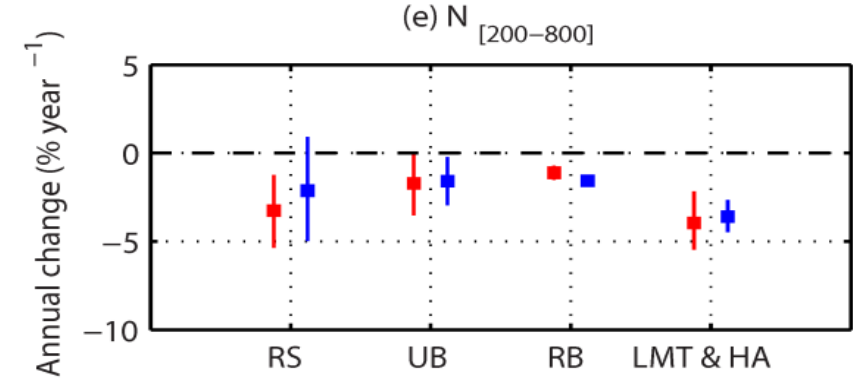
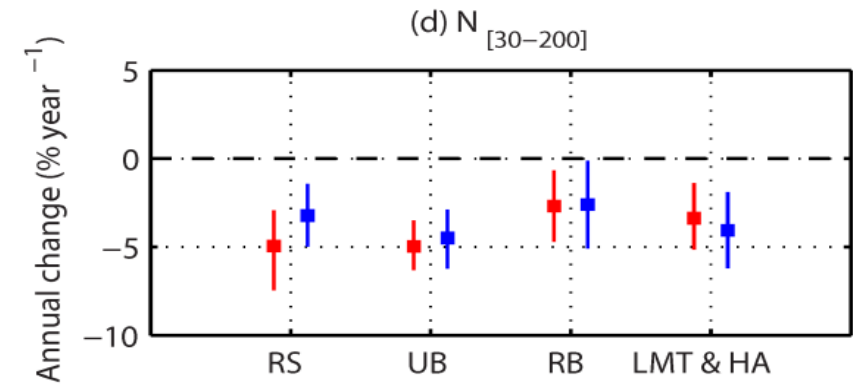
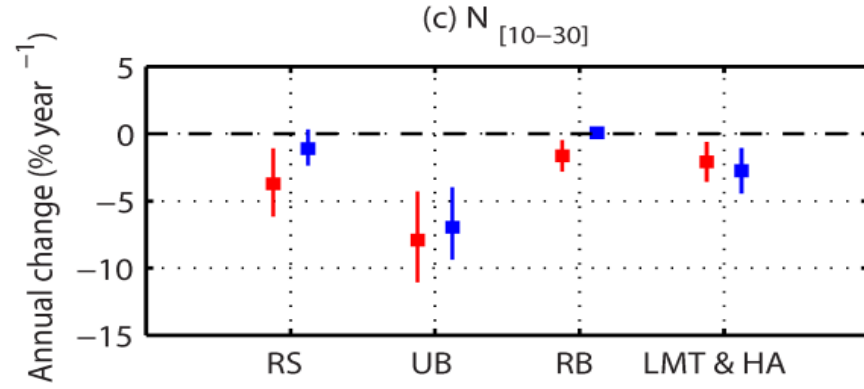
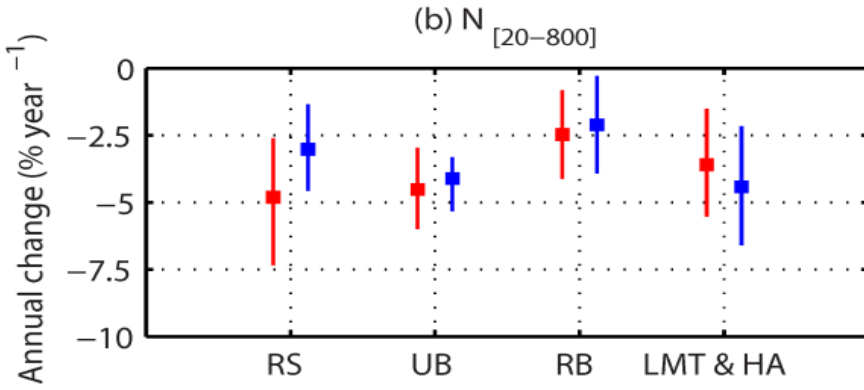
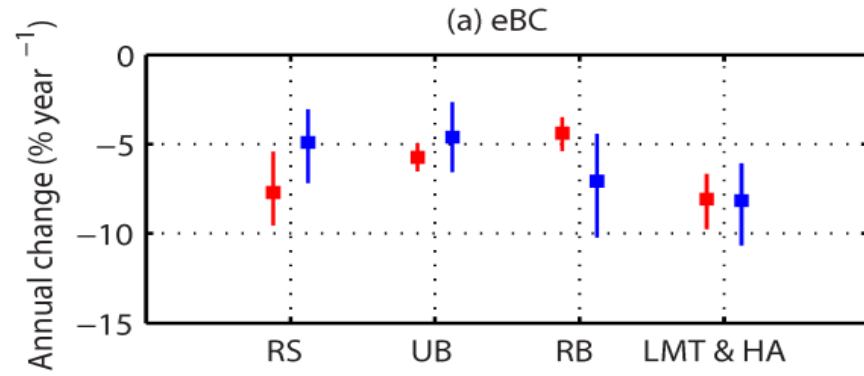


Trends

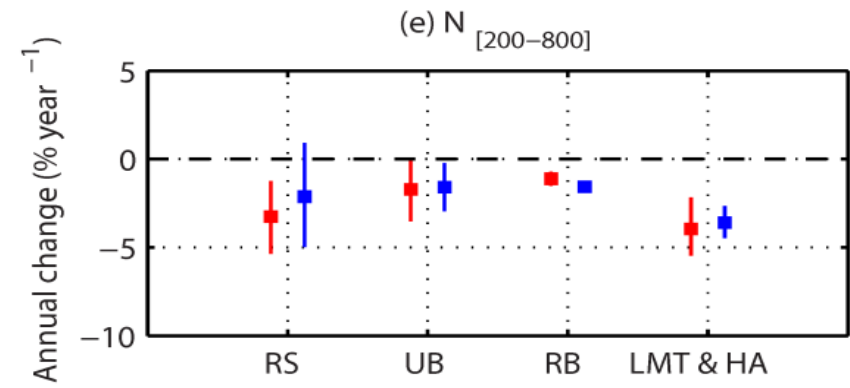
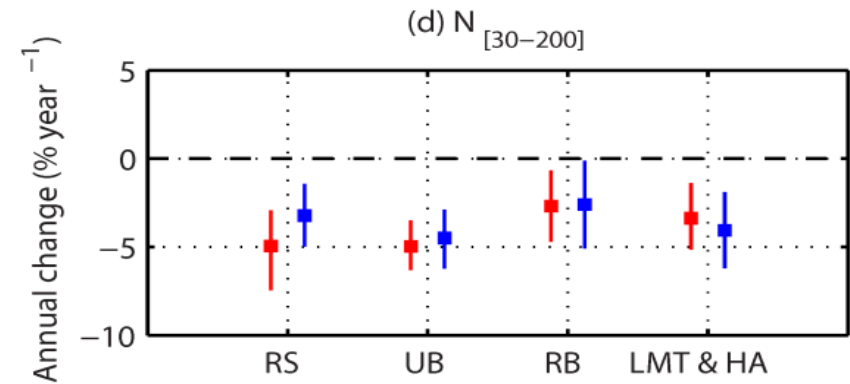
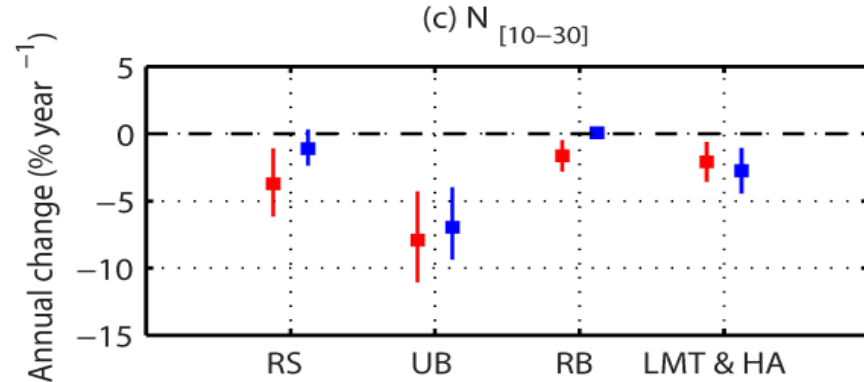
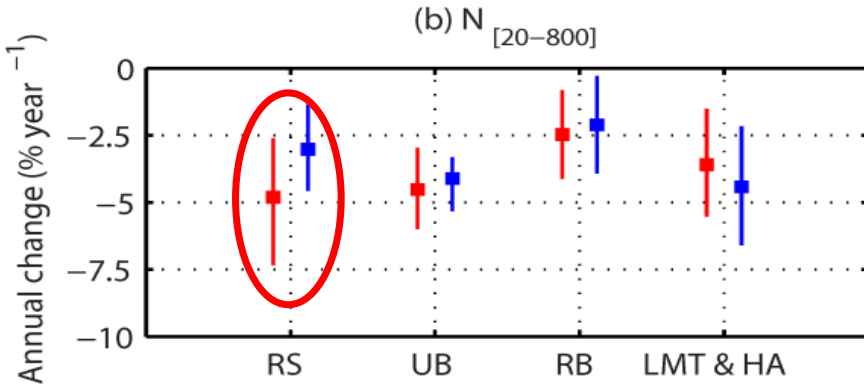
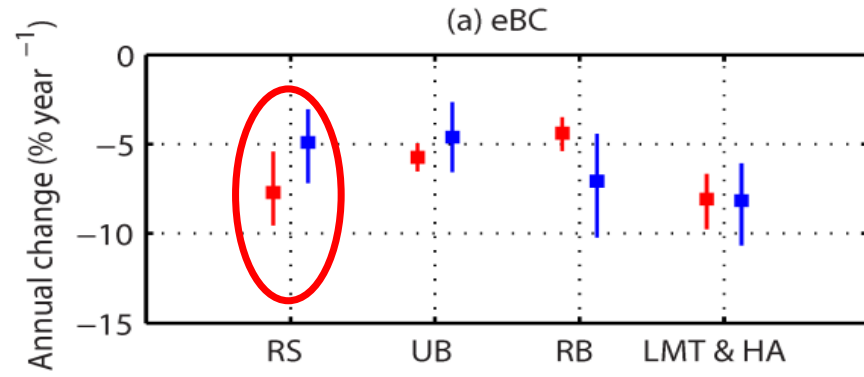
GUAN – Trends – Station-wise



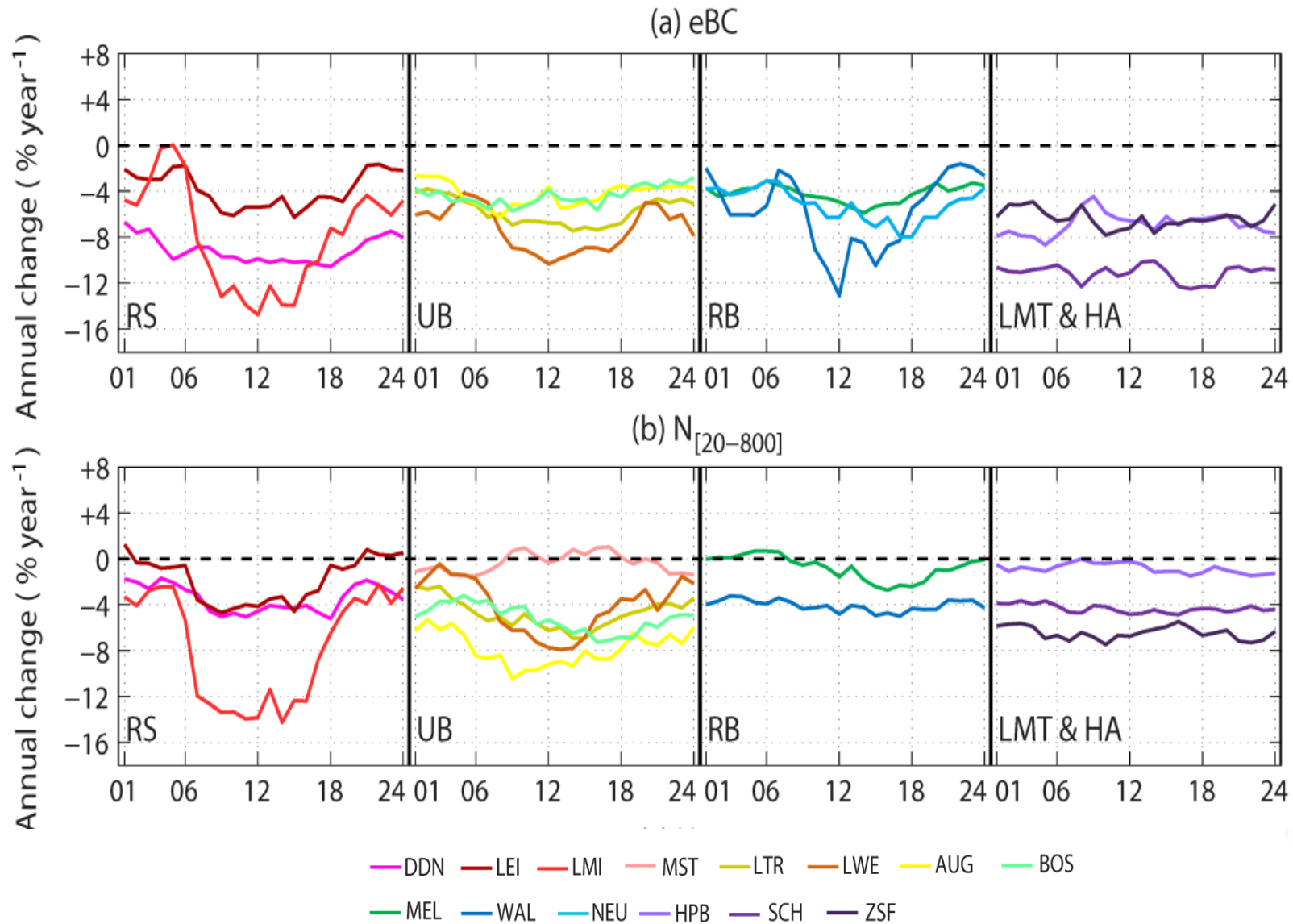
GUAN – Trends – Categories - Weekdays & Weekends



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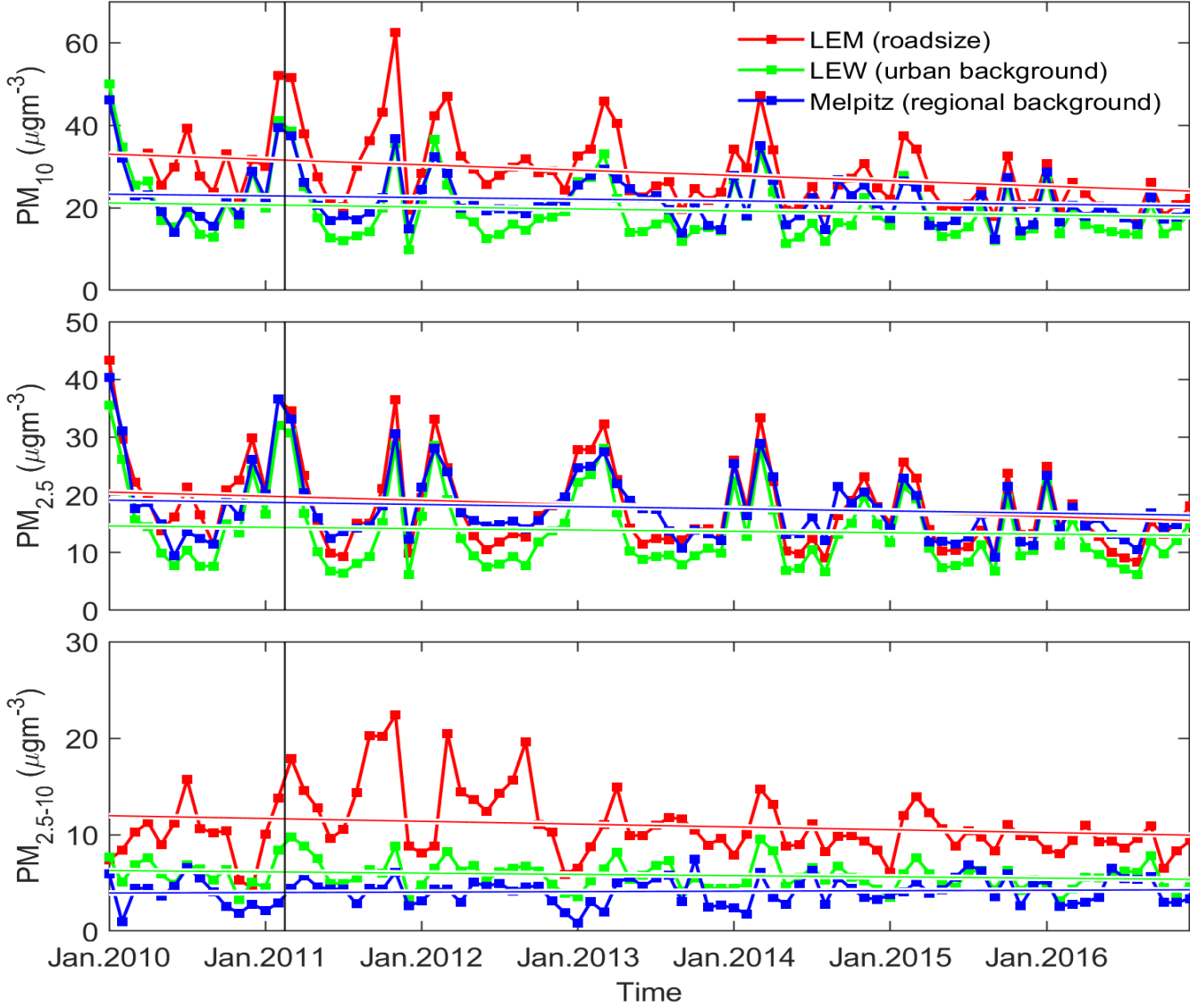


GUAN – Trends – Diurnal Behavior

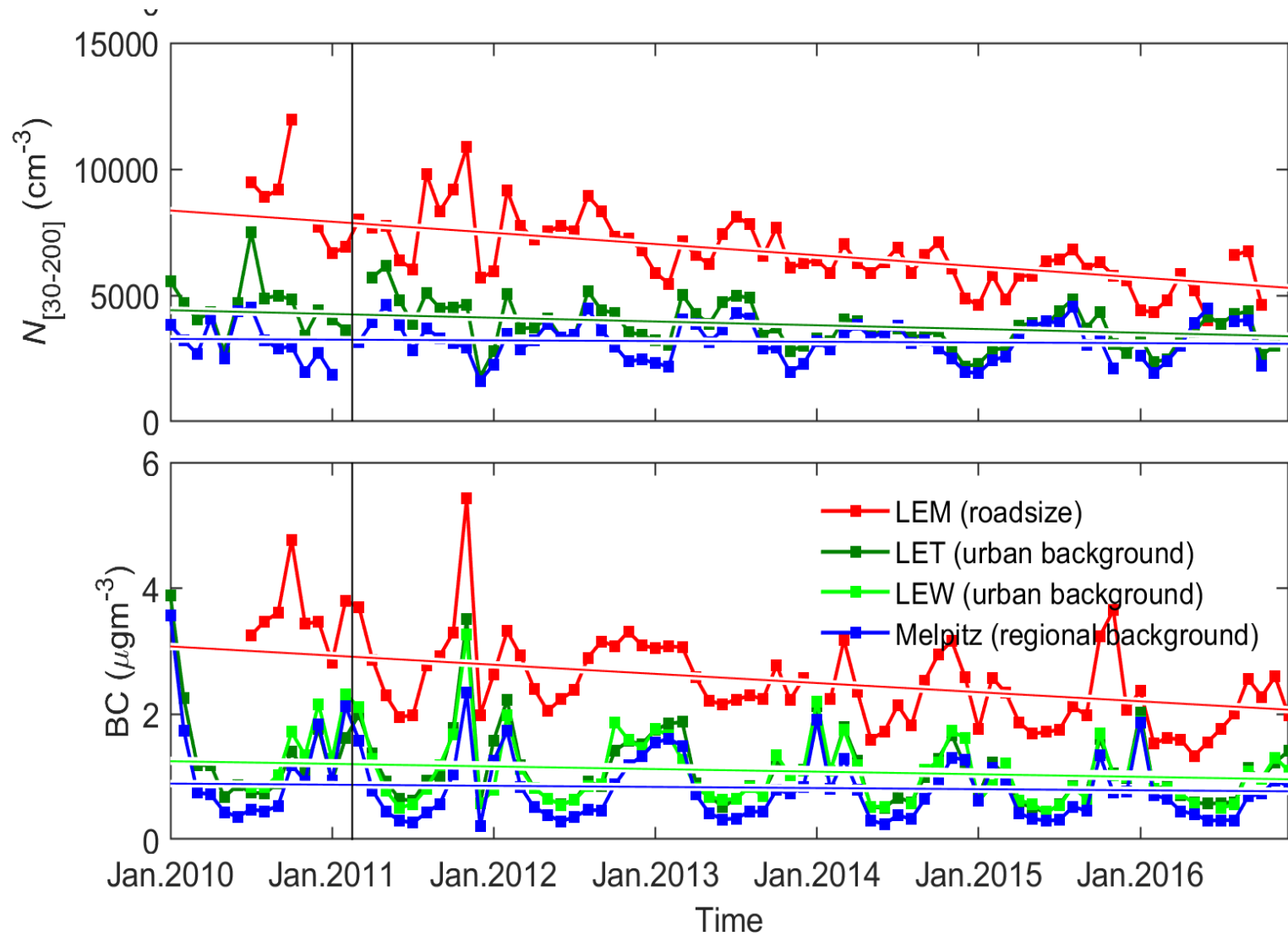


Low Emission Zone - Leipzig

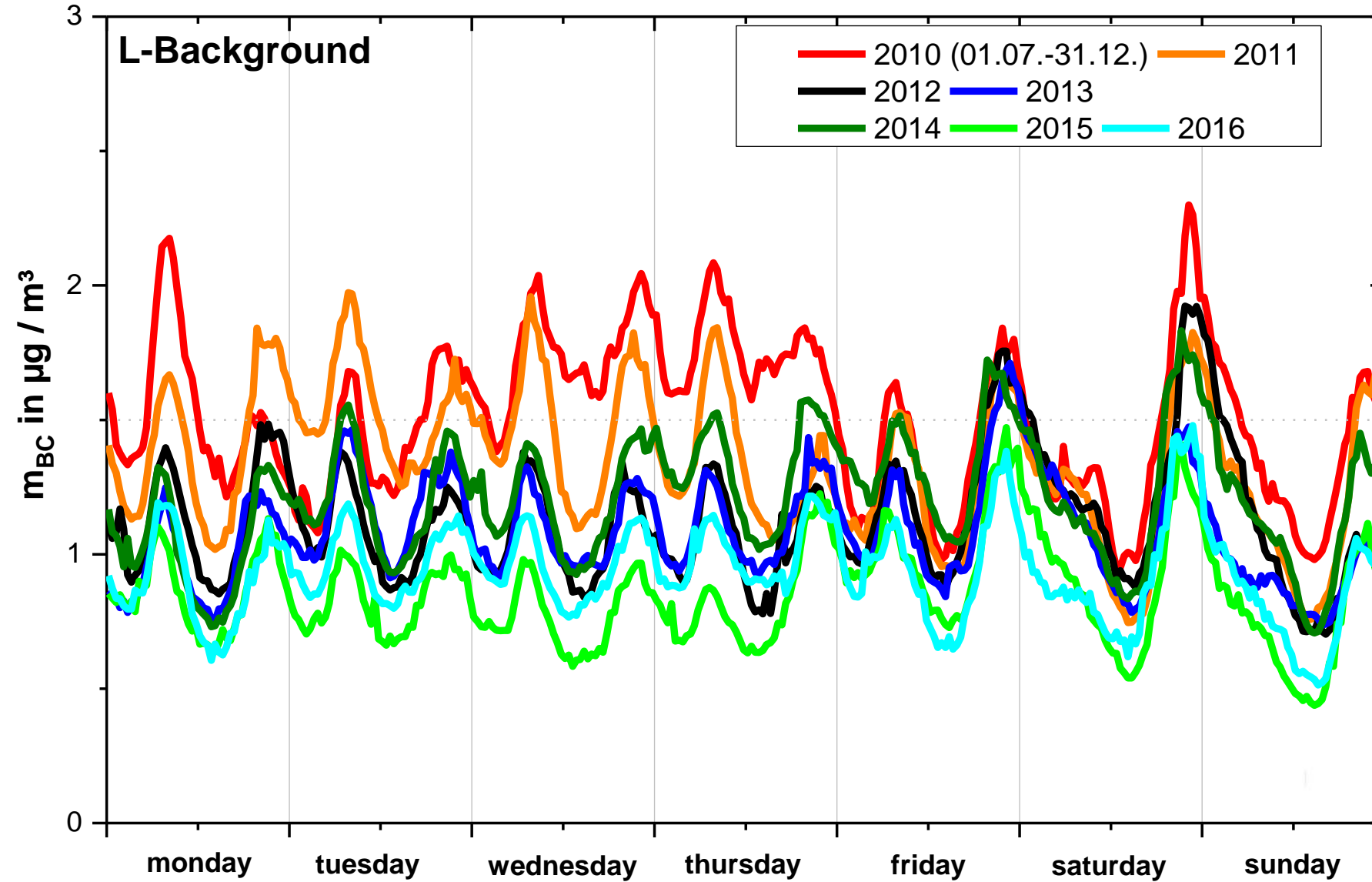
Trends – PM Mass Concentrations



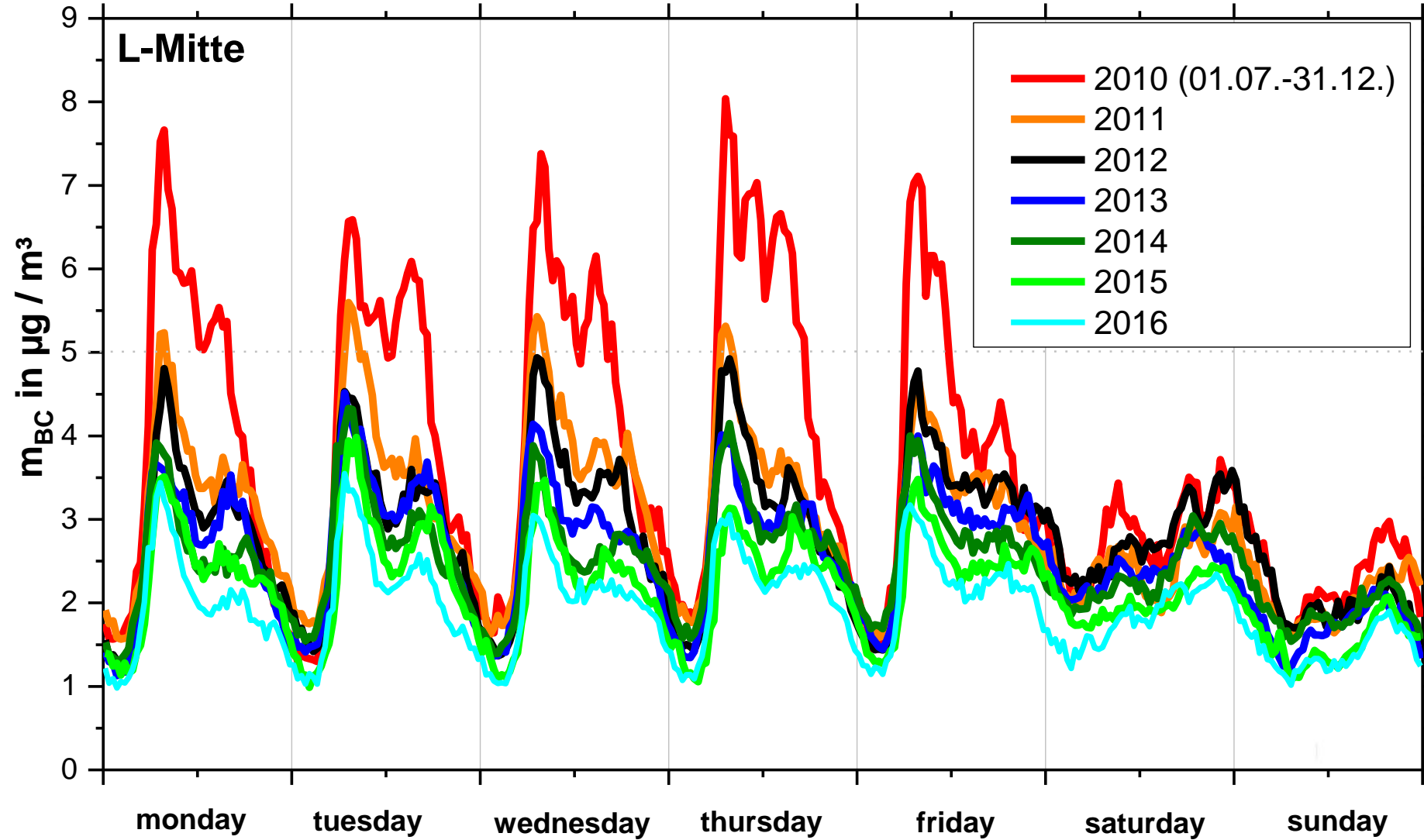
Trends – Number & eBC Mass Concentrations



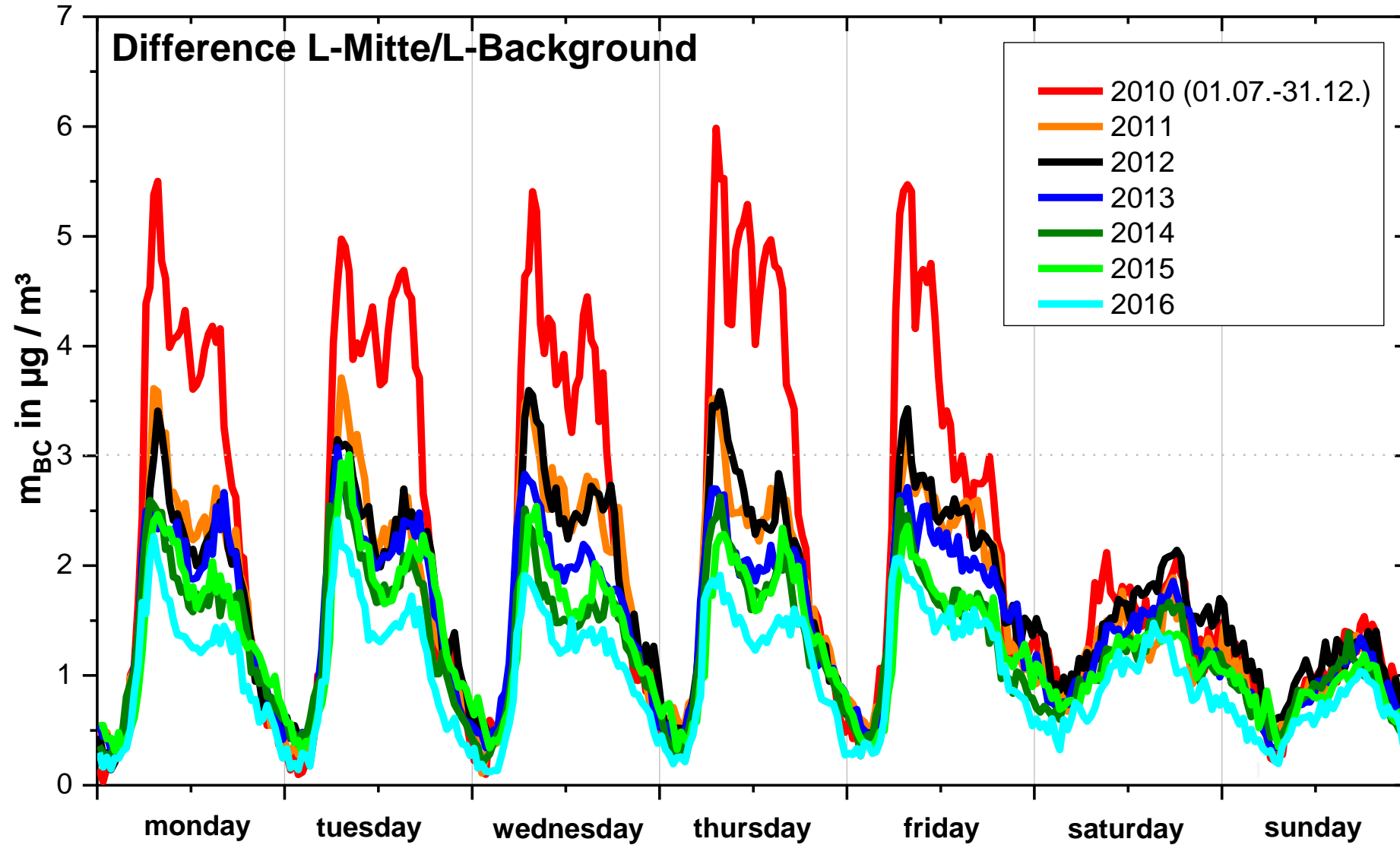
Leipzig background – BC-mass concentration



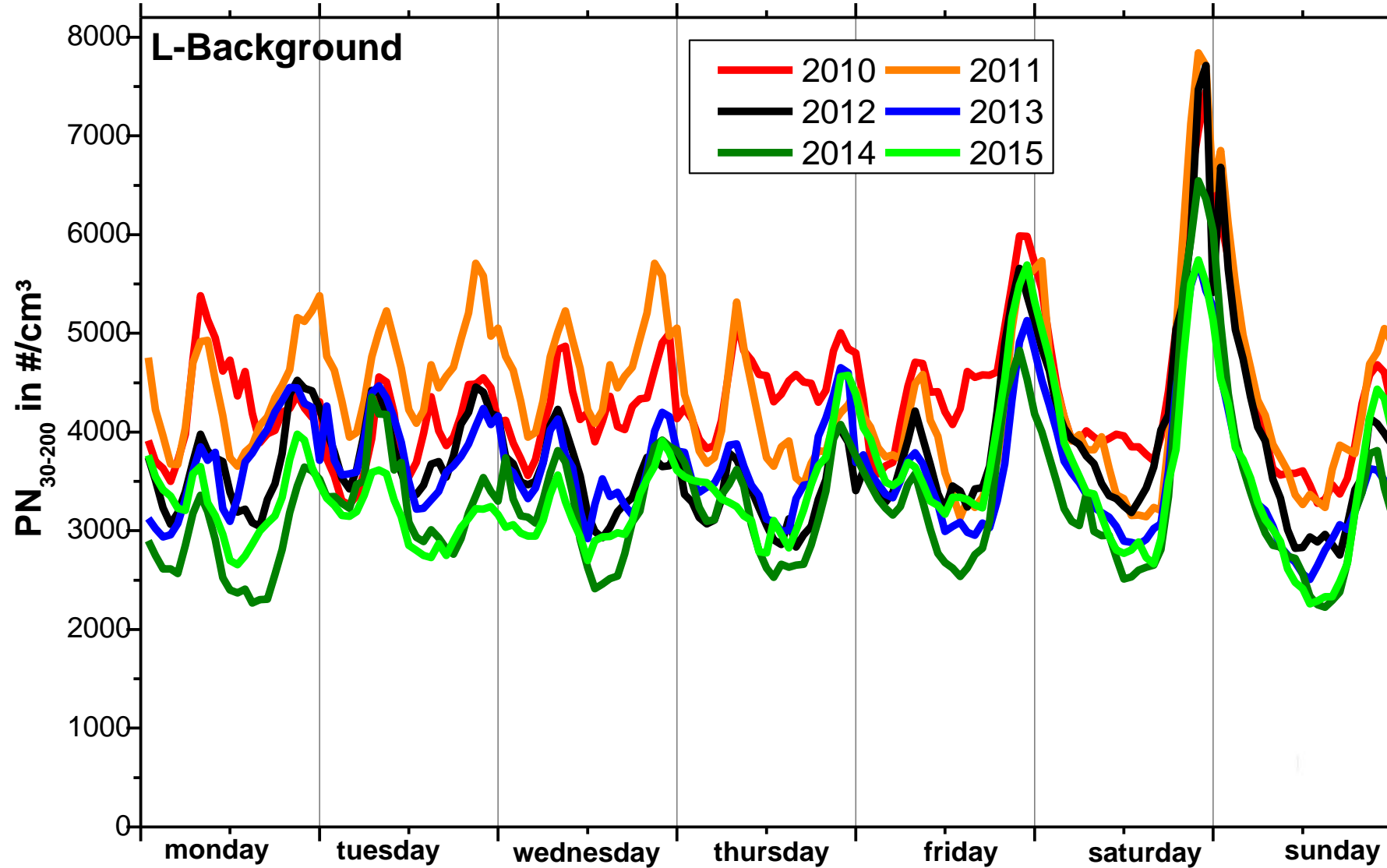
Leipzig Mitte – BC-mass concentration



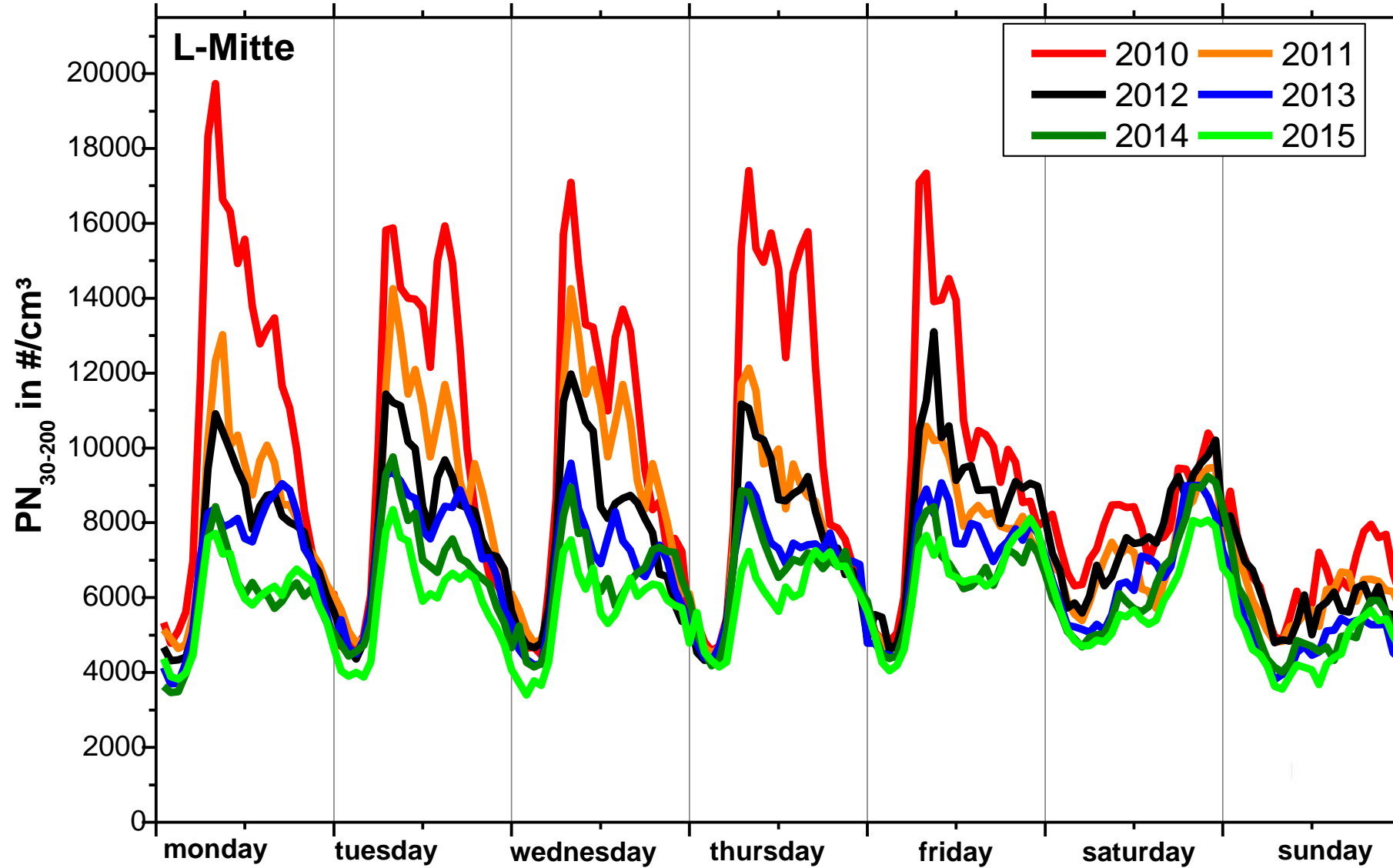
Difference Leipzig Mitte-background – BC-mass concentration



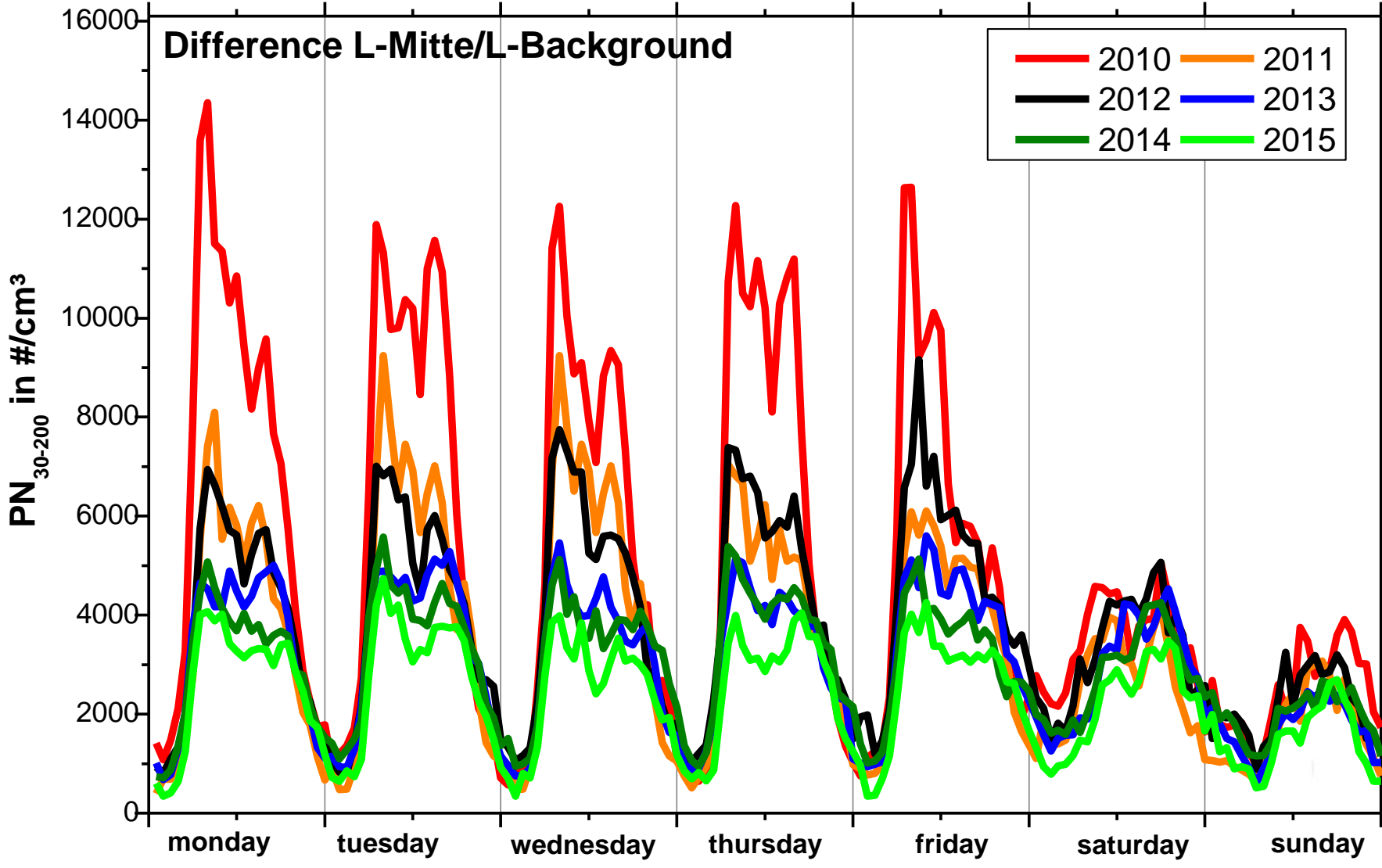
Leipzig background – number concentration N_{30-200}



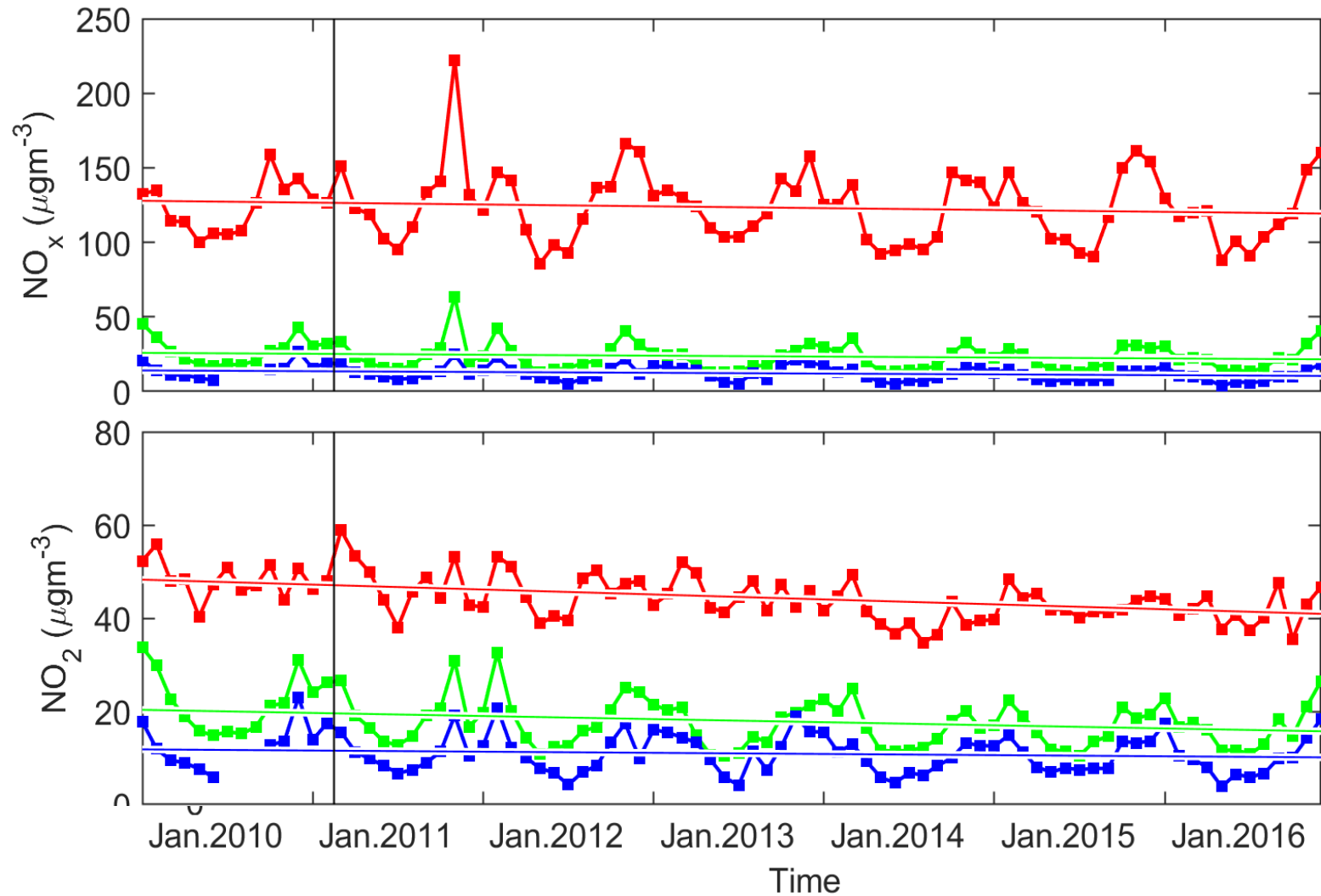
Leipzig Mitte – number concentration N_{30-200}



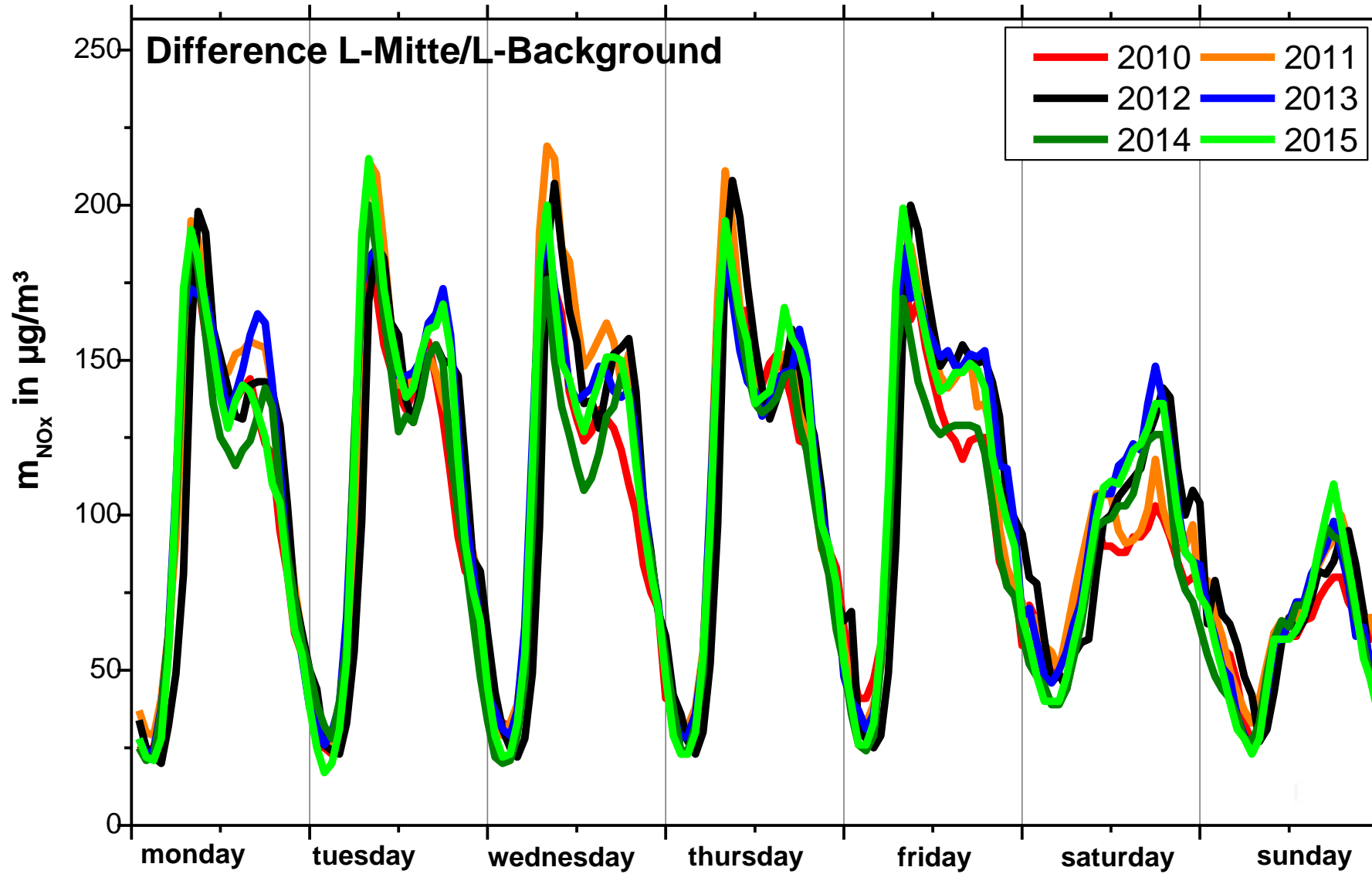
Difference Leipzig Mitte-background – number concentration N_{30-200}



Trends – NO_x & NO₂



Difference Leipzig Mitte – NO_x



GUAN – German Ultrafine Aerosol Network

Final remarks:

- Atmospheric aerosol measurements take a lot of effort.
- These measurements require skilled people, taking care about the instruments and the data.
- I would like to appreciate their hard work over so many years.
- I also acknowledge the strong collaboration between the German and European community.

UFP-measurements in Deutschneudorf/Ore Mountains



Thank you very much for your attention