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Mercury at the UK EMEP supersites Auchencorth Moss & Harwell

The EMEP Supersites



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Site Characteristics: Auchencorth Moss

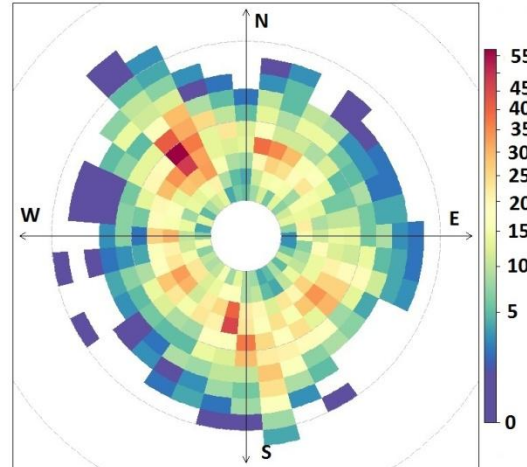
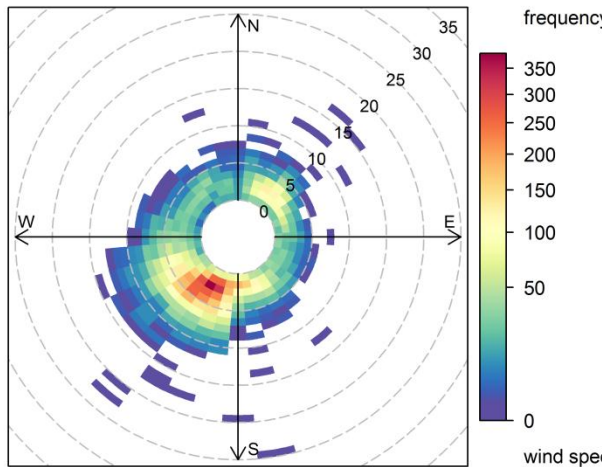


Measurements

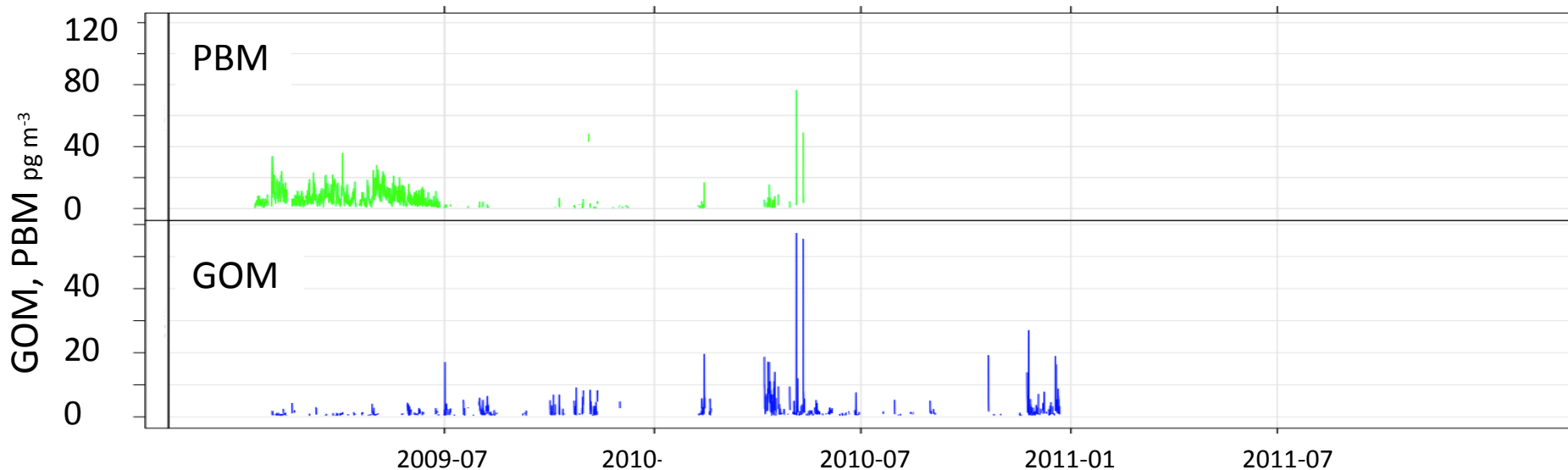
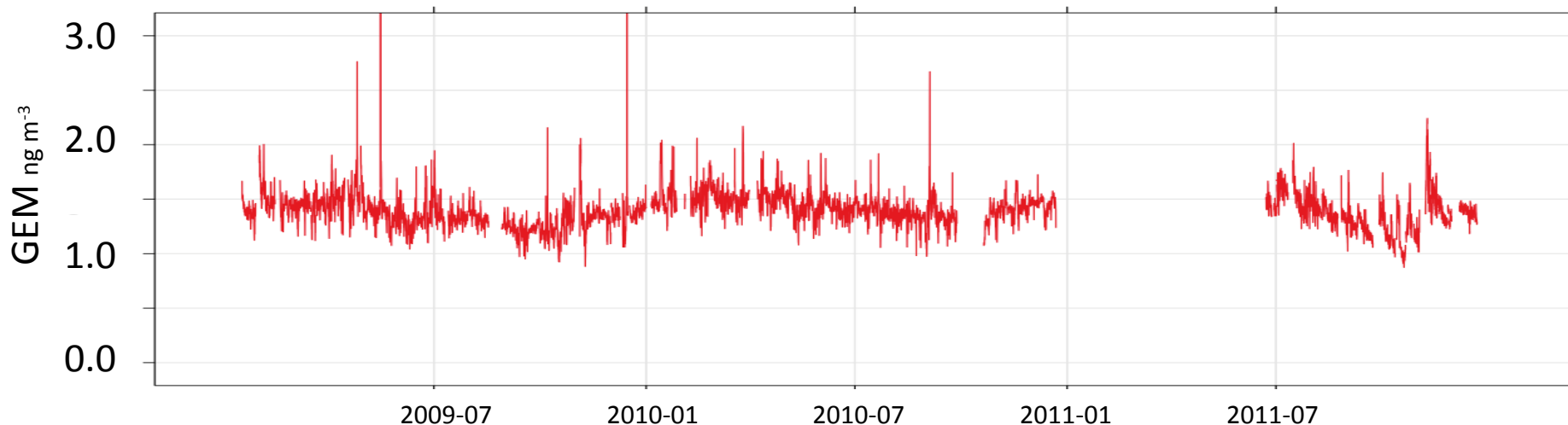
- Water-soluble gases + particles at PM2.5 & PM10
- Black carbon PM2.5
- NO/NO2
- Meteorology (wind speed, dir'n., temp., RH, precip'n)
- Ozone
- PM2.5 and PM10 mass (daily)
- PM2.5 and PM10 mass (hourly)
- PAH (vapour and particle)
- PAH (precipitation)
- TOMPS (air)
- Hydrocarbons (C₂ – C₈)
- Particle size and number
- Mercury (elemental) in air
- Mercury (speciated) in air (Auchencorth Only)
- Mercury (precipitation)
- Heavy metals PM10 (air)
- Heavy metals (precip'n)
- ECOC (weekly)

Auchencorth Moss

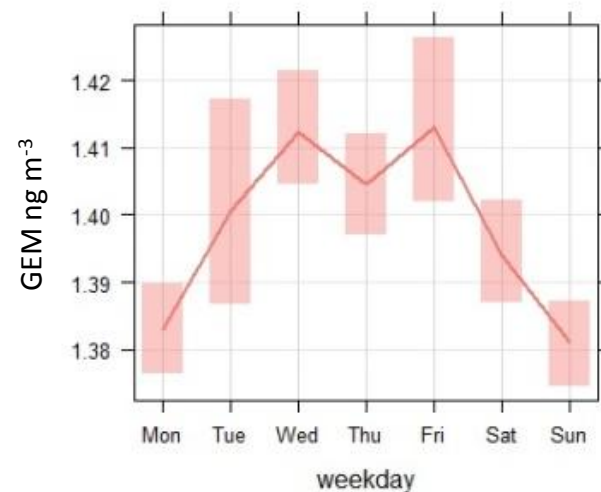
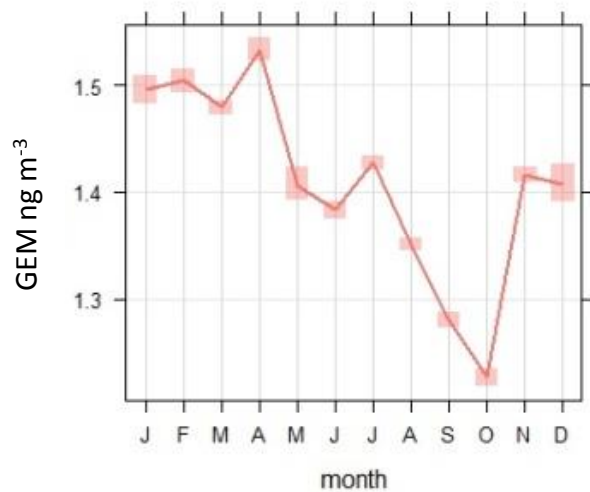
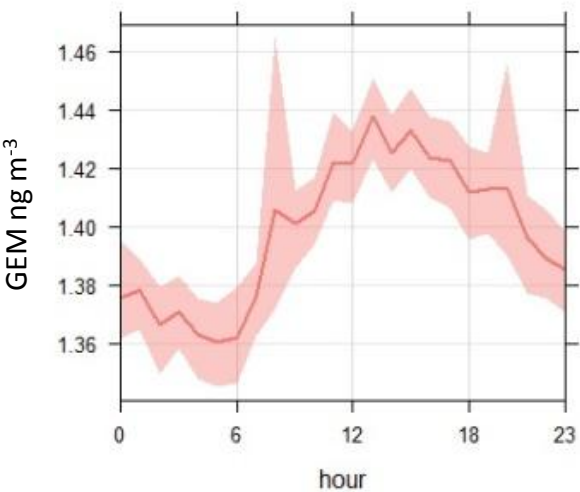
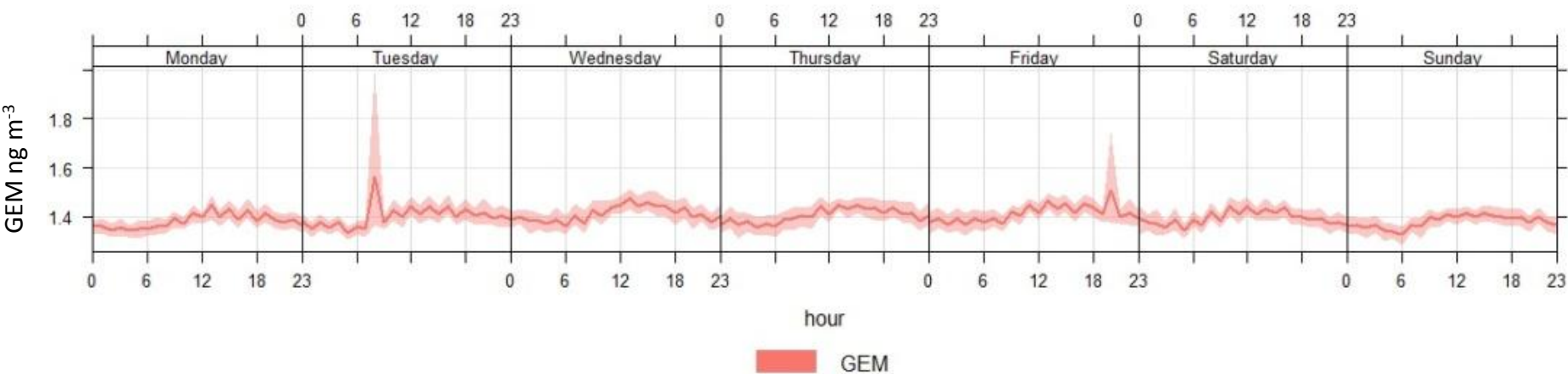
Harwell



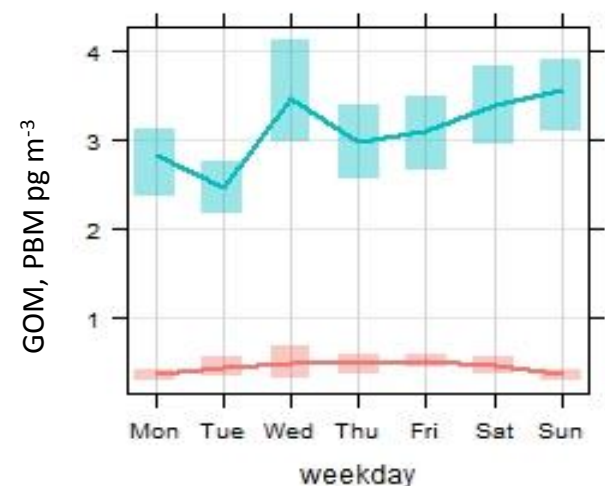
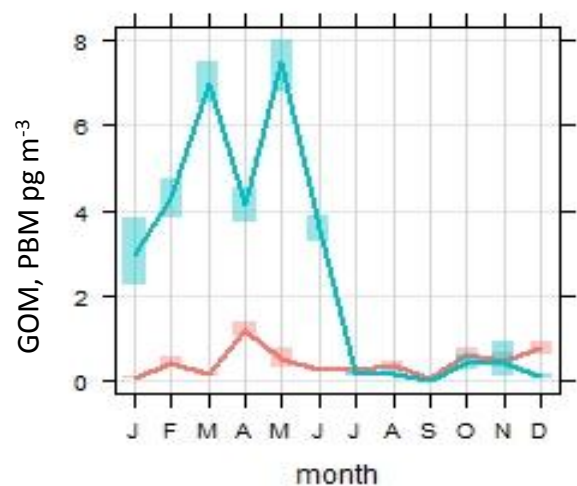
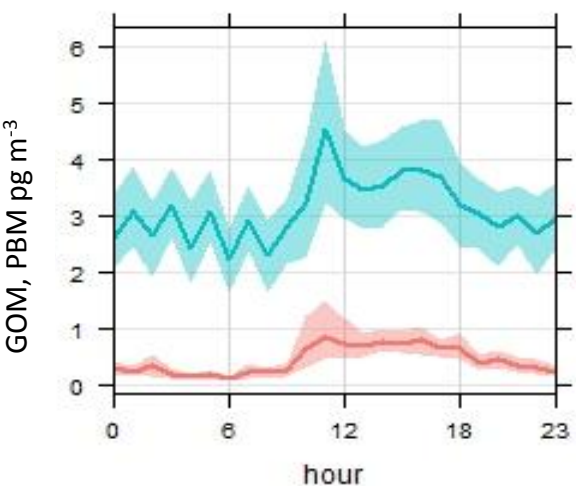
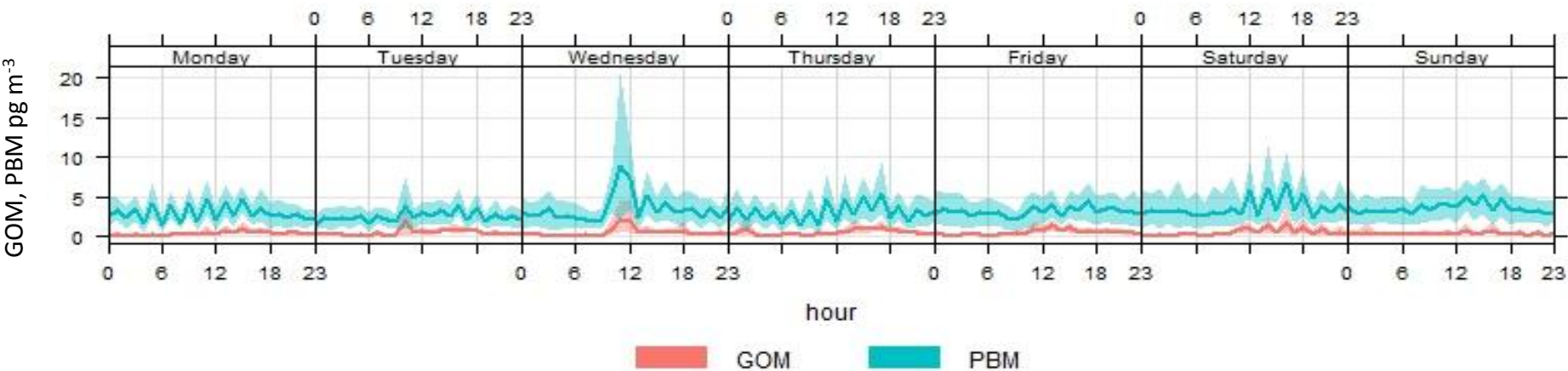
Auchencorth - Summary Plots / Statistics



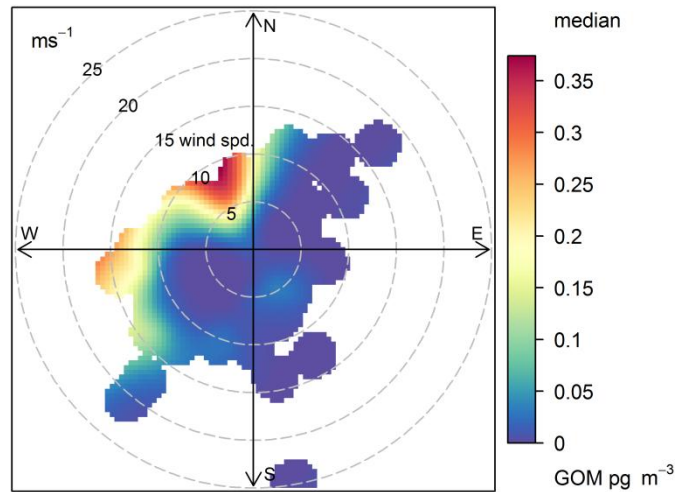
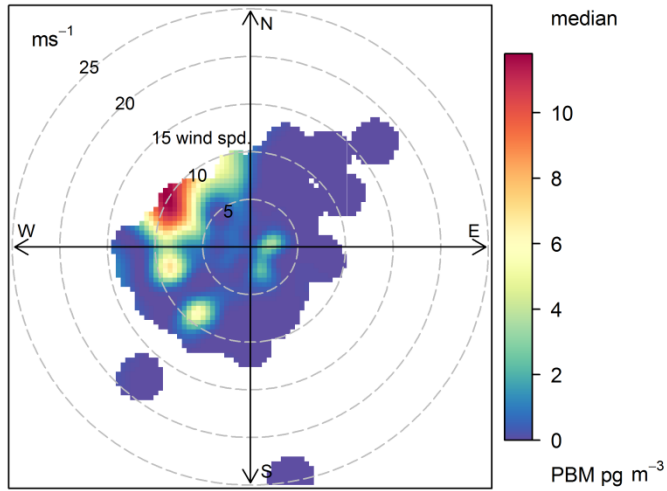
Trends and Patterns



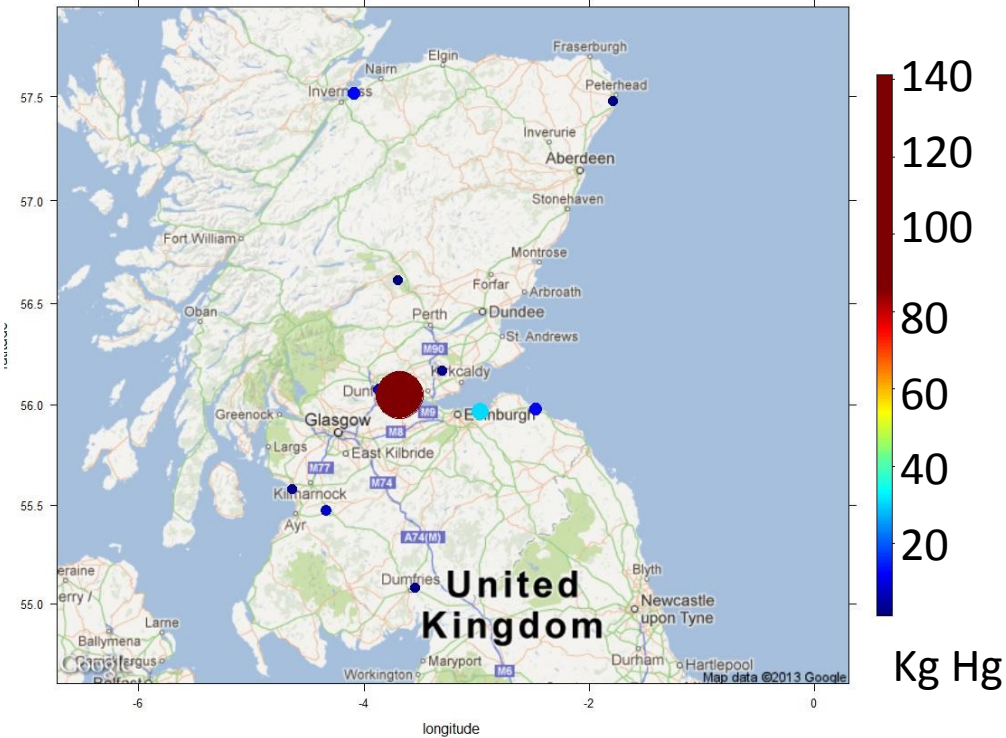
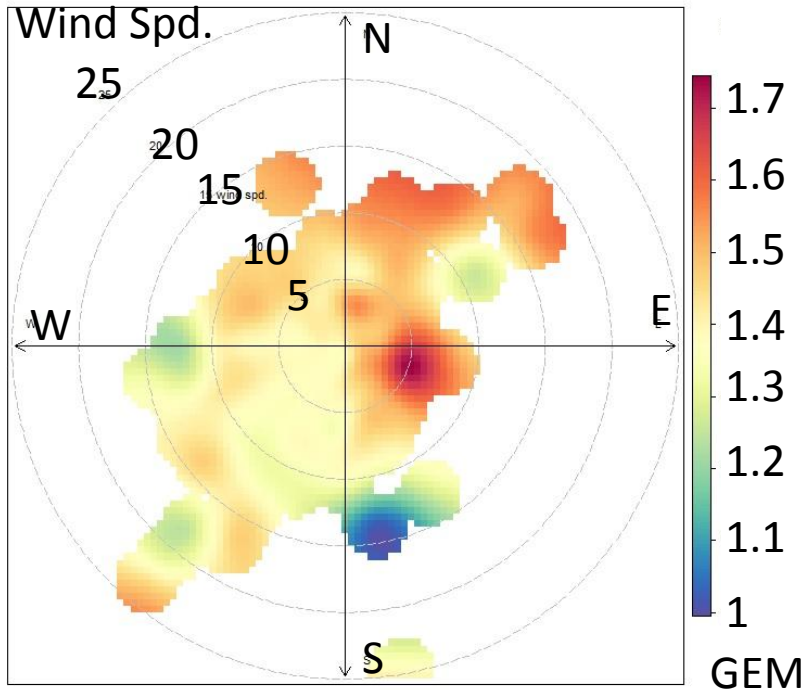
Trends and Patterns



PBM & GOM – Influences & Sources



GEM - Influences and Sources



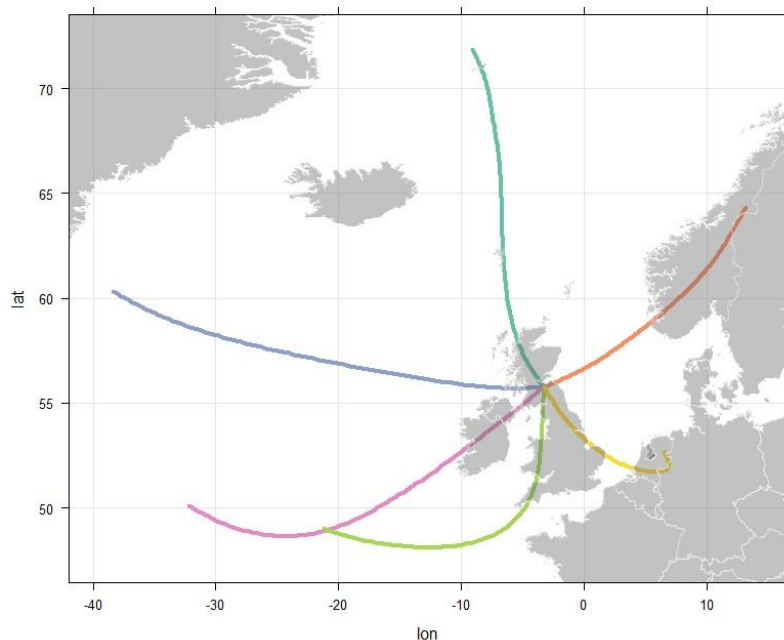
OpenAir Package for R, NERC, Kings College London, Defra, University of Leeds

Google Earth, Google Inc.

Point source data, S. E. P. A. (SEPA), Scottish Pollutant Release Inventory (SPRI),

http://www.sepa.org.uk/air/process_industry_regulation/pollutant_release_inventory.aspx, Accessed 20/05/2013, 2013.

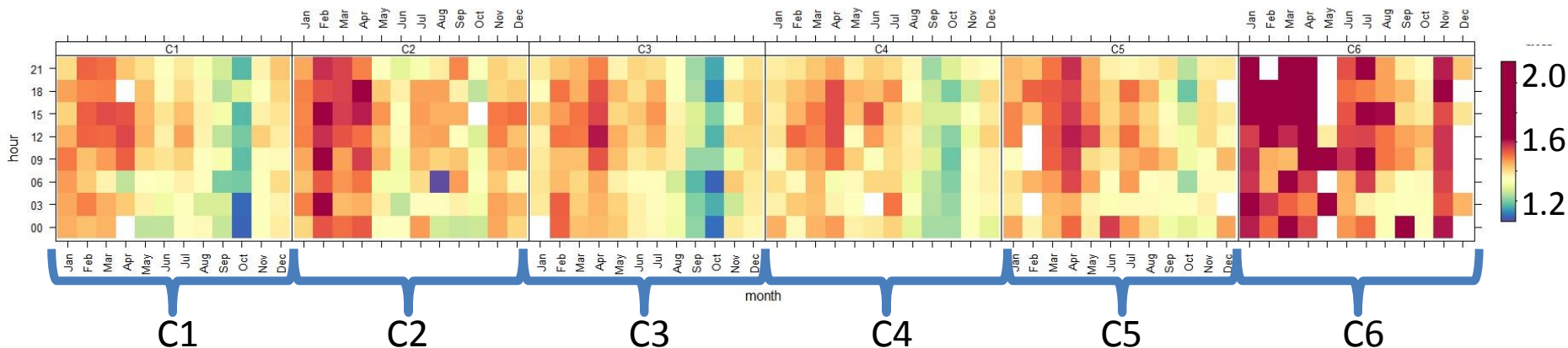
Long-range influences



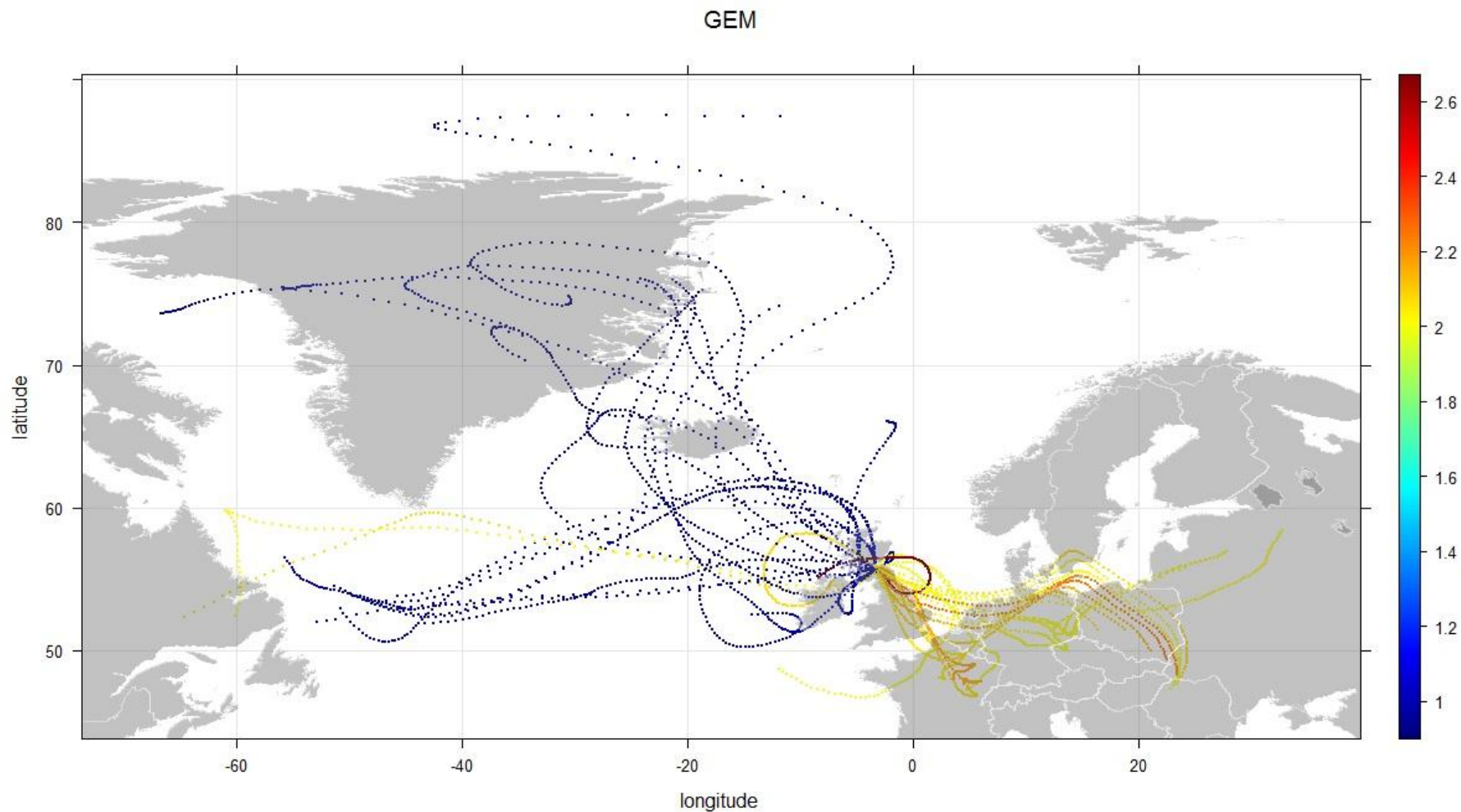
NOAA HYSPLIT Model - Air mass back trajectory cluster analysis

- C1
- C2
- C3
- C4
- C5
- C6

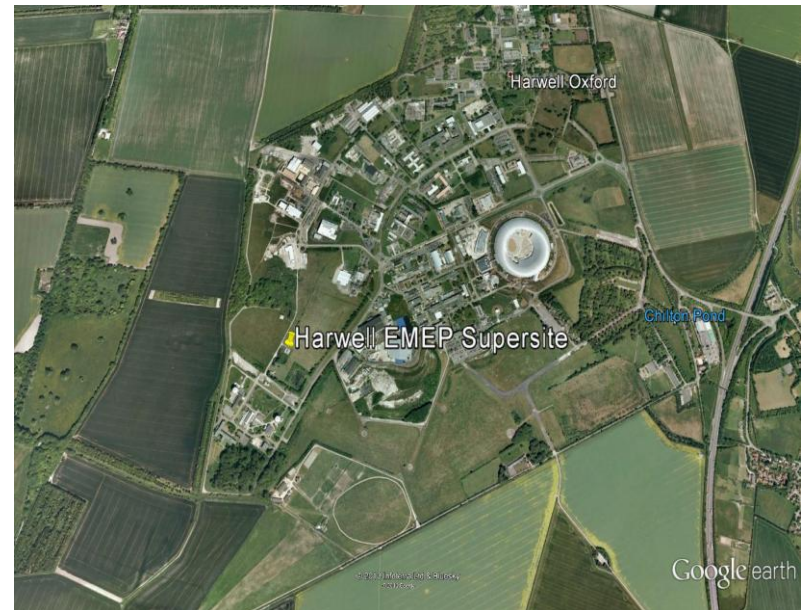
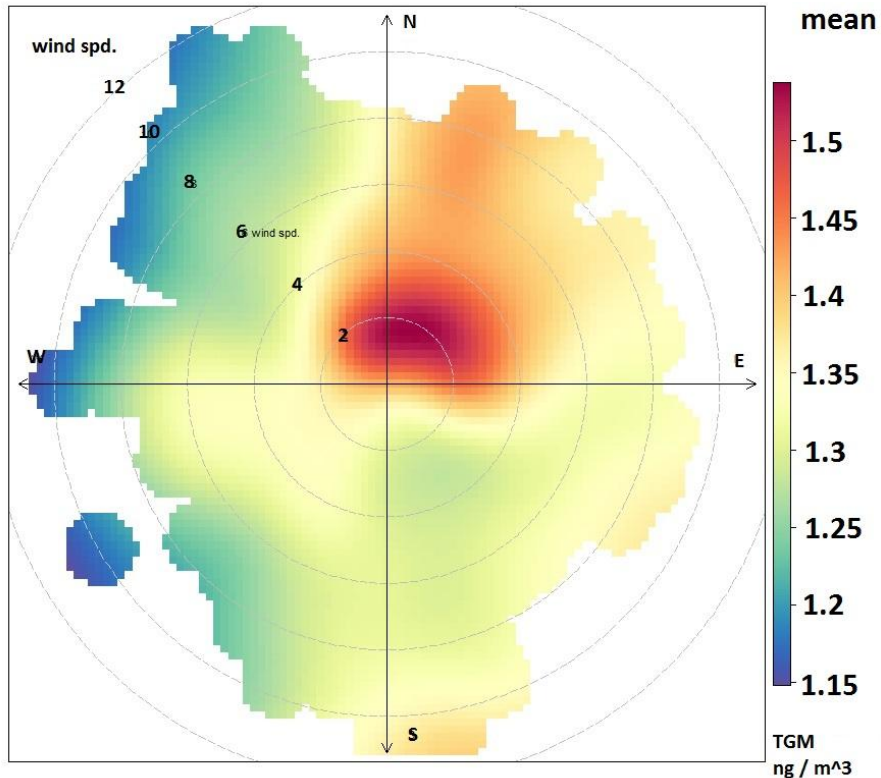
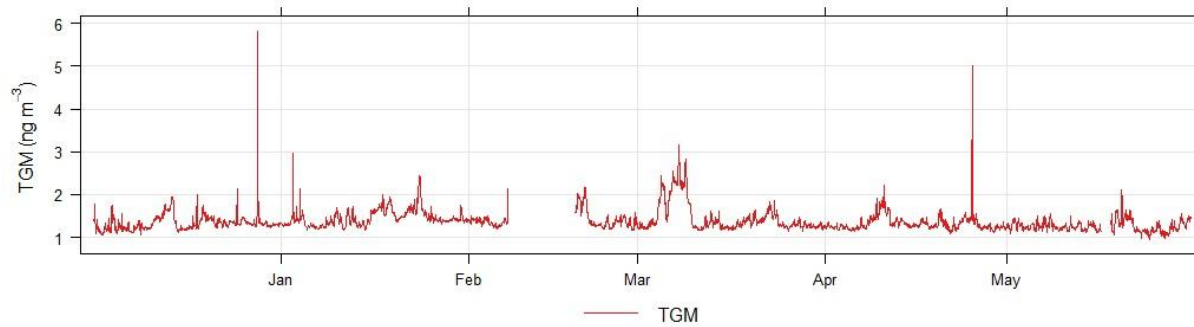
Cluster temporal variations

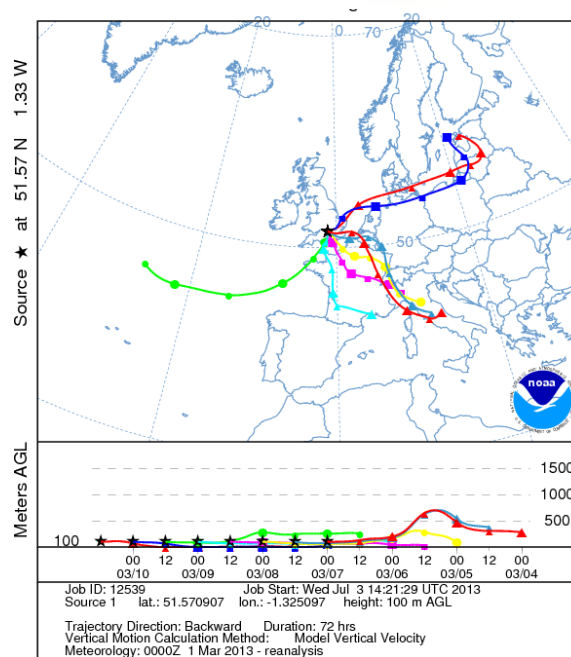
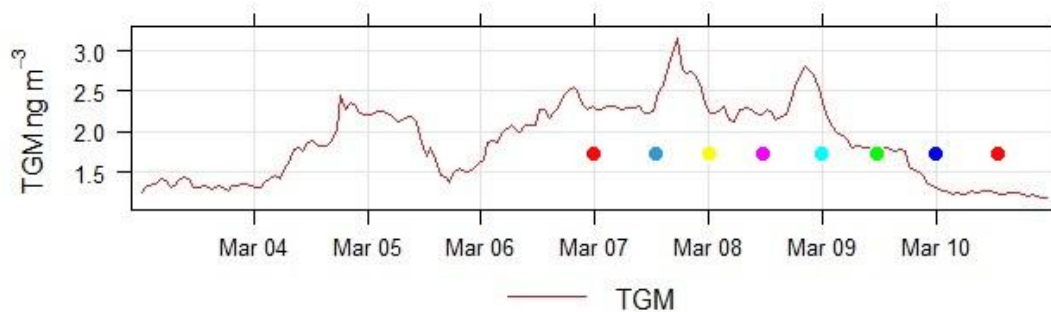


Long-range influences



GEM at Harwell





Summary

- Auchencorth Moss is a rural background monitoring site in south-east Scotland.
- Harwell is a semi-rural monitoring site in southern England.
- Influences on GEM at the supersites is both local, but with significant influence through long range transport.
- At Auchencorth Moss:
 - Air masses from mainland Europe have been shown to bring the higher levels of GEM to site, whilst Atlantic / Polar air masses bring the lowest.
 - PBM and GOM are extremely low and generally $< \text{LoD}$.
 - PBM levels may be influenced by peat extract work close to the site, but further work is needed to investigate this.

Thank you