AEA Energy & Environment
From the AEA group

# Biogenic Emissions - Implications for NAEI?

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**AQEG Launch of "*Ozone in the UK*"**
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# Current Status of Biogenic Emissions in the NAEI

- Total anthropogenic sources of NMVOCs: 942 kt/yr in 2007
- NAEI currently quotes an unchanging annual VOC emission rate from UK natural sources of 91 kt/yr (*Stewart et al, 2003*)
- No temporal variation in biogenic emissions or breakdown by species type
- Focus of the NAEI has been on development of time- and space-varying inventories for pollutants and sectors covered in emission ceilings directives, sector-specific emission regulations and air quality policies involving direct control of emission sources ($NO_x$, PM…, etc)

# Isoprene and 1,3-Butadiene Fractions in Gasoline and Exhaust Emissions

**Based on reported measurements in Europe and the U.S.**

| %m/m | Isoprene | | 1,3-butadiene | |
|---|---|---|---|---|
| | Mean | Range | Mean | Range |
| Gasoline fuel | 0.03% | 0 - 0.08% | 0.005% | 0 - 0.02% |
| Headspace vapour<br>Evaporative emissions<br>Refuelling vapour | 0.05% | 0 - 0.7% | 0.01% | 0 - 0.02% |
| Exhaust emissions<br>Tunnel studies | 0.30% | 0.01 - 0.8% | 1% (petrol)<br>2% (diesel) | |

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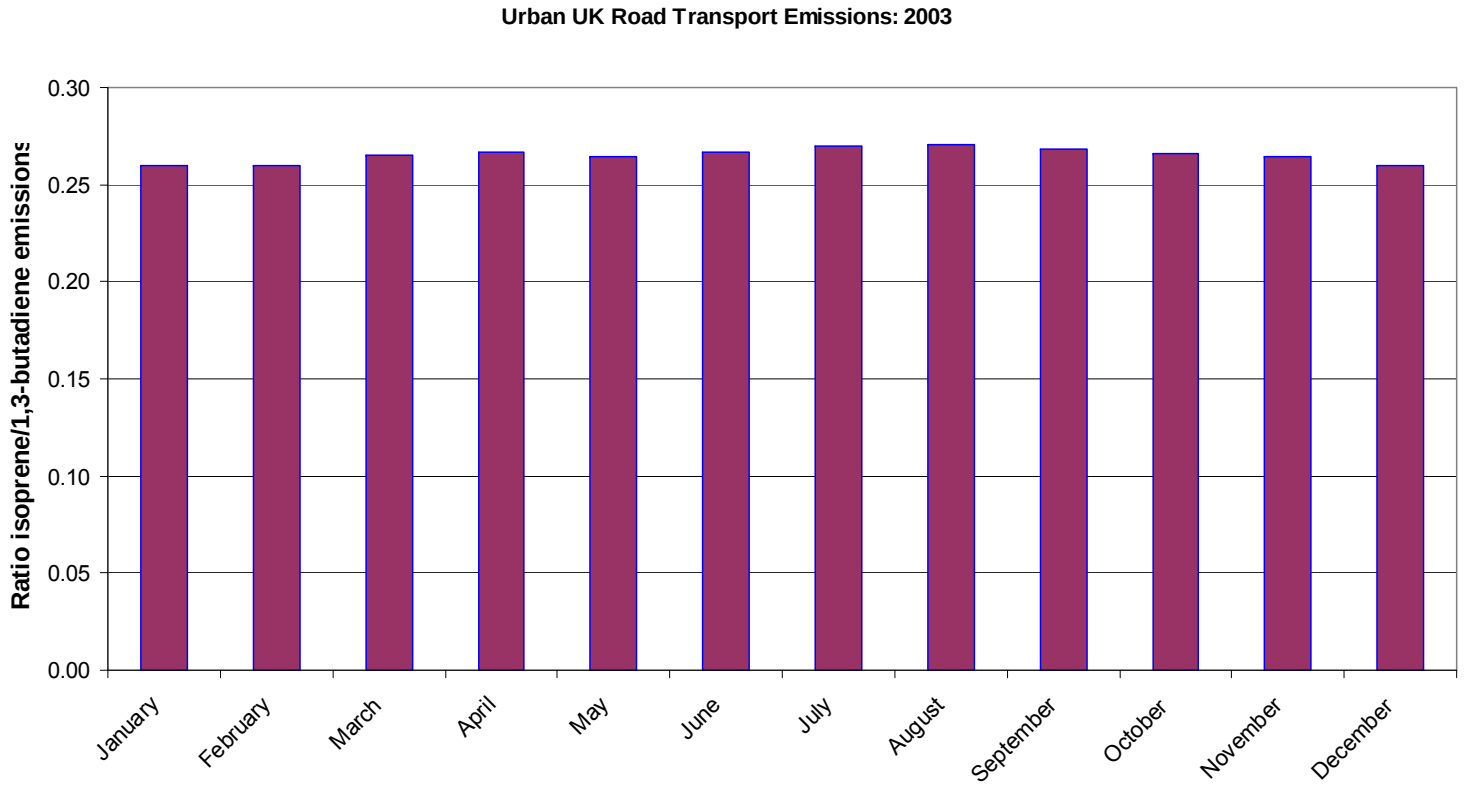
**Calculate ratio in urban traffic emissions of isoprene and 1,3-butadiene in 2003 using NAEI method for evaporative and exhaust emissions from road vehicles**

# Ratio in Isoprene/1,3-Butadiene Emissions from Urban UK Road Transport in 2003




- On the basis of vehicle emissions, range 0.1 to 0.5
- Correlations in ambient concentrations in areas dominated by traffic sources suggest ratio = 0.4 to 0.5

# Role of the NAEI: Biogenic Emissions

- What do you, the modellers, and Defra want us to do?

- The NAEI as a central repository of emissions inventory information
  - You provide us with:
    - annual emission rates taking account of year-on-year variability:
    - spatial, temporal patterns in emissions and breakdown by species
    - we hold and make available on www.naei.org.uk ?

  - Or we provide you with:
    - Centrally held land-cover and vegetation-species datasets for you to calculate emissions in your own models, or
    - Spatially and temporally-resolved emissions calculated by us using meteorology, input datasets and methods agreed by you
    - e.g. as done in the OSRM
    - make available on www.naei.org.uk
    - Spatial scale and resolution?

# And finally…..

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- So, thank you Mike and the AQEG members from the NAEI team…!