Fig 1
Cabauw overview 2

Constructed 1972: KNMI
CESAR super-site
Operation 1992-now
Tower at -2m ASL, 213 AGL
Inlets at 20, 60, 120, 200 m AGL (1,2,5,10 m AGL small mast)
GC: CH₄, N₂O, CO, SF₆
NDIR: CO₂
Gradient of ²²²Rn (20, 200 m ASL; 2005)
Eddy flux CO₂ (KNMI, WUR) at 3 levs
CBW data archive update 1992-now

- Rescaled data to NOAA04 and NOAAX07 scales
- Applied updated Jena WS assignments
- Reanalyzed all data
- Reintegrated 2004-2008
- Improved drift correction 2004-2008

Publication in preparation (AMTD)
Submission to databases
Example: seasonal diurnal trend in CO$_2$ vertical gradient
Example: Diurnal profiles CH$_4$
CBW CH$_4$ trend 2000-2008

Concentration of CH$_4$, CBW 200m AGL
Seasonal trend fit: $R=0.40$, rate=4.7 +/- 1.2 ppb/yr

15th WMO/IAEA expert meeting on CO2 and other greenhouse gas measurements, Jena, 2009
- Replaced analytical columns
- Replaced Valco multiposition valves and introduced new shunt valves
- Replaced/cleaned tubing, small parts etc.
- Tuned methods

<table>
<thead>
<tr>
<th>Gas</th>
<th>Method</th>
<th>Operational</th>
<th>Precision 2004-2009</th>
<th>Precision 2009</th>
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<tbody>
<tr>
<td>CO₂</td>
<td>LICOR 7000</td>
<td>Nov-04</td>
<td>0.05 ppm</td>
<td>0.05 ppm</td>
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<tr>
<td>²²²Rn</td>
<td>ANSTO</td>
<td>Nov-05 200m Feb-06 20m</td>
<td>50 mBq.m⁻³</td>
<td>50 mBq/m³</td>
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<tr>
<td>CH₄</td>
<td>GC-FID</td>
<td>Nov-04</td>
<td>2-5 ppb</td>
<td>0.7 ppb</td>
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<tr>
<td>CO</td>
<td>GC-FID</td>
<td>Nov-04</td>
<td>3 ppb</td>
<td>2 ppb</td>
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<tr>
<td>N₂O</td>
<td>GC-ECD</td>
<td>Nov-04</td>
<td>0.4-1 ppb</td>
<td>0.23 ppb</td>
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<tr>
<td>SF₆</td>
<td>GC-ECD</td>
<td>Nov-04</td>
<td>0.2-0.5 ppt</td>
<td>0.12 ppt</td>
</tr>
</tbody>
</table>
CBW $^{222}$Rn profile 20m+200m ASL

![Graph 1: 222Rn Cabauw](image)

![Graph 2: Methane (ppb) and Radon (Bq m$^{-3}$)](image)

![Graph 3: 222Rn measurements and model](image)

16-9-2009

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$^{222}\text{Rn}$ tracer method applied at CBW to $\text{N}_2\text{O}$ and $\text{CH}_4$
CBW H₂ observations

Poster P42: Popa et al.
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