

Für Mensch & Umwelt

Umwelt 
Bundesamt

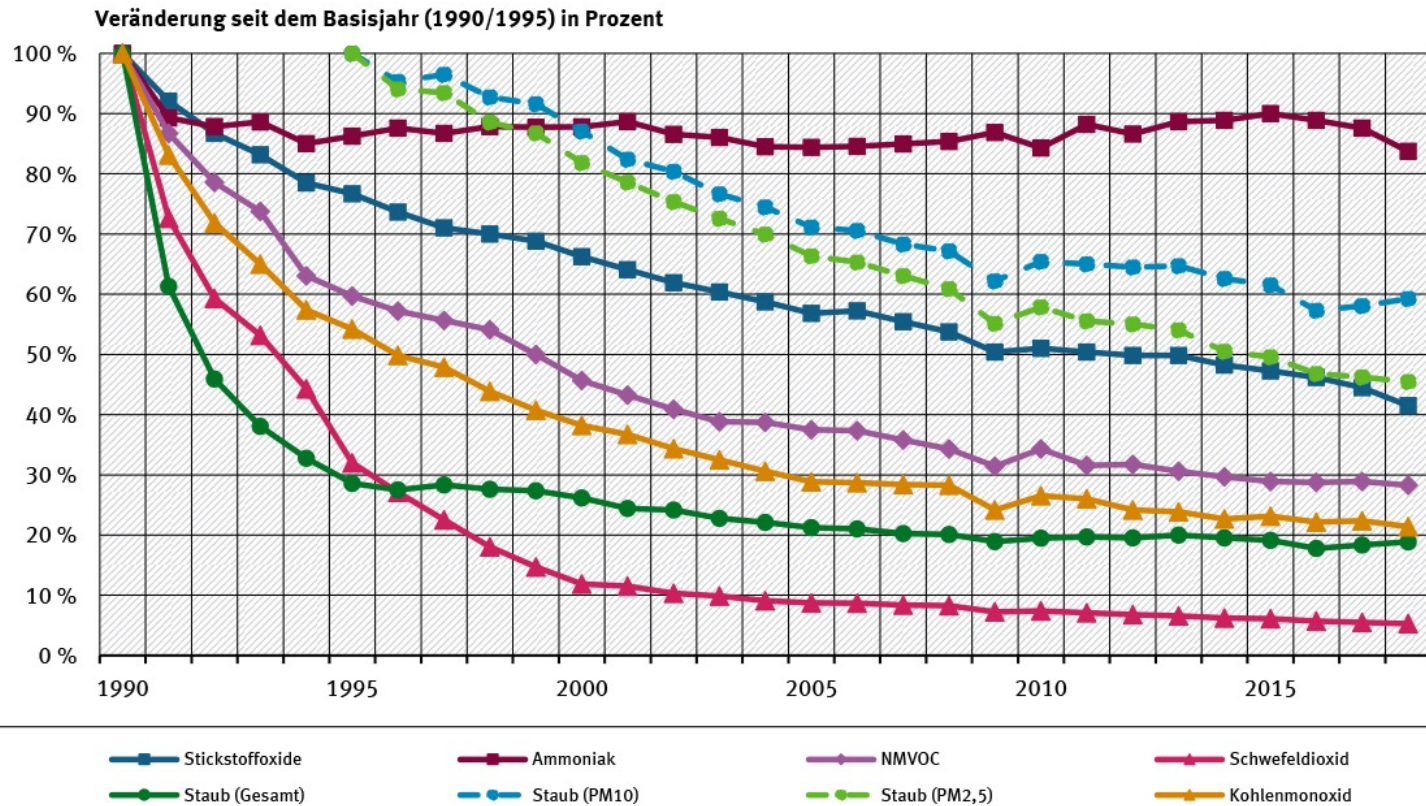
Temporal distribution of gridded emission - zTool

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German Environment Agency
Unit „Air quality assessment“

National emission trends

Emissionen ausgewählter Luftschadstoffe

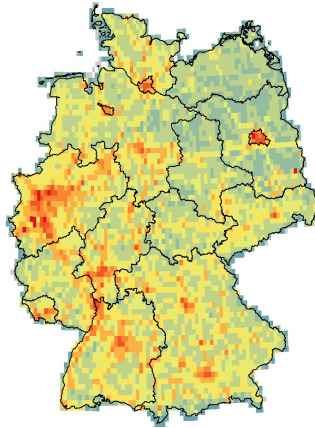


Quelle: Umweltbundesamt, Nationale Trendtabellen für die deutsche Berichterstattung atmosphärischer Emissionen seit 1990, Emissionsentwicklung 1990 bis 2018 (Stand 02/2020)

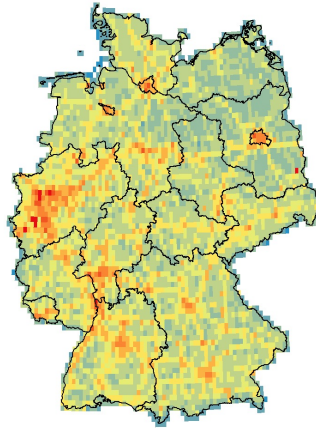
Gridding Emission Tool for ArcGIS (Greta)

NO_x Emissionen 1990 - 2017

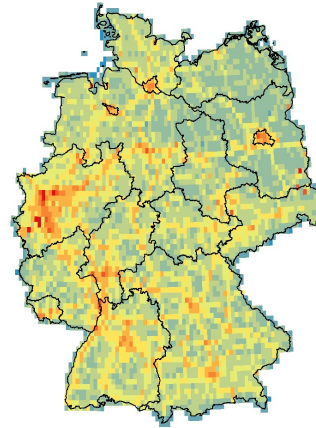
1990



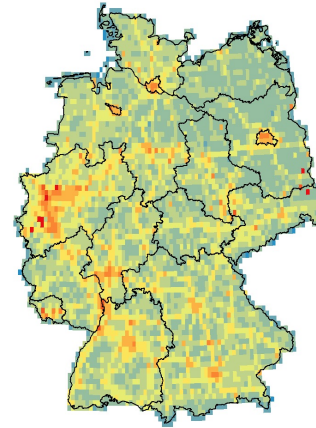
1995



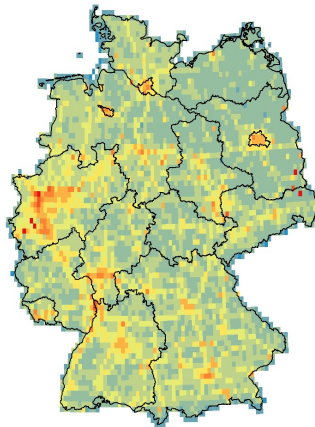
2000



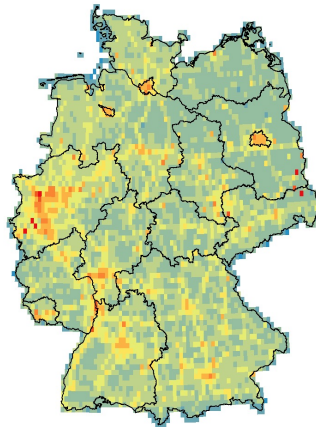
2005



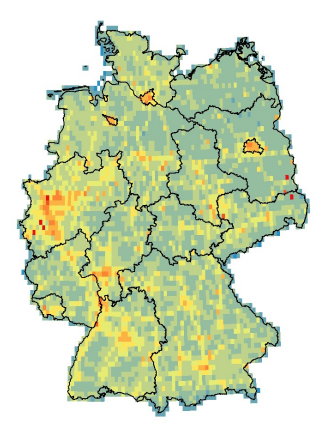
2010



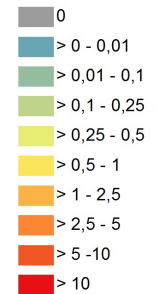
2015



2017



in [Gg] pro
0.1 x 0.1
Grad

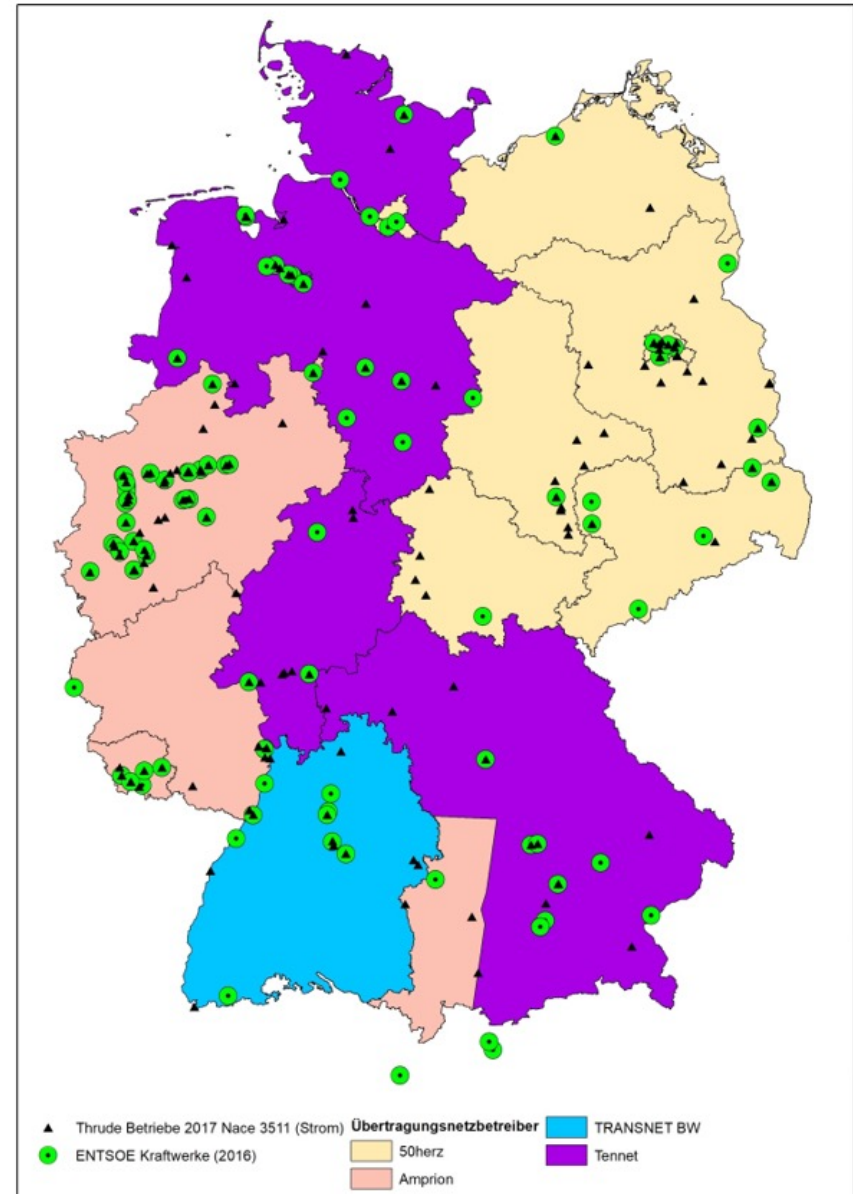


Concept

- Dynamic temporal distribution on NFR sector level (regionalised) → **input modelling**
- Considering meteorological dependencies for relevant sectors (like domestic heating, traffic, agriculture)
- Use additional datasets (power plant performance, statistical data, traffic data etc.) for temporal distribution
- **Aim:** derive regional „splitting factor“ for NFR, GNFR or SNAP for each hour of the year → develop a **R-Tool to derive dynamic „splitting factors“**

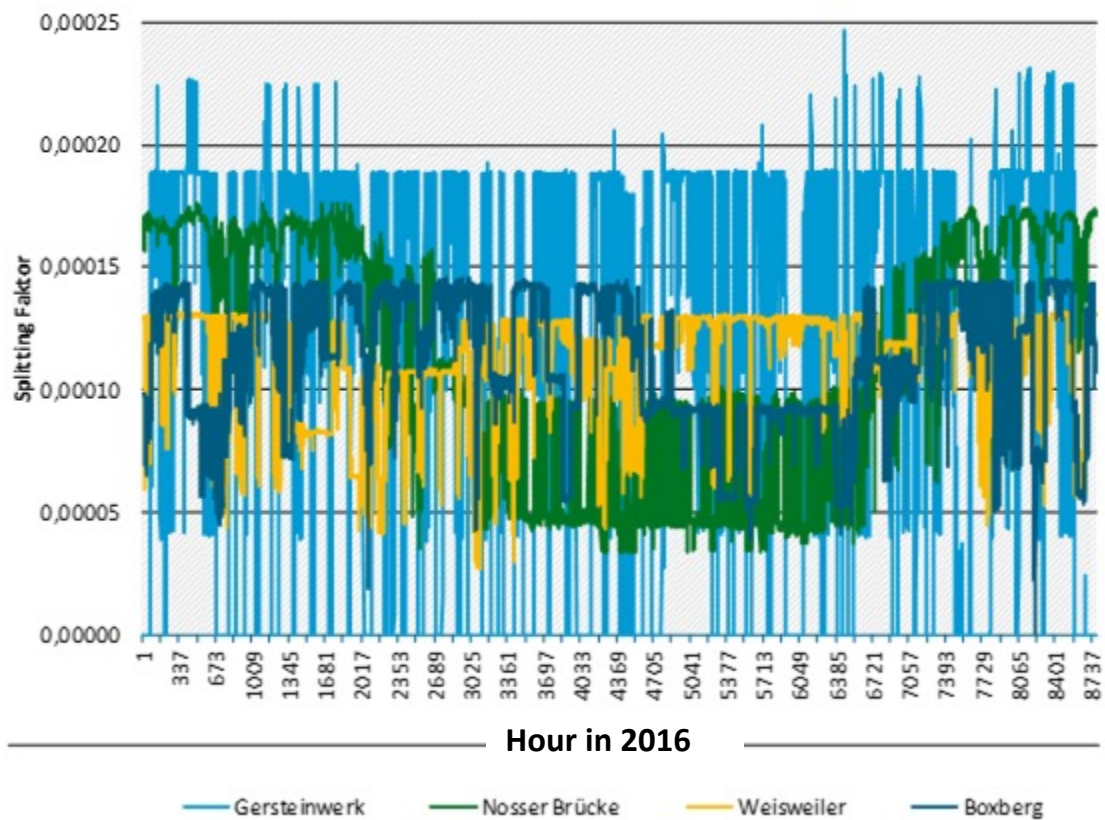
Power plants

- Intersect PRTR (black triangles) with ENTSOE data (green dots)
- Use average performance data on network level for not-point source emissions



Power plants

Splitting factors for four power plants



Datenquelle: <https://www.entsoe.eu/>

Climate regions in Germany

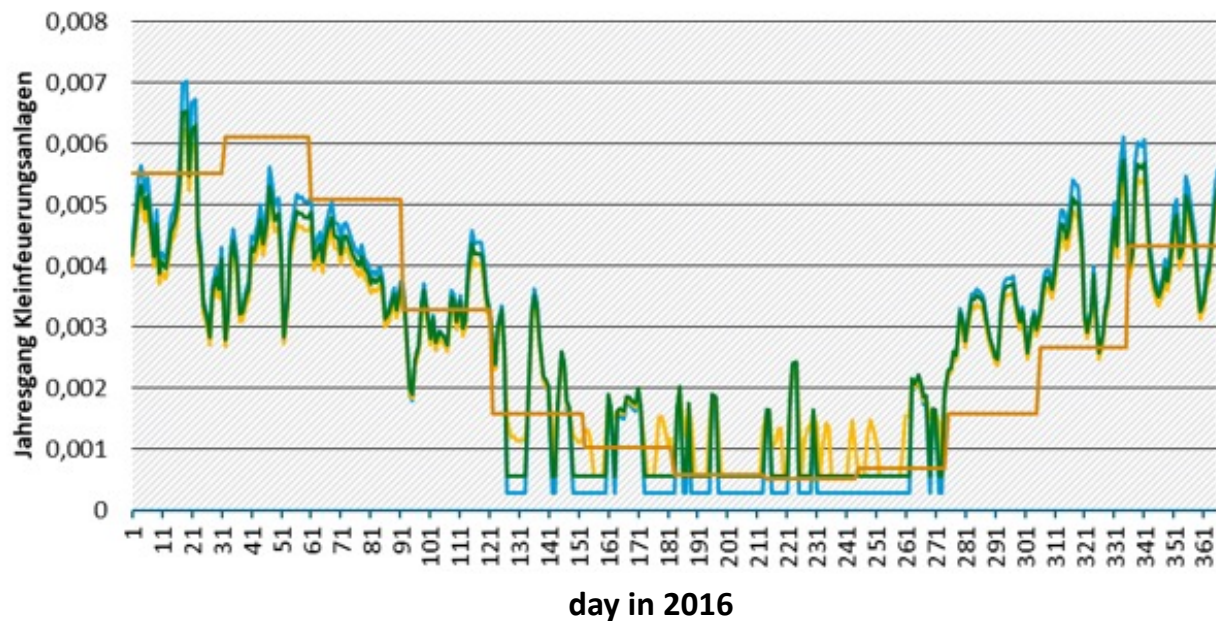


Südwestdeutsche Mittelgebirge, Alpen,
Alpenvorland, Linksrheinische Mittelgebirge,
Nordostdeutsches Tiefland,
Nordwestdeutsches Tiefland, Oberrheinisches
Tiefland, Östliche Mittelgebirge,
Rechtsrheinische Mittelgebirge,
Südostdeutsche Becken und Hügel,
Westdeutsche Tieflandsbucht, Zentrale
Mittelgebirge und Harz

Source DWD 2017

Domestic heating

Yearly emission cycles 2016 – sector „domestic heating“ domestic – climate region „Zentrales Mittelgebirge und Harz“

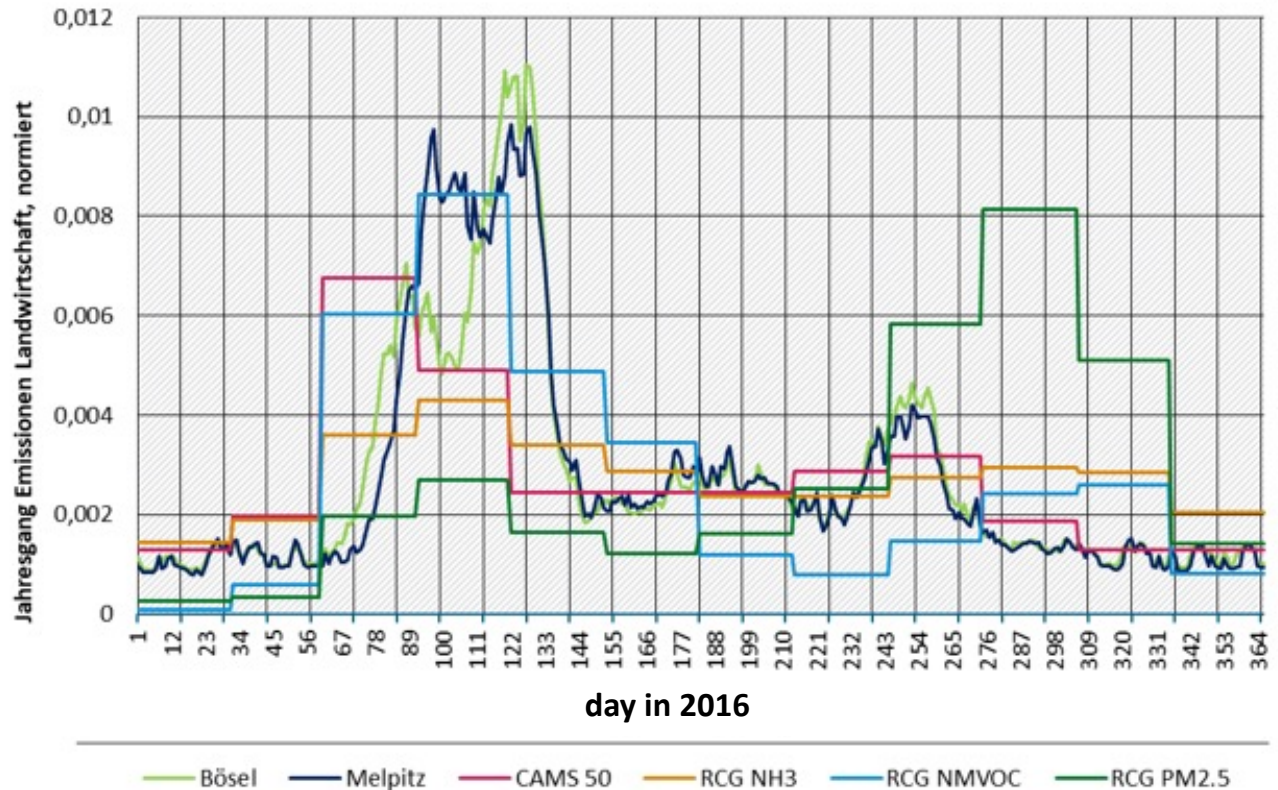


— HGT: 15°C, WW/PW: 10% — HGT: 18°C, WW/PW: 20%
— HGT: 15°C, WW/PW: 20% — statisches Zeitprofil RCG

Datenquelle: COSMO-DE

Agriculture

Yearly NH₃ agricultural emission cycles 2016 – Bösel (climate region „Nordwestdeutsches Tiefland“) and Melpitz (climate region „Süddeutsche Becken und Hügel“) compared to static emission cycles (CAM50 and RCG)



Datenquelle: COSMO-DE



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