The background of the slide is a photograph of an industrial facility at sunset. Several tall, dark smokestacks are visible, with thick plumes of dark smoke rising from them into a sky that is a mix of orange, yellow, and dark blue. The sun is partially obscured by the smokestacks in the distance, creating a bright glow. The overall scene is somewhat hazy and atmospheric.

# German Emission Inventory Central System of Emissions CSE

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&

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- **German Emission Inventory**  
Goals & Demands
- **Database System**  
Dataflow & Structure, Databases of spatial distribution
- **Software MESAP**  
Databases CSE & Point Source (Mr. Schellmann)

# German Emission Inventory

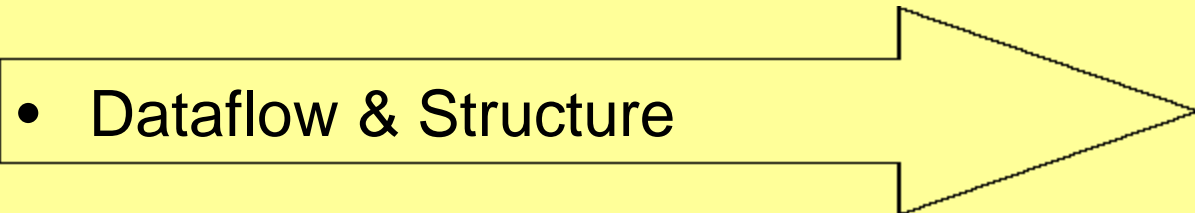
## Goals

- Central data management (making of an inventory)
- Performance of the reporting obligations

## Demands

- Transparency
- Flexibility
- Efficiency
- Consistency
- Completeness

# Database System

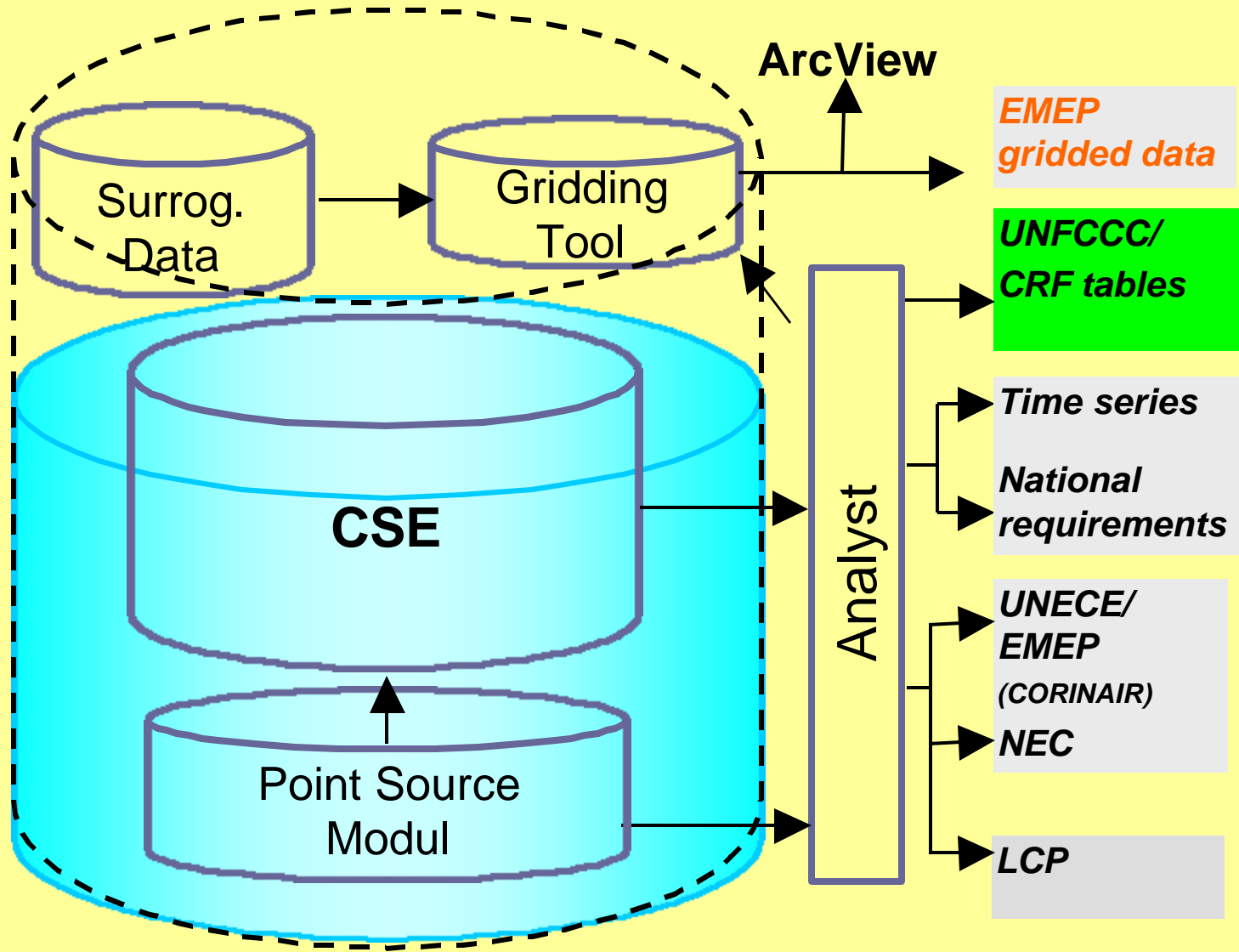
- 
- Dataflow & Structure
  - Databases of spatial distribution

Expert Information

National Database System

Reporting Obligations

Energy,  
Transport,  
Agriculture,  
Small  
Combust. Plants,  
Waste Water

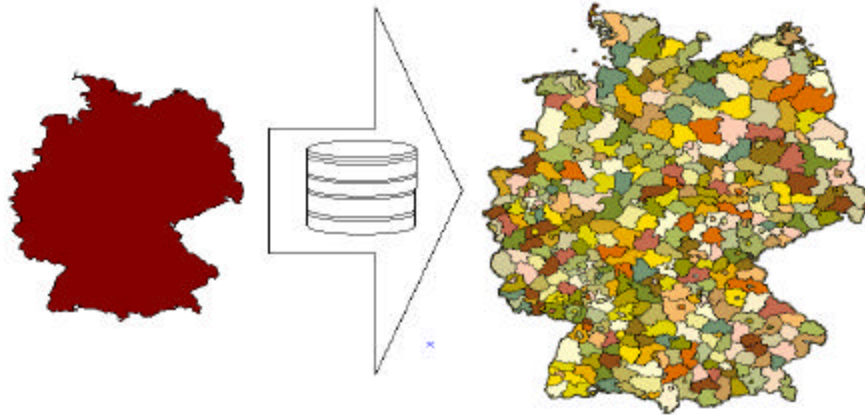


# Database System

- Dataflow & Structure

- Databases of spatial distribution
- 

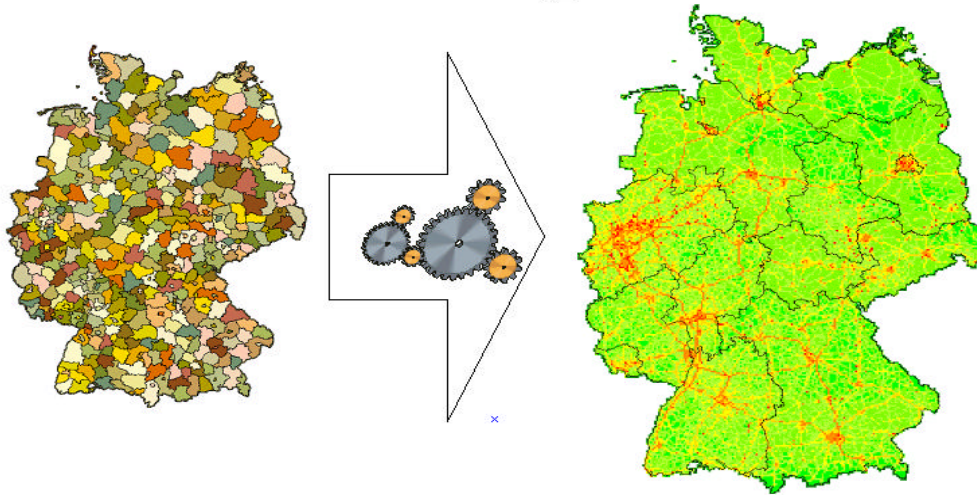
## Modul SuDa



### Compilation of Distribution Parameters

- Statistical data (e.g. number of inhabitants)
- Calculated data of emissions
- Use of areas for agriculture
- Information on coal mining, air traffic

# Gridding Tool



## Gridding of Emissions

- Determination of any grid cell in EMEP-coordinates
- Calculation of emissions of district areas according to the distribution information of SuDa
- Distribution of emissions to grid cells



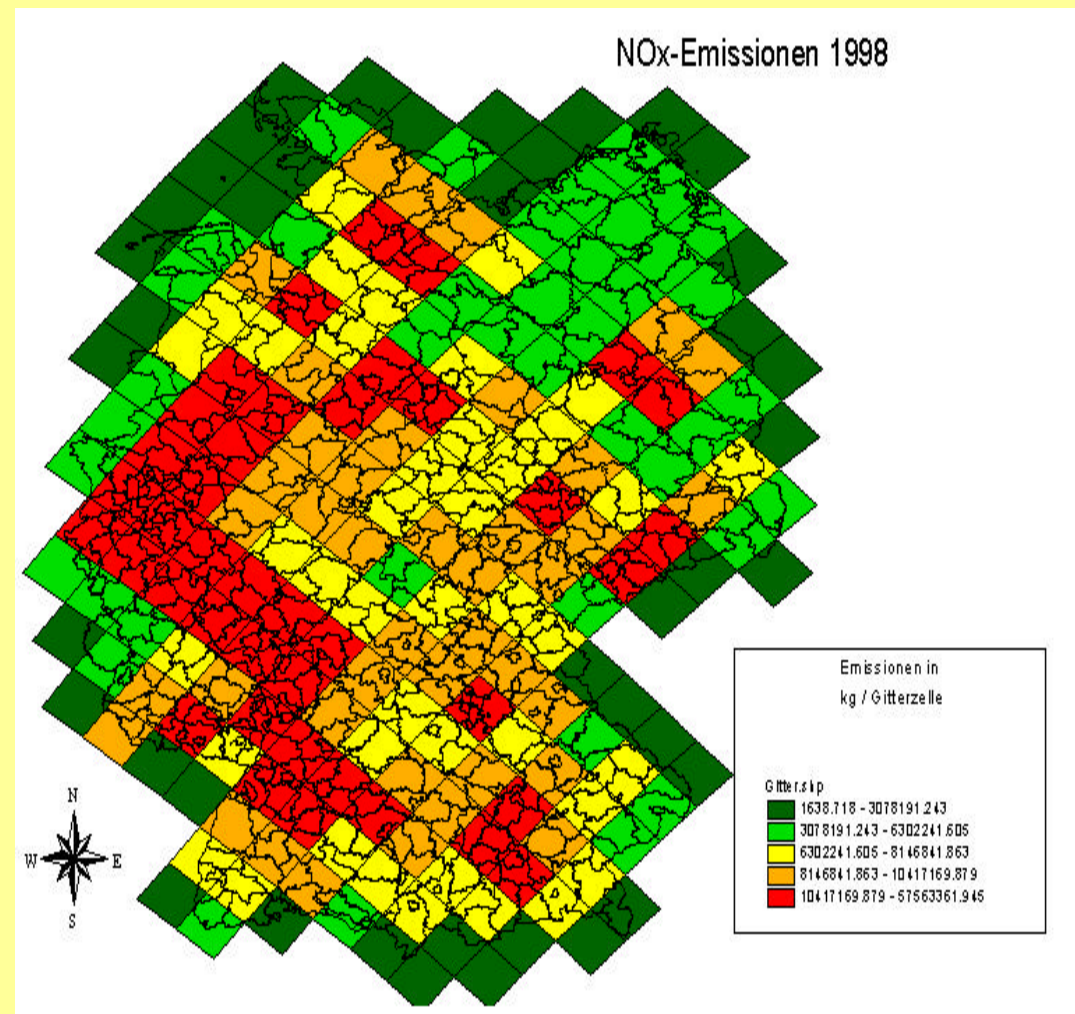
## Distribution of Emissions on Grid Cells:

### Area sources

$$\text{Emi}_{\text{grid}} = \text{Emi}_{\text{district}} * \frac{\text{area}_{\text{grid}}}{\text{area}_{\text{district}}}$$

### Line sources

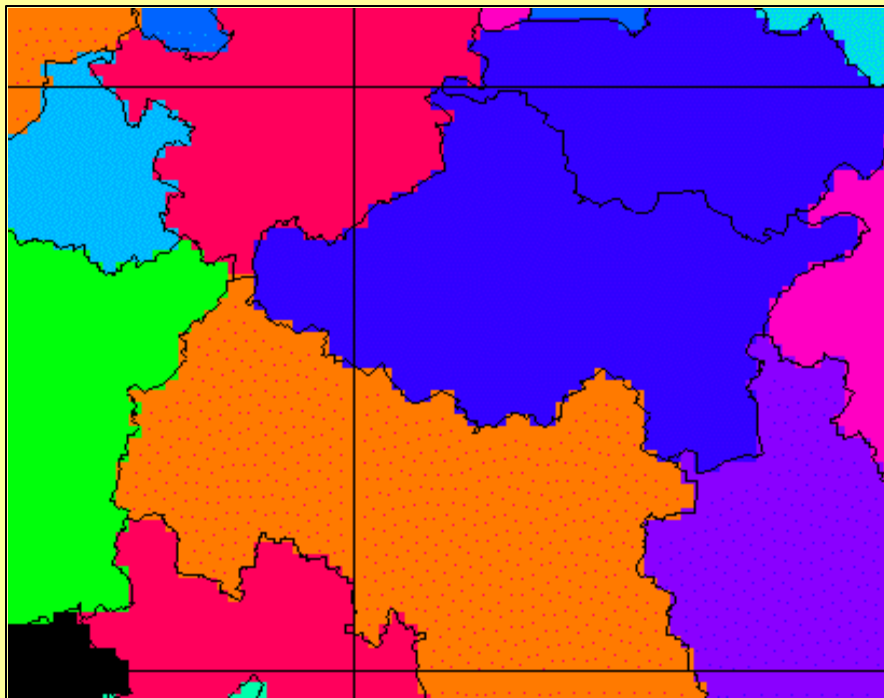
$$\text{Emi}_{\text{grid}} = \text{Emi}_{\text{DE}} * \frac{\text{DTV}_{\text{grid}}}{\text{DTV}_{\text{DE}}}$$



## Gridding of Emissions on EMEP50-Grid Cells

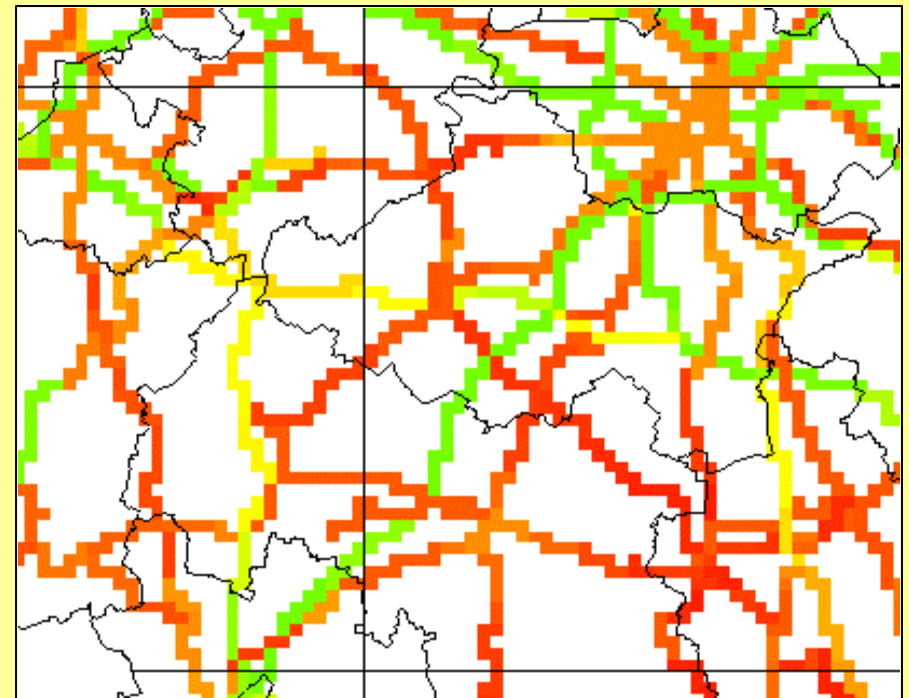
### Composition of EMEP50 grid cells out of the 1 km \* 1 km grid

Basic principle: boundaries of districts gridded on 1 km \* 1 km grid cells



### Distribution of the Daily Traffic Volume (DTV) on the EMEP50 grid cells

Basic principle: DTV on 1 km \* 1 km grid cells



## Example of Datapool SuDa (**S**urrogate **D**ata)

### **Regionalisation of emissions of passenger car traffic on motorways**

**1990:** Activities of emission register

**1995:** Daily Traffic Volume (DTV)

**1991 - 1994:** linear interpolation of the ratio of the national totals

**1996 - 1999:** Regionalisation with the data material of 1995

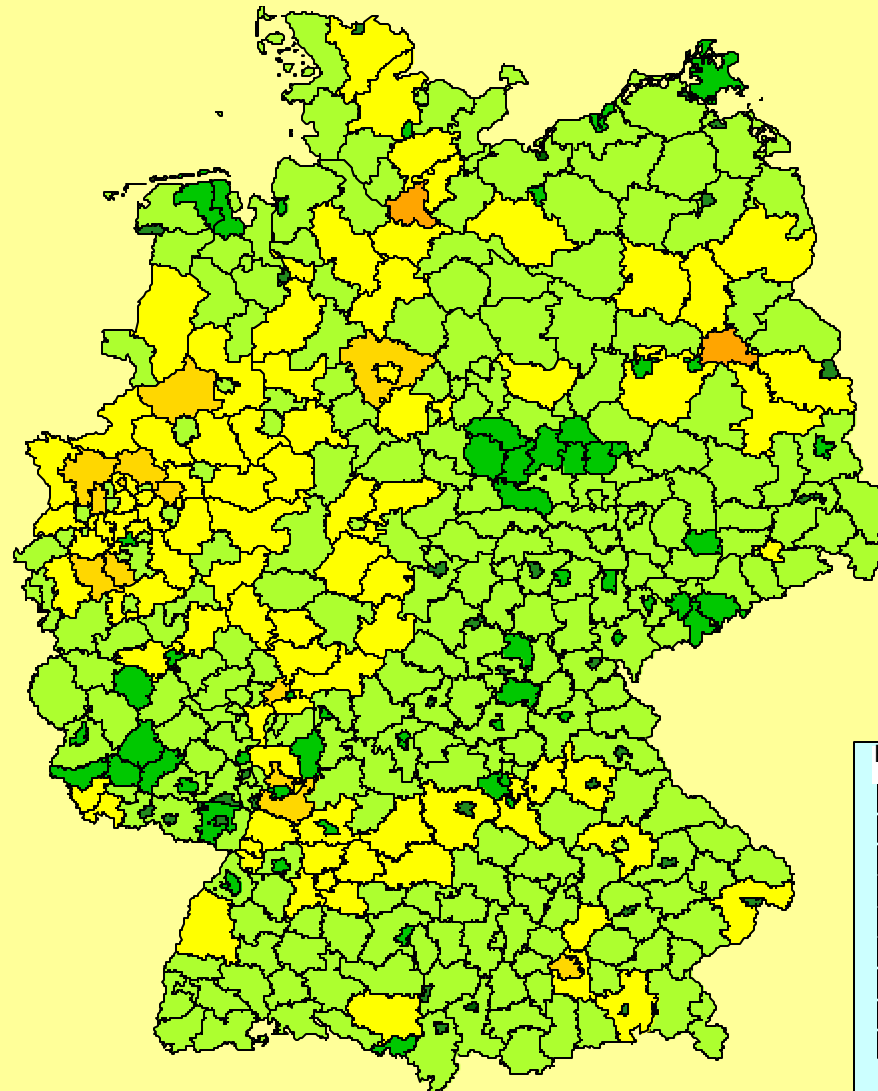
## NO<sub>x</sub> Emissions 1998

Calculation of emissions  
of district areas:










$$\text{Emi}_{\text{district}} = \text{Emi}_{\text{DE}} * \frac{\text{DP}_{\text{district}}}{\text{DP}_{\text{DE}}}$$

For each SNAP the appropriate  
distribution parameter (DP) is used.

Accumulation of the emissions after  
specification.



Emissionen in

	<
	500 -
	1000 -
	2000 -
	5000 -
	10000 -
	20000 -
	50000 -
	> 10000