

Data sets for model comparison from Germany

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1. 6 year time series of Müncheberg plot (workshop data) plots of 3 intensities (irrigated and non irrigated)
2. 3 year data at 60 grid points of a heterogenous field (test of site specific sensitivity)
3. Long term data from Müncheberg field trial (1966-1994) (rights to be clarified)

1. Müncheberg data set (workshop 2004)

Time period: 1993-1998, (annual precipitation 486 – 712 mm)

3 field plots on poor sandy soils with different agricultural management practices

Plots are divided into irrigated and rainfed

Weather data (daily):

- Precipitation (mm)
- Solar radiation (Joule cm⁻²)
- air temperature (°C at 2m height): average, minimum, maximum and at 2 p.m
- rel. air humidity (%): average and at 2 p.m.
- wind speed (m/s-1 at 2 m height): average
- soil temperatures (°C) in 5 cm, 20 cm 50 cm: average.

Soil

- Soil profiles: horizon, texture (clay-, sand-content), bulk density, Corg-content, Nt-content, C:N, pH
- Ks, α , m, n θ_s , θ_r according to van Genuchten per horizon
- Daily values of pressure heads and soil water contents automatically recorded by tensiometers in depths 30 cm, 60cm, 90 cm , 120 cm, 150 cm, 200 cm and 300 cm.
- Daily values of soil water contents automatically recorded by TRIME-TDR probes in depths 0-30 cm, 30-60cm, 60-90 cm , 90-120 cm and 120-150 cm.
- Gravimetric observations of soil water contents 0-30, 30-60 and 60-90 cm at 6-8 sampling dates per year .
- Nitrate and ammonium contents in the compartments 0-30 cm, 30 – 60 cm and 60- 90 cm at 6-8 sampling dates per year.

Crops

- Above ground biomass (hand harvest concerning stem + leaves and fruit),
- yield (combine harvest)
- ontogenesis (DC)
- C- and N-contents of stem + leaves and fruit at fixed days (6-8 times per year).

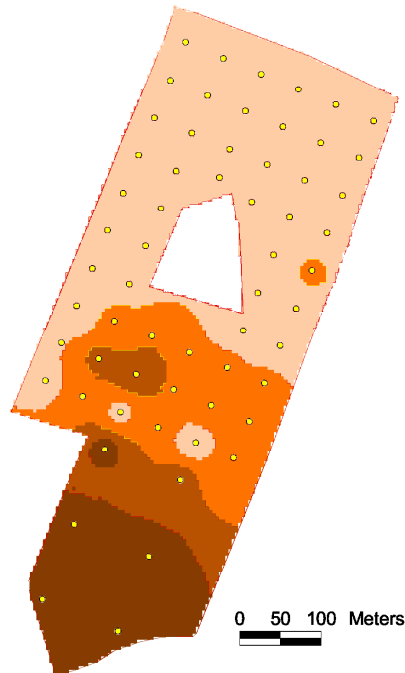
Data are available for: winter wheat, winter rye, winter barley, sugar beets

Management data (sowing, harvest, fertilization, tillage) are given for all treatments.

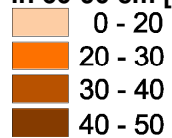
2. Local investigations on field Autobahn

Grid sampling for model input data acquisition

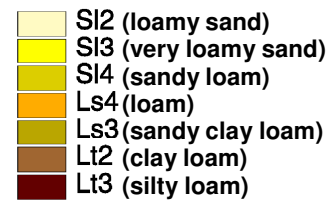
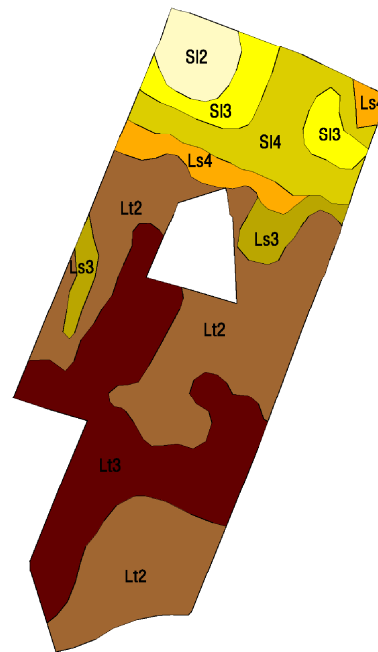
stone
content



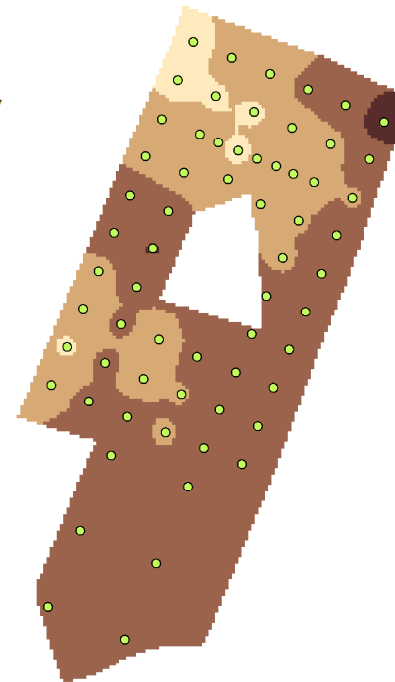
Stone percentage
in 60-90 cm [%]:



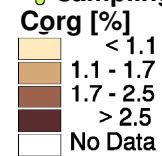
soil texture



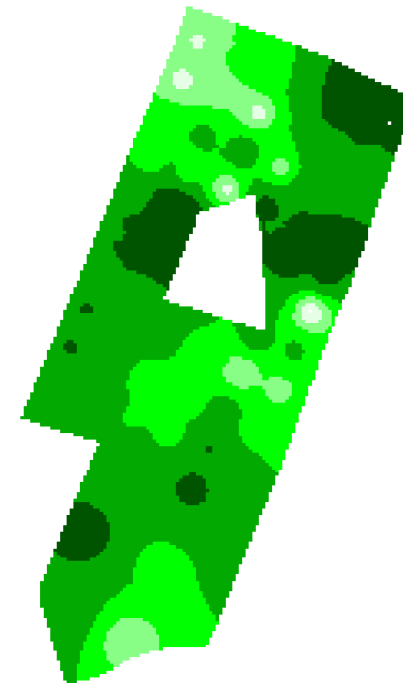
organic carbon



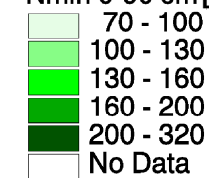
● sampling points



initial soil mineral N
(15. September 1999)



Nmin 0-90 cm [kg N*ha⁻¹]:



2. Available data at 60 grid points

Soil data

- Texture data (clay, sand, silt), stone content (estimated) (3 layers down to 90 cm)
- organic matter content, C/N ratio
- Water content in early spring and after harvest (0-90cm)
- Soil mineral nitrogen in early spring and after harvest (0-90 cm)

Management data

- Sowing and harvest date,
- N fertilization (date, amount, type)
- Tillage (date, depth)

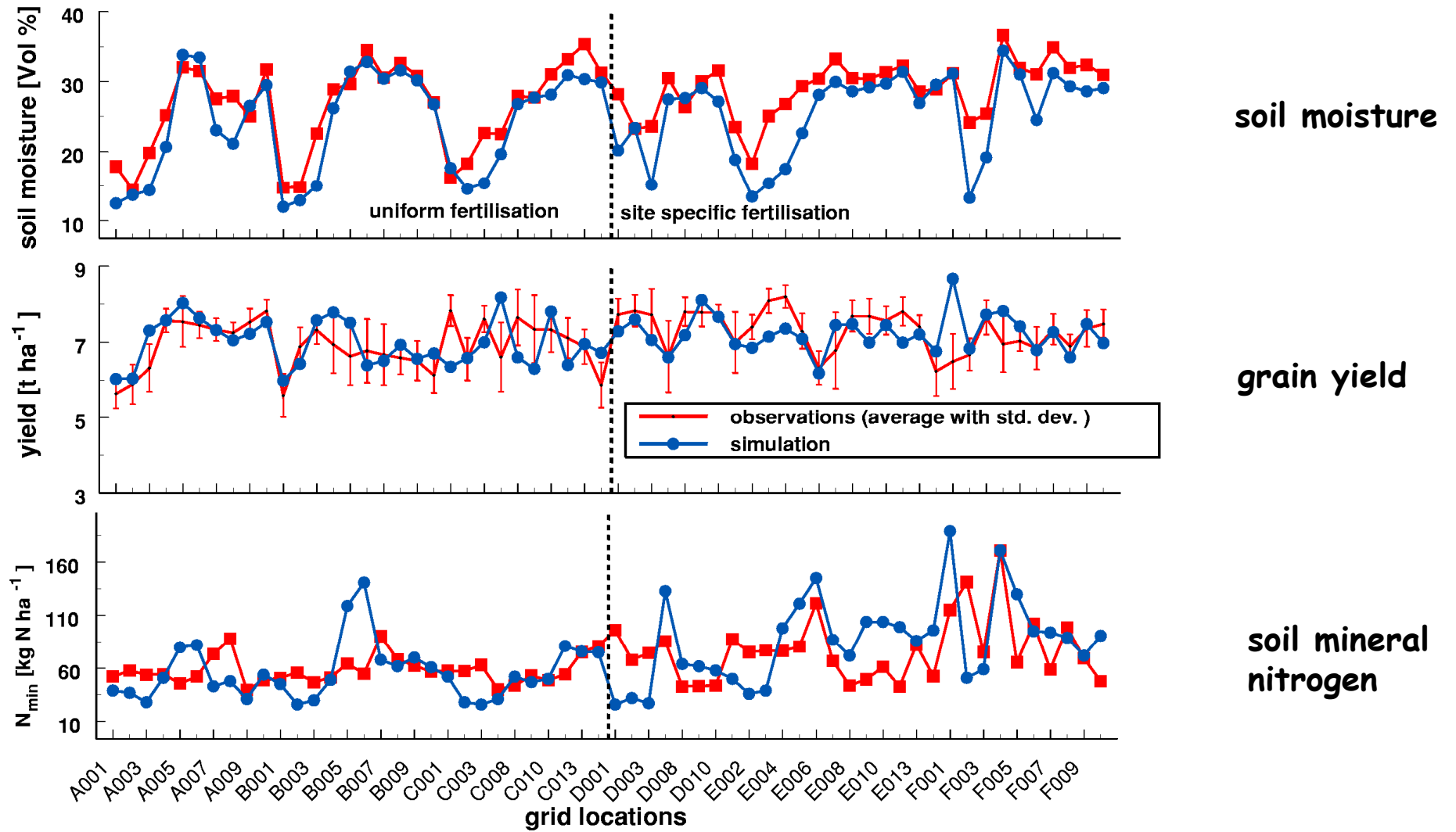
Weather data (daily)

- Precipitation
- Temperature (2m)
- Wind speed
- Global radiation
- humidity

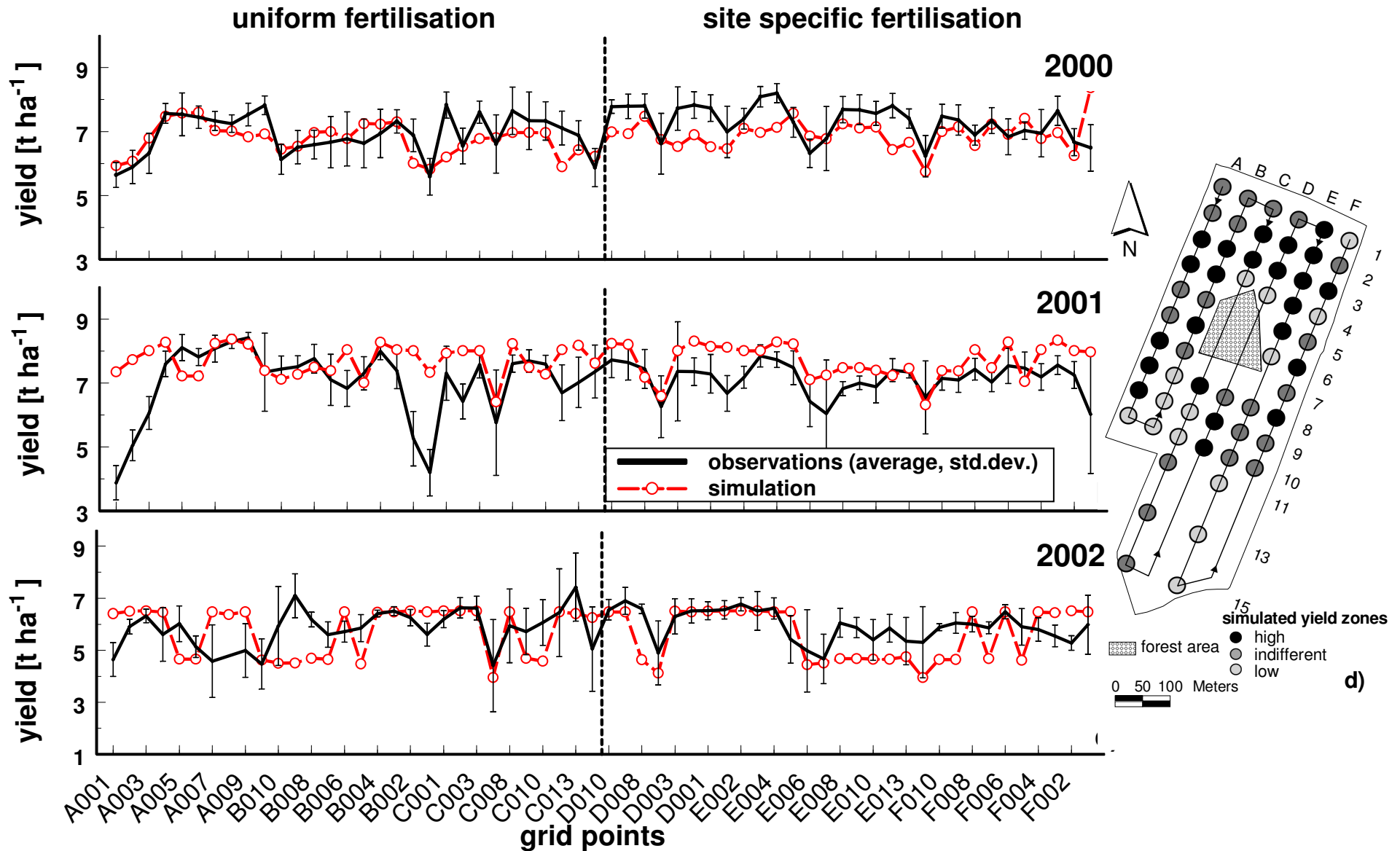
Crop data

- Yield data of 3 years (yield monitor at combine harvester) average and standard deviation within a 10 m circle.
- Crops: winter wheat, winter wheat, triticale

2. Grid observations at harvest on field Autobahn



2. Measured and simulated crop yields at grid points of field Autobahn after 1, 2 and 3 year simulation with HERMES



3. Long term field trial Müncheberg

Time period: 1966-1994

field plots on poor sandy soils with different levels and types of fertilization (21 variants, 7 replications)

Weather data (daily):

- Precipitation (mm)
- Sunshine duration (hours)
- air temperature (° C at 2m height)
- rel. air humidity (%)
- Wind speed (since 1988)

Soil

- Soil profiles: horizon, texture (clay-, sand-content), bulk density, Corg-content, Nt-content, C:N, pH
- **Crops**
- yield (hand harvest)
- residues

Data are available for: 6 x winter wheat, 7 x spring barley, 8 x sugar beet, 5x potatoes, 2 x winter rye
Management data (sowing, harvest, fertilization) are given for all treatments.

Availability for model comparison not yet clarified!