

Radiological impact from regular emissions

Comparison of two models

OPS: Hans van Jaarsveld

- REGULAR EMISSIONS -

Dispersion: Lagrangian,

Meteo: yearly statistics based on

10 stations in the Netherlands –

! NO RADIOACTIVE

DECAY OF PARTICLES !



Phosphorus production in South-West Netherlands

NPK-Puff:

- EMERGENCY RESPONSE -

Dispersion: 1 Lagrangian

puff every 3 minutes,

Meteo: 6-hourly HIRLAM

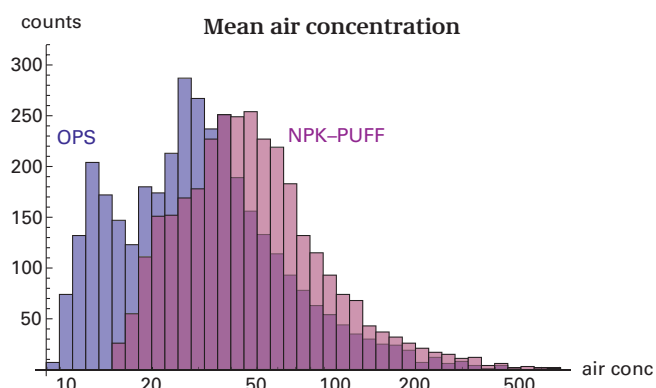
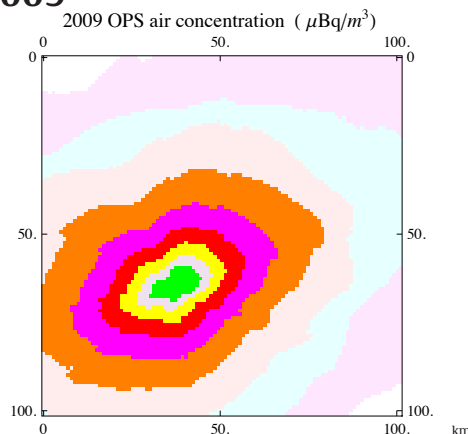
(model) or 10-minutes

stations (measurement)

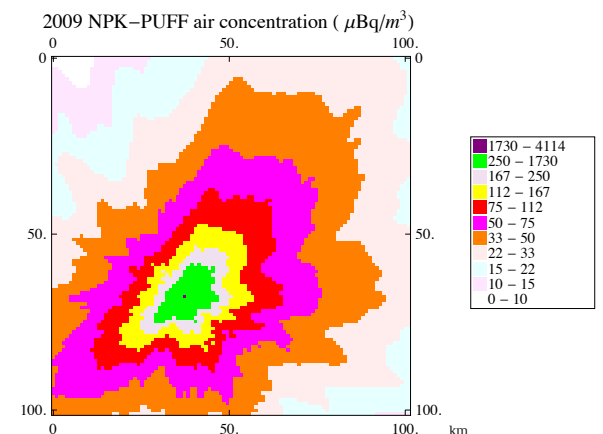
(for comparison:

no radioactive decay in these runs)

2009



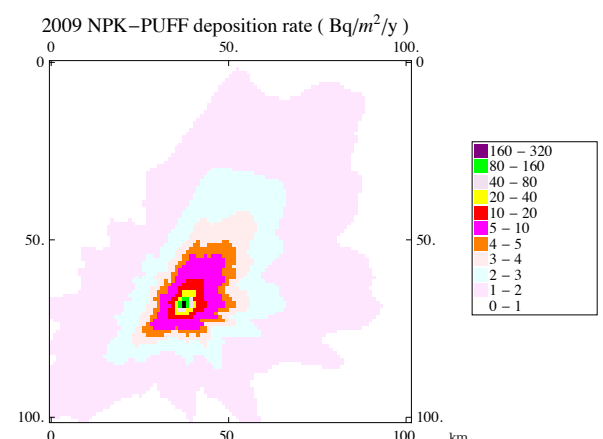
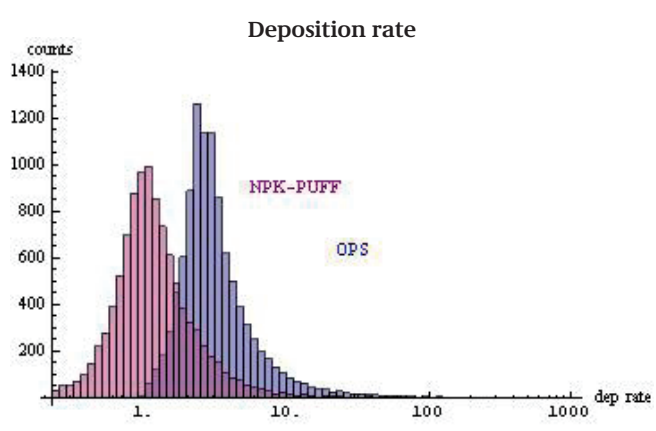
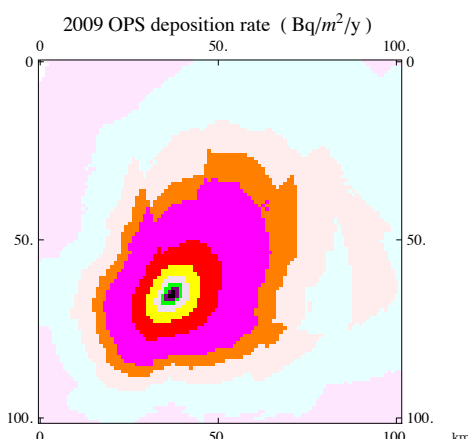
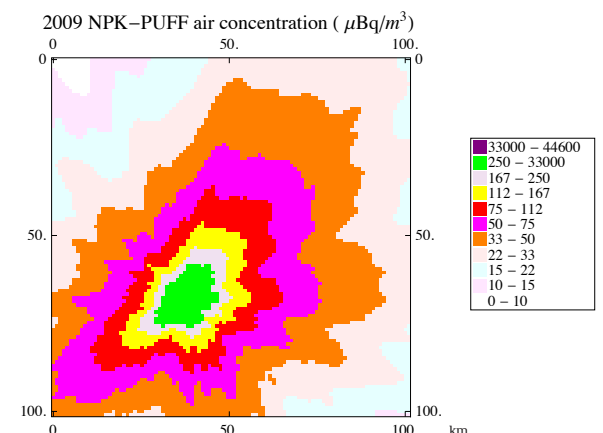
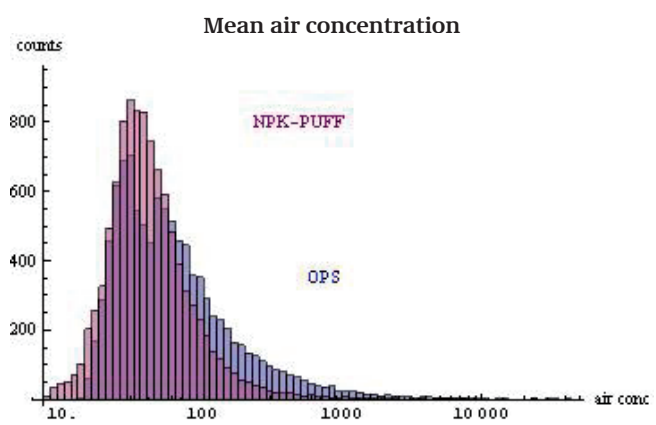
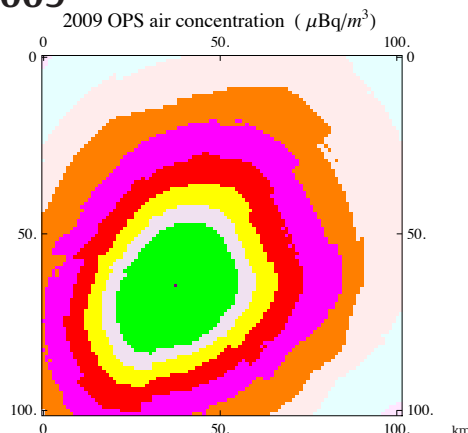
Large difference!



Reason: in OPS mixing layer height at night (~50 m) < release height (55m)

New comparison based on release height set at 10 m, heat content at 0 MW

2009



OPS and NPK-Puff yield consistent air concentration.

Matching of deposition rate requires further adjustment of relevant parameters.

NPK-Puff can be used to estimate effects of regular emissions with fully resolved meteo (+ mixing layer height from HIRLAM fields) and radioactive decay of particles