Baltic-C Workshop 8-10/11-2010

Vegetation modelling, future scenarios and preliminary results

Scenarios for the future

- Different greenhouse gas emission scenarios, (B1, A1B,A2)
- Three different GCMs (ECHAM5-(B1, A1B,A2), CCSM3-A1B, HadCM3-A1B)
- Three different inital conditions (ECHAM-A1B (1,2,3)
- In total seven different scenarios

Scenarios for the future

- Landuse scenarios, (ALARM)
  - Different assumptions concerning socioeconomic and climatic development, 3-different socio-economic lines: (GRAS, SEDGE, BAMBU)
  - Impact of CO2 and climate
    - GRAS - Coupling of the ecosystem LPJ-Guess, with the ALARM model LU, climate scenario AB1F1, Hadcm3
    - SEDGE - Coupling of the ecosystem LPJ-Guess, with the ALARM model LU, climate scenario A2, Hadcm3
    - BAMBU - Coupling of the ecosystem LPJ-Guess, with the ALARM model LU, climate scenario B1, Hadcm3

Continued.

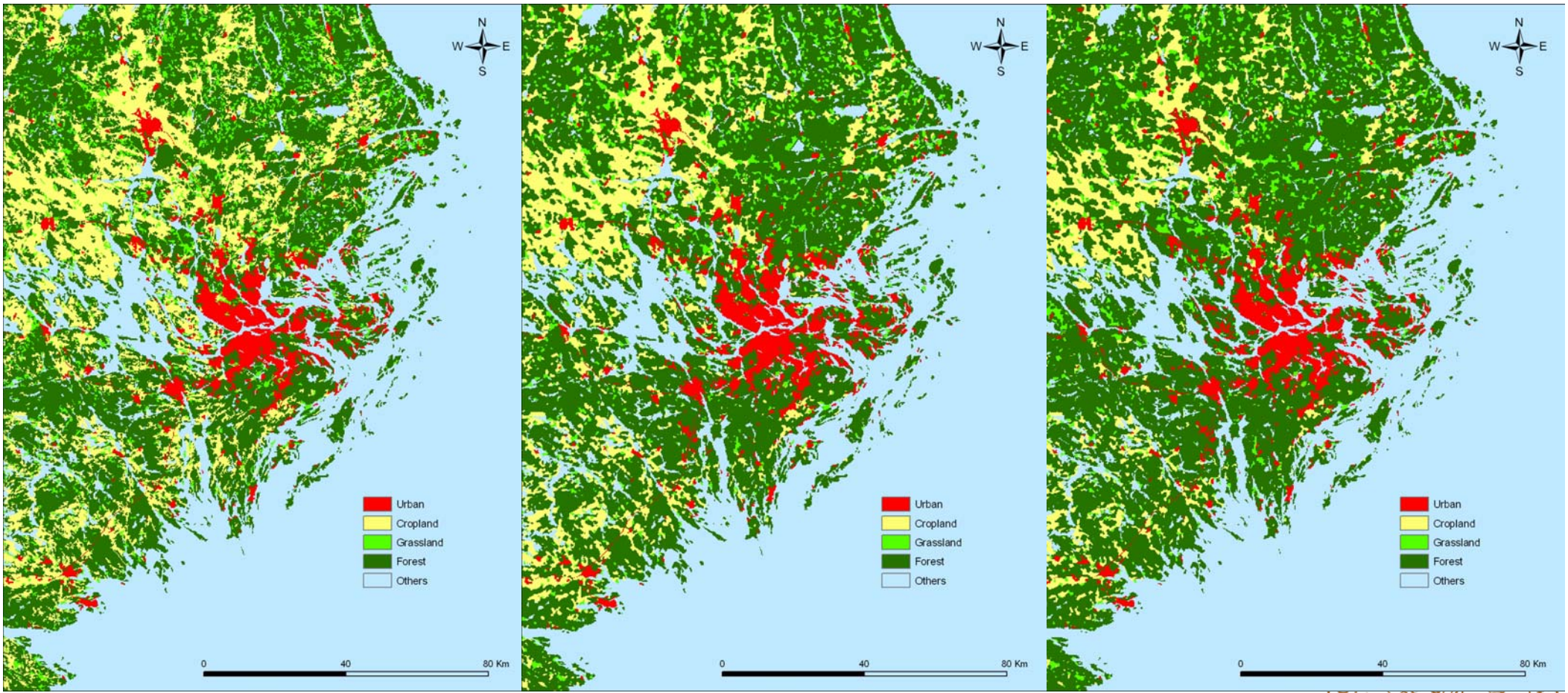
- Further driving forces:
  - Forest management
  - Total demand for agricultural production
  - Biofuel demand
  - Allocation rules for agriculture
  - Patterns of new urbanisations
  - Etc. (a long table of factors)
  - ALARM, a Mistra-Swecia project

MISTRA SWECIA
CLIMATE, IMPACTS & ADAPTATION

Modelled land use change for Stockholm region

Nicolas Dendoncker, U Edinburgh

Present day **2020** **2080**

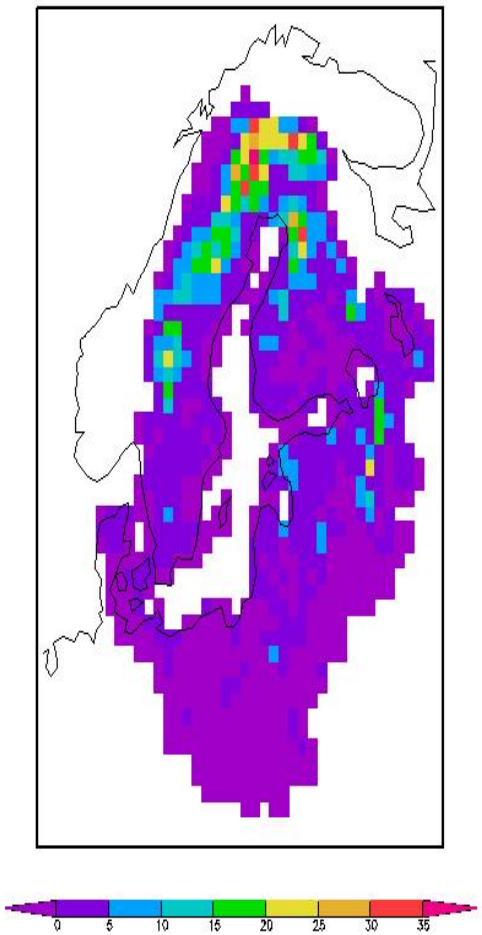


Economic growth-globalisation scenario (ALARM-GRAS)

Preliminary results

- Current data and future scenarios
  - Wetland part in place and finished
    - Main part of DOC production from wetlands
    - A fairly good picture of DOC prodution is probably already achived.
  - Non-wetland part under development
    - Planed to be in place during the next 4-5 weeks

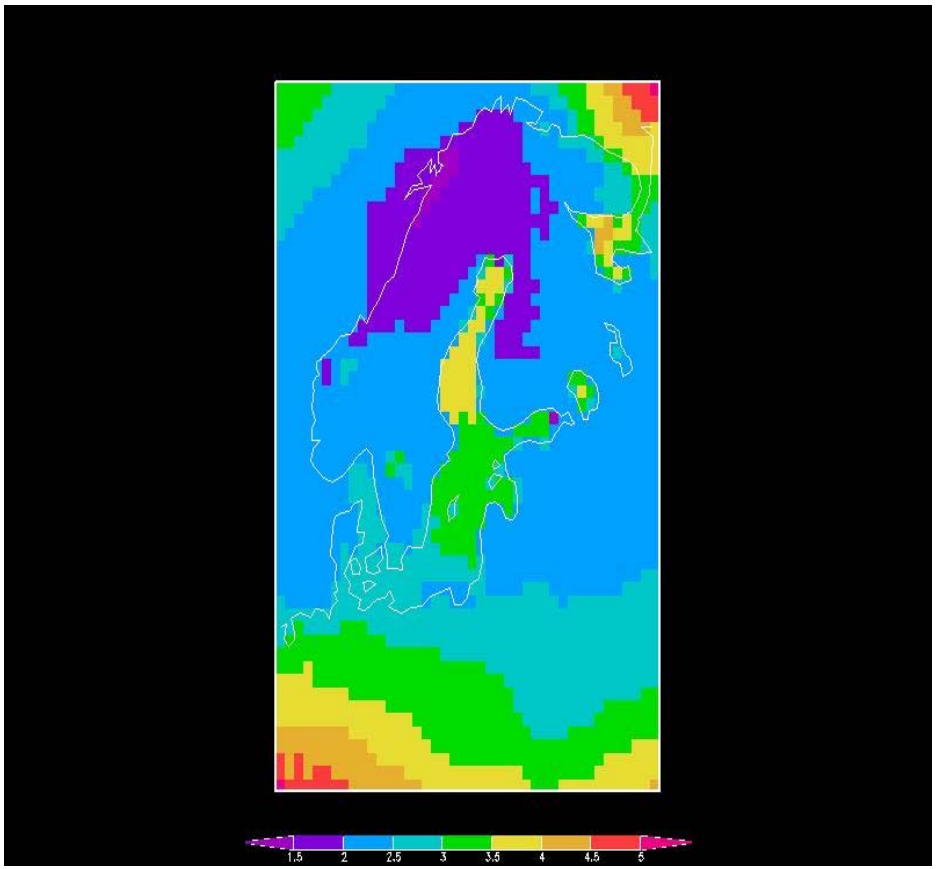
DOC production

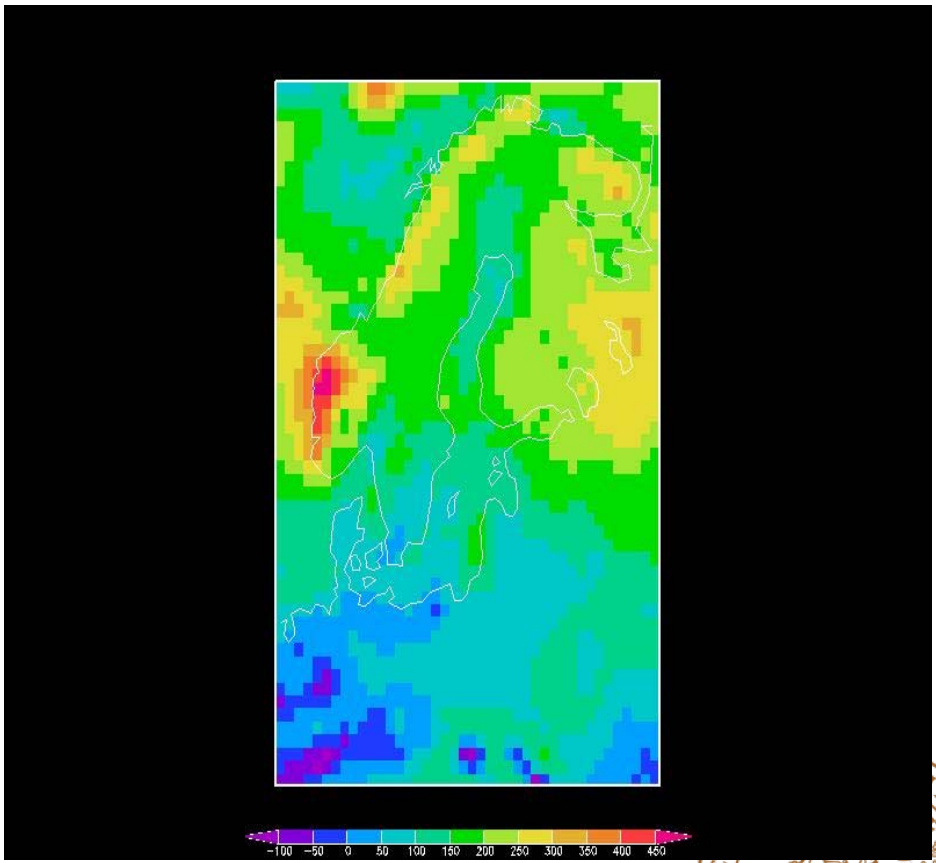


- Distribution of wetlands,(percentage of gridcell area)

DOC production

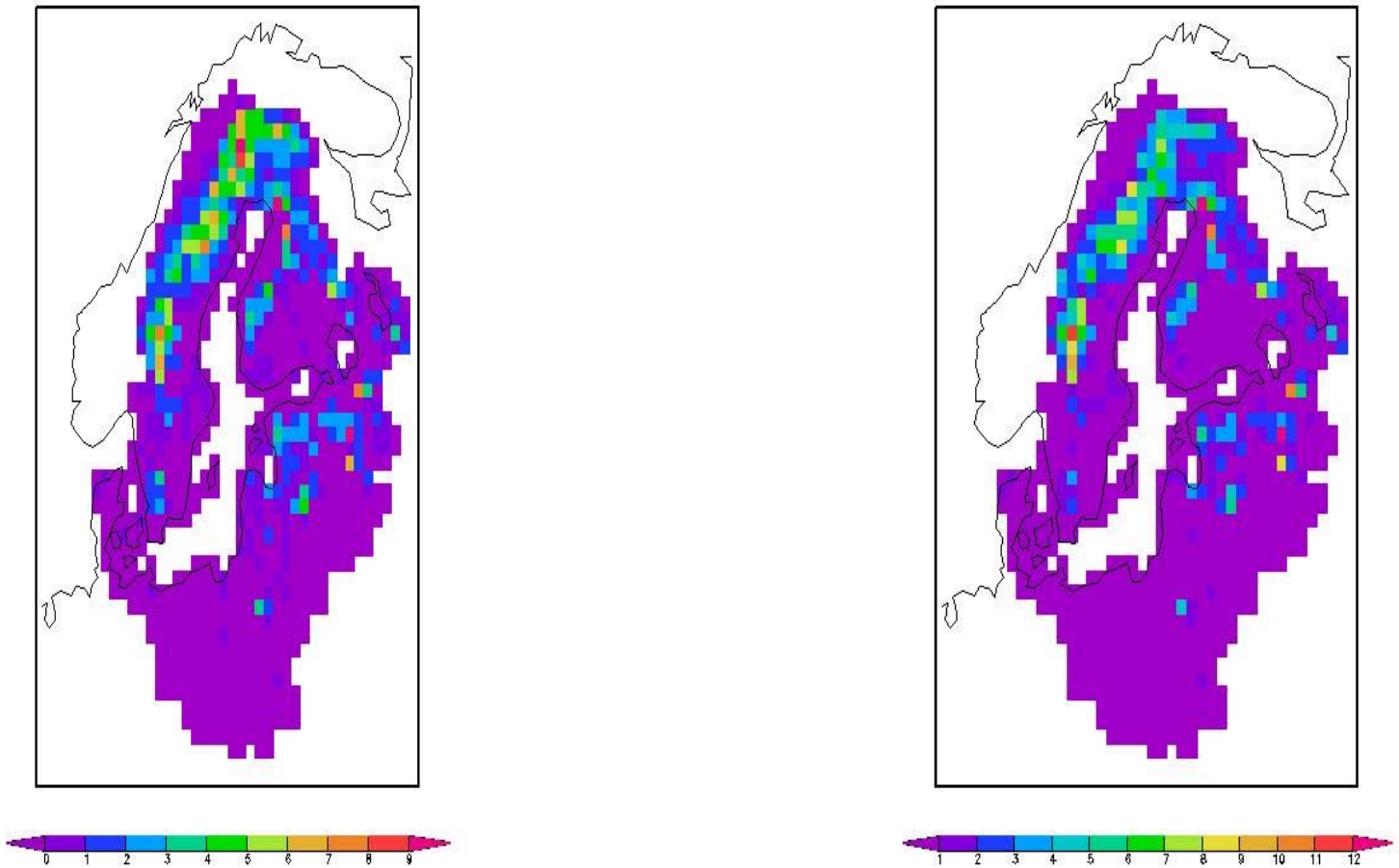
Difference in temperature and precipitation between 2000 and 2090



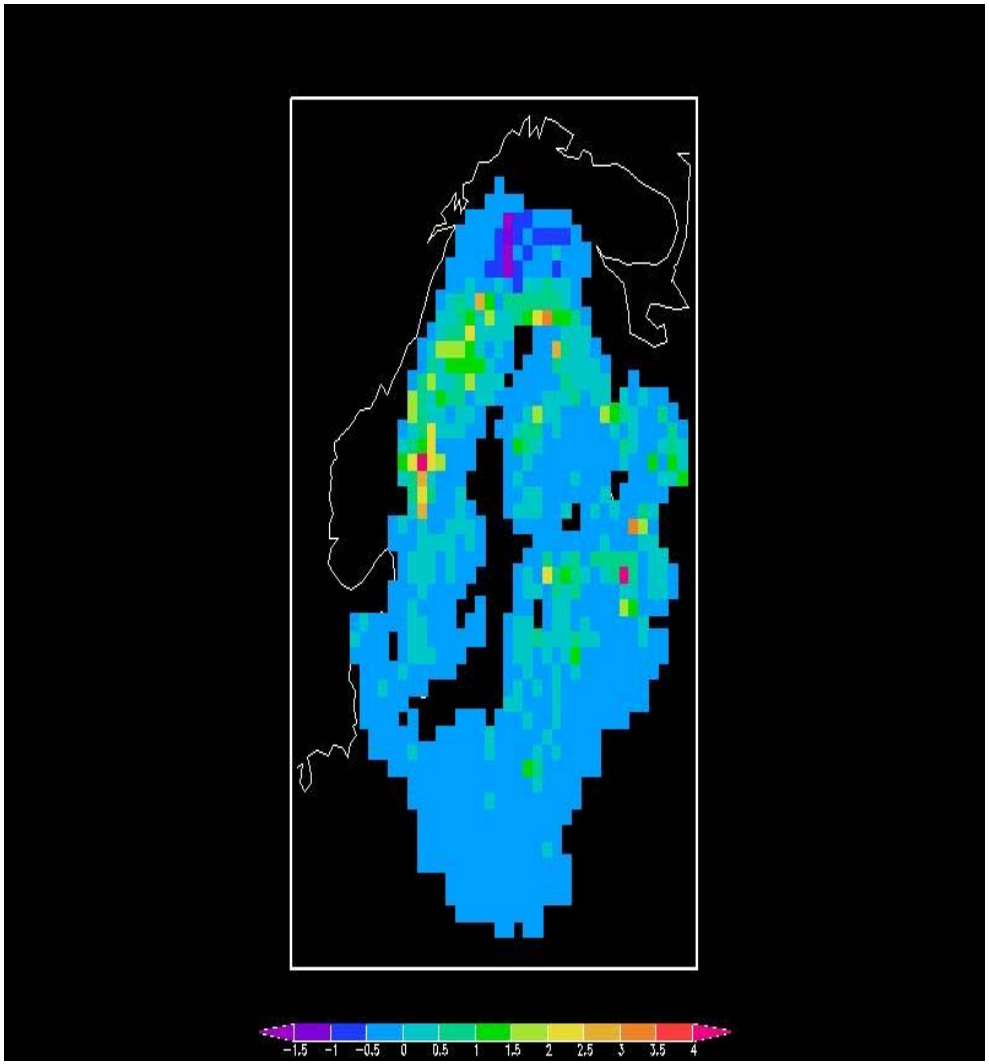


DOC production

DOC production in runoff, average 1996-2005 and 2085-2095, g C/m2/yr (A1B)



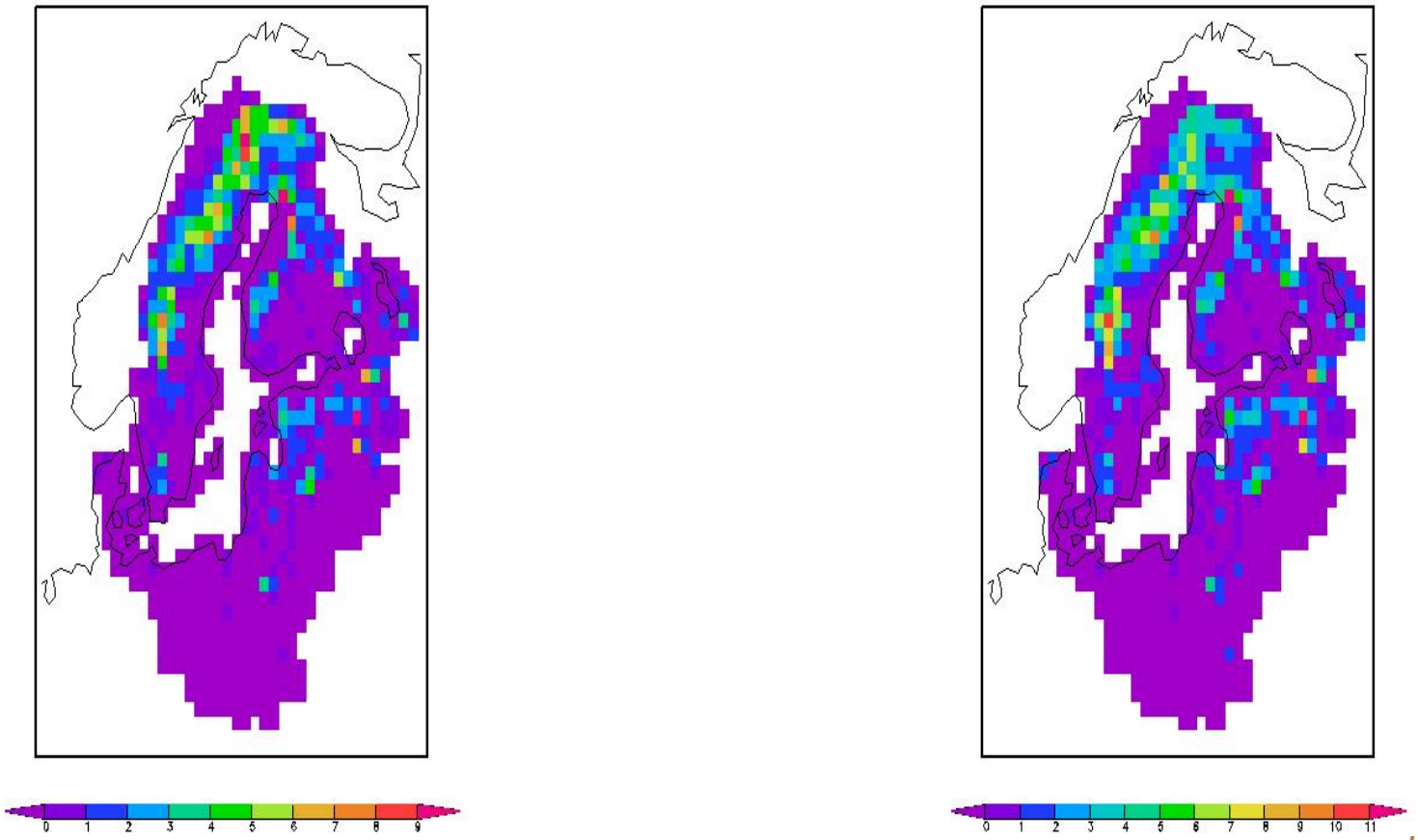
DOC production



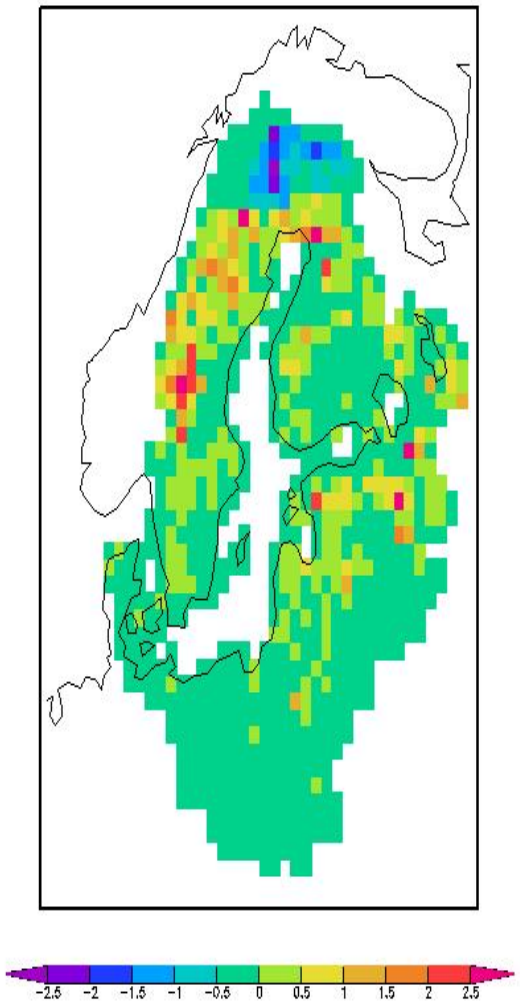
- Difference on DOC production in runoff between average periods, 1996-2005 and 2085-2095 (A1B) (g C/m2/yr)

DOC production

DOC production in runoff, average 1996-2005 and 2085-2095, g C/m2/yr (B1)



DOC production



- Difference on DOC production in runoff between average periods, 1996-2005 and 2085-2095 (B1) (g C/m2/yr)