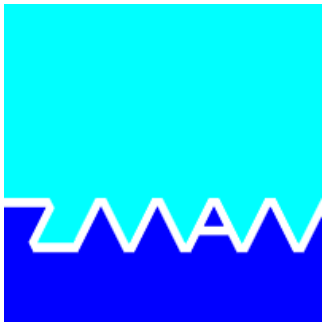

Emissions Scenarios for Stream 2 Simulations

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Aims and Activities of RT7

- *Main scientific task*: To test the sensitivity of emission scenarios to climate change
- Preliminary result: Feedback on CO2 is small, because regional ups and downs cancel – now adding sulphur, may be run with slab ocean model
- *Major service task*: Stabilisation scenarios
- *Miscellaneous task*: New emission scenarios

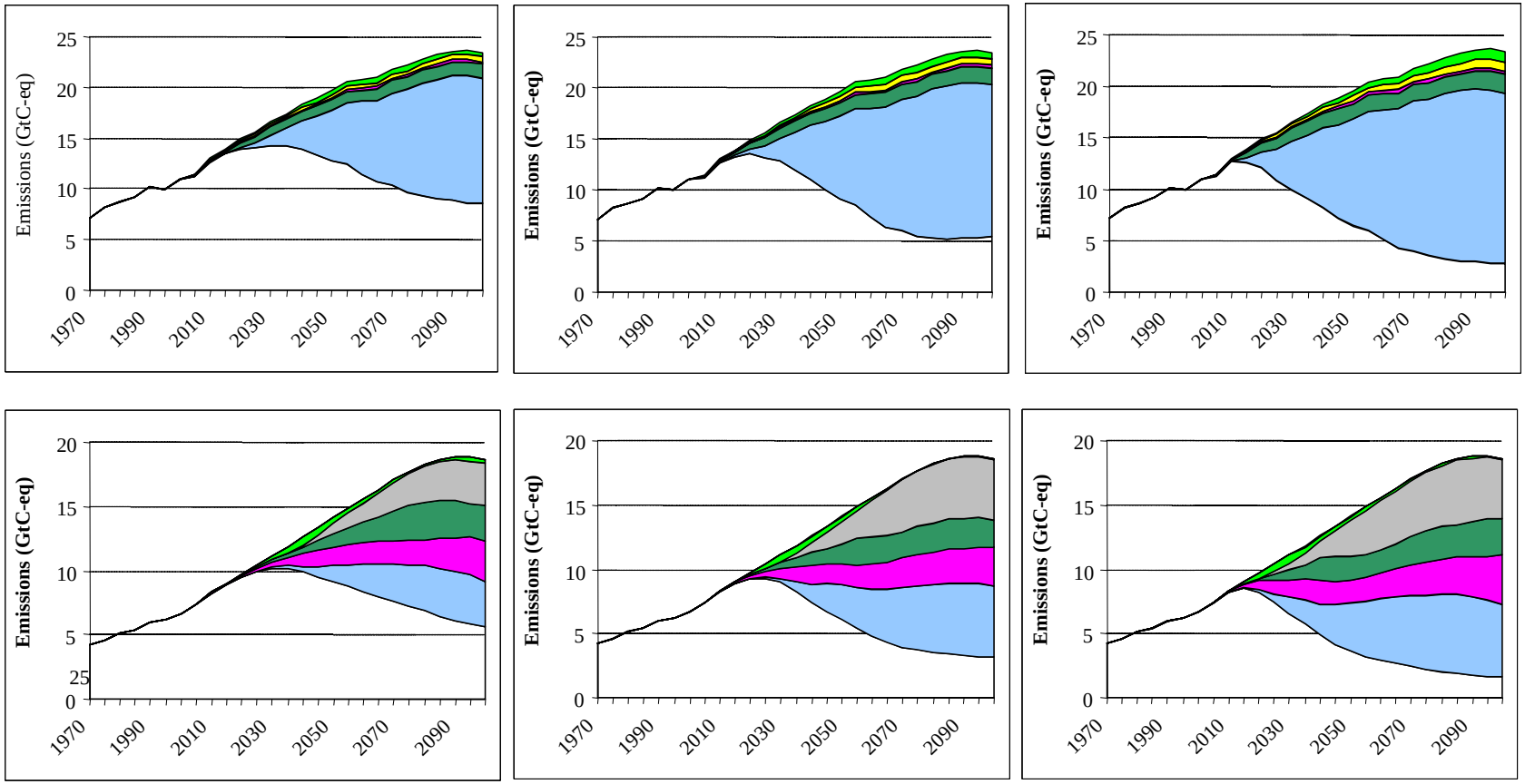
Stabilisation scenarios

- Aka emission reduction scenarios
- Emission reduction from a variety of baseline emission scenarios
- Four emission reduction targets, so that there is no middle
- No round numbers (3.4 / 4.7 / 5.8 / 6.7 Wm^{-2}) so that people won't think these numbers aren't random
- Full when, where and what flexibility, because this is the only implementation that is uniquely defined
- By coincidence, these are also the US CCSP scenarios and the EMF22 scenarios to be

650 ppm CO_2-eq. 550 ppm CO_2-eq. 450 ppm CO_2-eq.

a) Contribution to GHG reduction by gas

b) Contribution to CO_2 reduction by measure



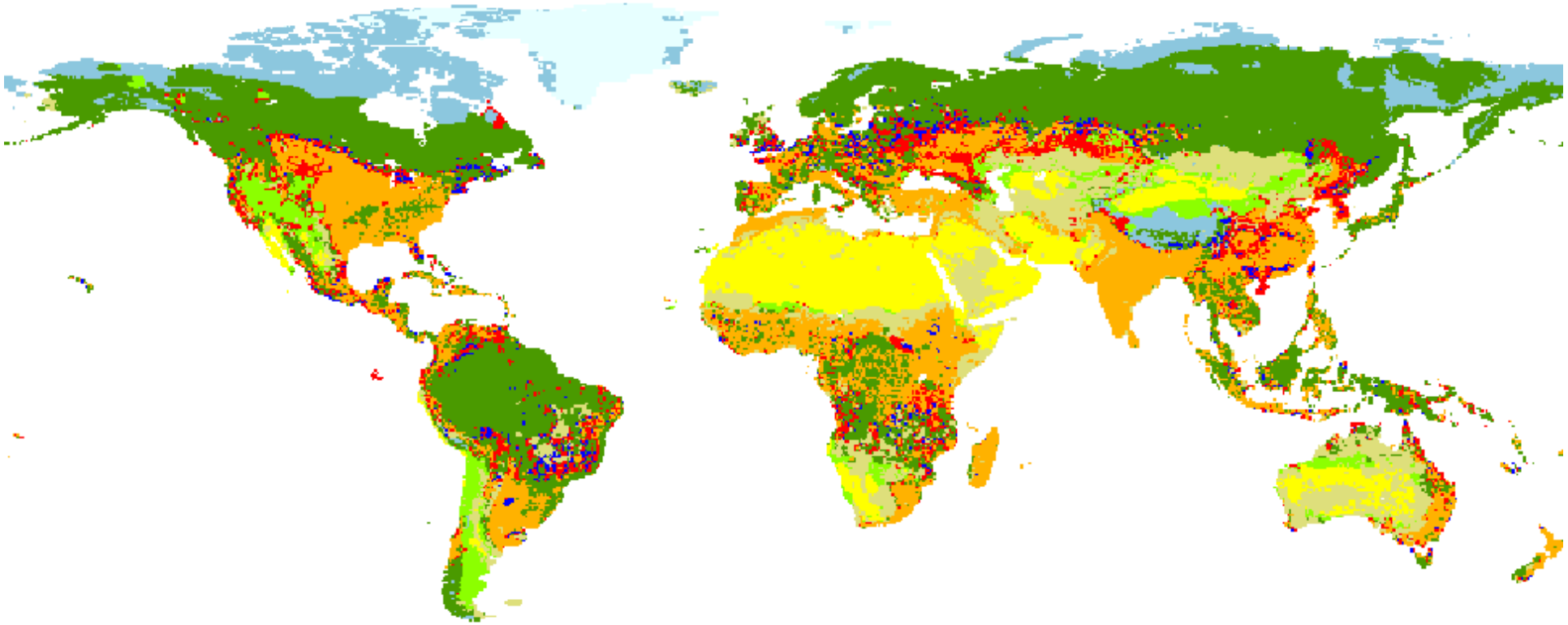
a) Contribution to GHG reduction by gas

- Carbon plantations
- F-gasses
- N2O
- CH4
- CO2

b) Contribution to CO_2 reduction by measure

- Fuel switch
- CCS
- Biofuels
- Nuclear, solar & wind power
- Efficiency improvement

Land use pattern in 450 ppm mitigation scenario (2100)



Forests
Grass
Desert
Ice
Tundra
Agriculture
Ext. grassland
Bio-energy
C-plantation

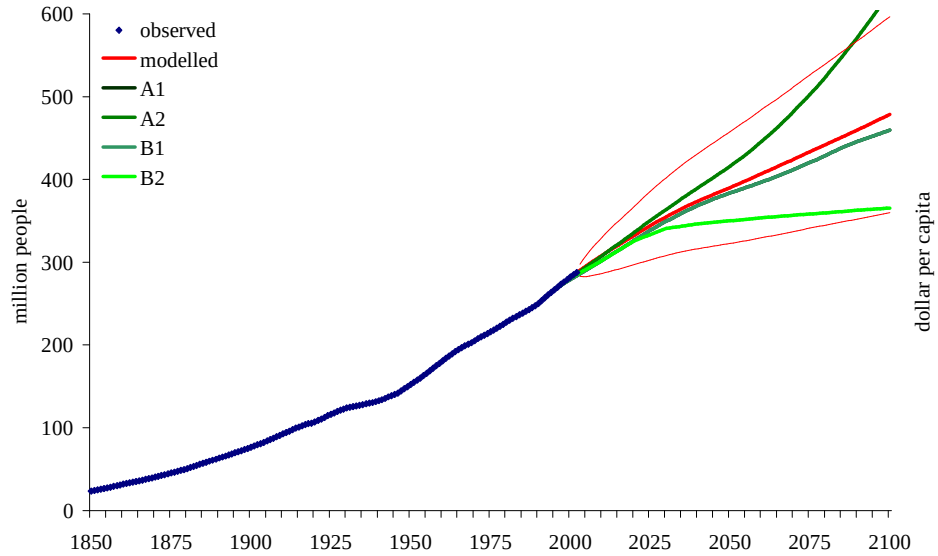
Netherlands Environmental Assessment Agency

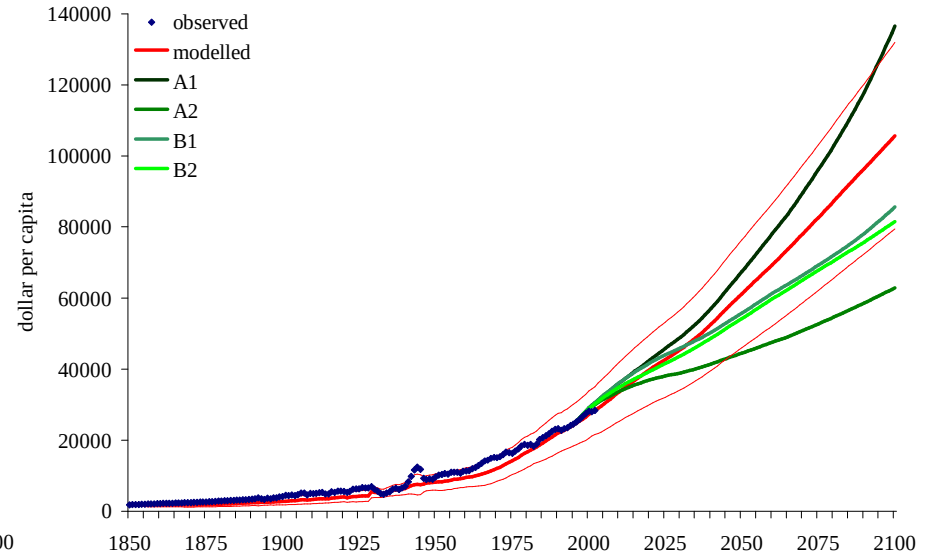
Stabilisation scenarios -2

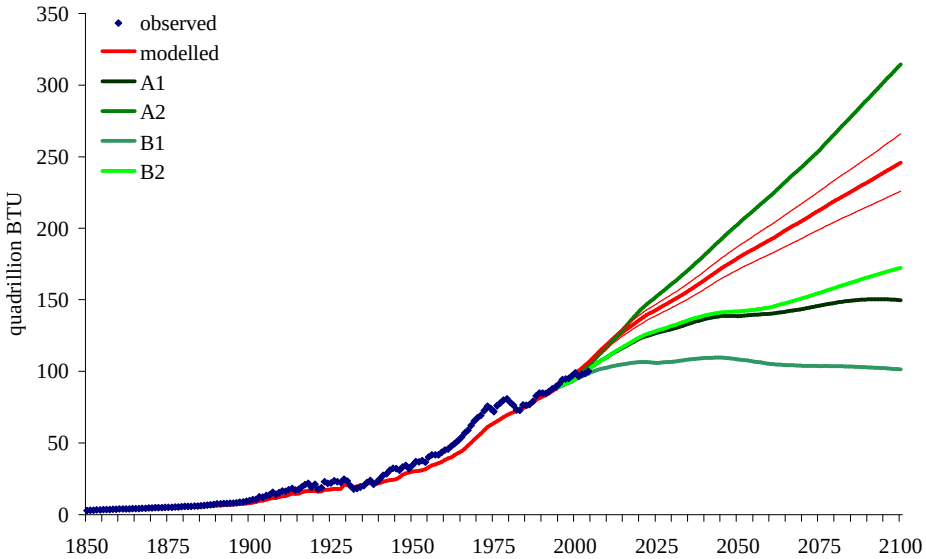
- Emissions results for 5 models
- Land use results for 2 models
- With 4 targets and 4 baselines, this makes 80 scenarios
- The scenario groups all have a simple climate model
- Probably best to pick the one or two emission reduction scenario that deviates most from the baseline scenarios
- The political discussion seems to be between doing nothing (brown US), 650 ppm (green US, brown EU), and 450 ppm (brown EU)

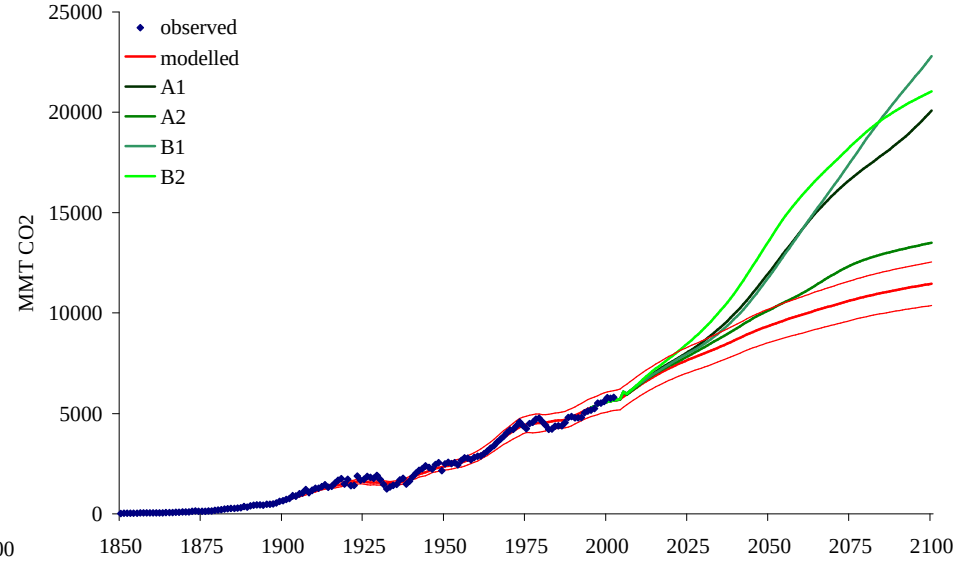
Baseline scenarios

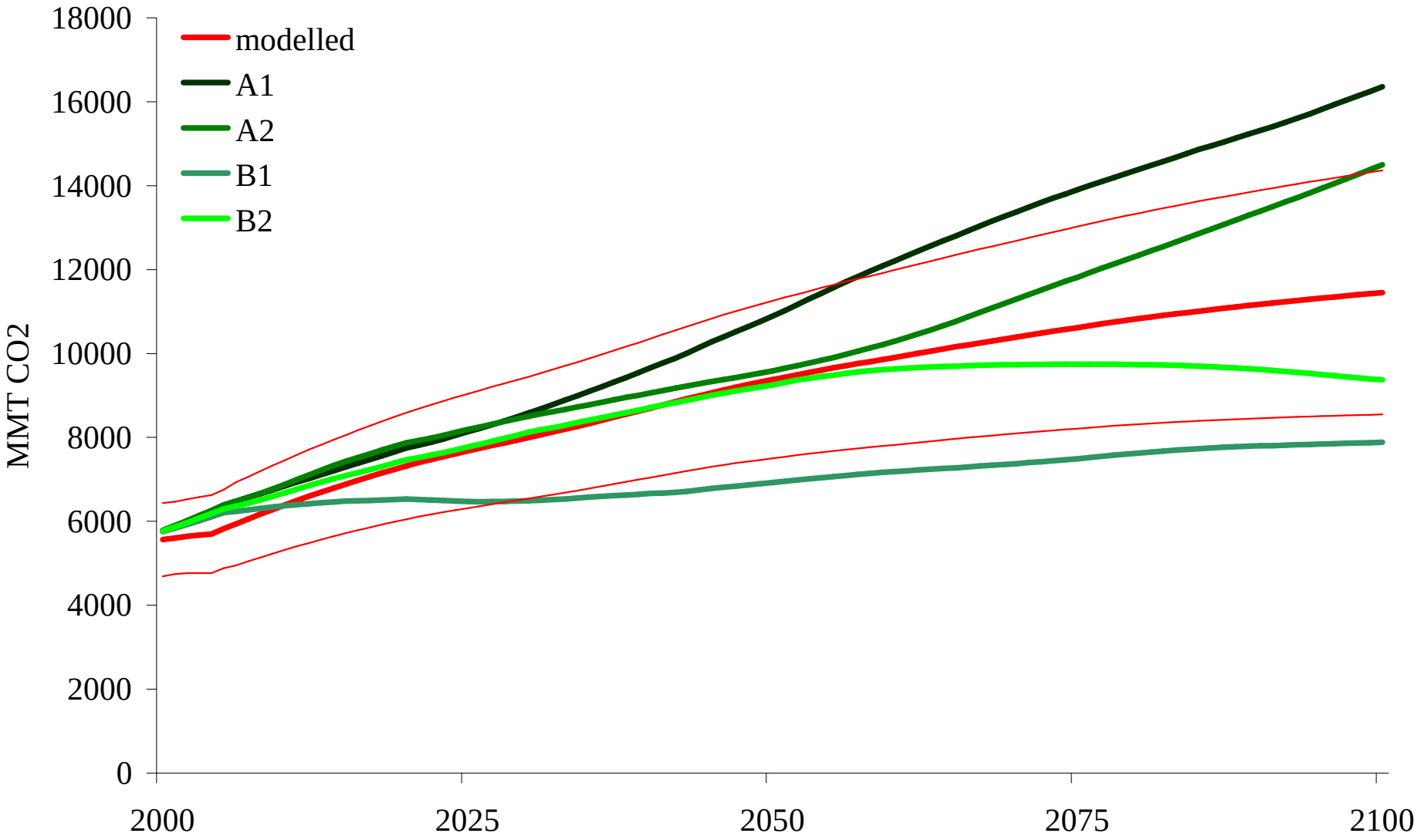
- IPCC SRES scenarios severely criticised, tempers still high
- IPCC will not develop new scenarios, unclear who will coordinate new scenario development, if anyone
- IIASA and RIVM will only publish minor updates of SRES
- CIRED and U Hamburg are working on new scenarios, but have no track record
- Minor complications: There is no budget, and the deliverable for Sep 06 was added only in Feb 06


observed
modelled
A1
A2
B1
B2
million people
600
500
400
300
200
100
0
1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100


observed
modelled
A1
A2
B1
B2
dollar per capita
140000
120000
100000
80000
60000
40000
20000
0
1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100


observed
modelled
A1
A2
B1
B2
quadrillion BTU
350
300
250
200
150
100
50
0
1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100


observed
modelled
A1
A2
B1
B2
MMT CO2
25000
20000
15000
10000
5000
0
1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100


18000
16000
14000
12000
10000
8000
6000
4000
2000
0
MMT CO2
modelled
A1
A2
B1
B2
2000
2025
2050
2075
2100

Conclusions

- Don't worry about the feedback of climate change on emissions scenarios
- Emission reduction scenarios are ready – you just have to decide:
  - how many and which (2: 450, 650)
  - from which model (IMAGE)
  - from which baseline (A1B)
  - in what format (Excel)
  - where (RT7 website)
  - when (July 1)
  - will organise discussion on web
- New baseline scenarios are being worked on – and something will be ready by September