



POTSDAM INSTITUTE FOR
CLIMATE IMPACT RESEARCH

The 1.5°C Special Report

New challenges ahead

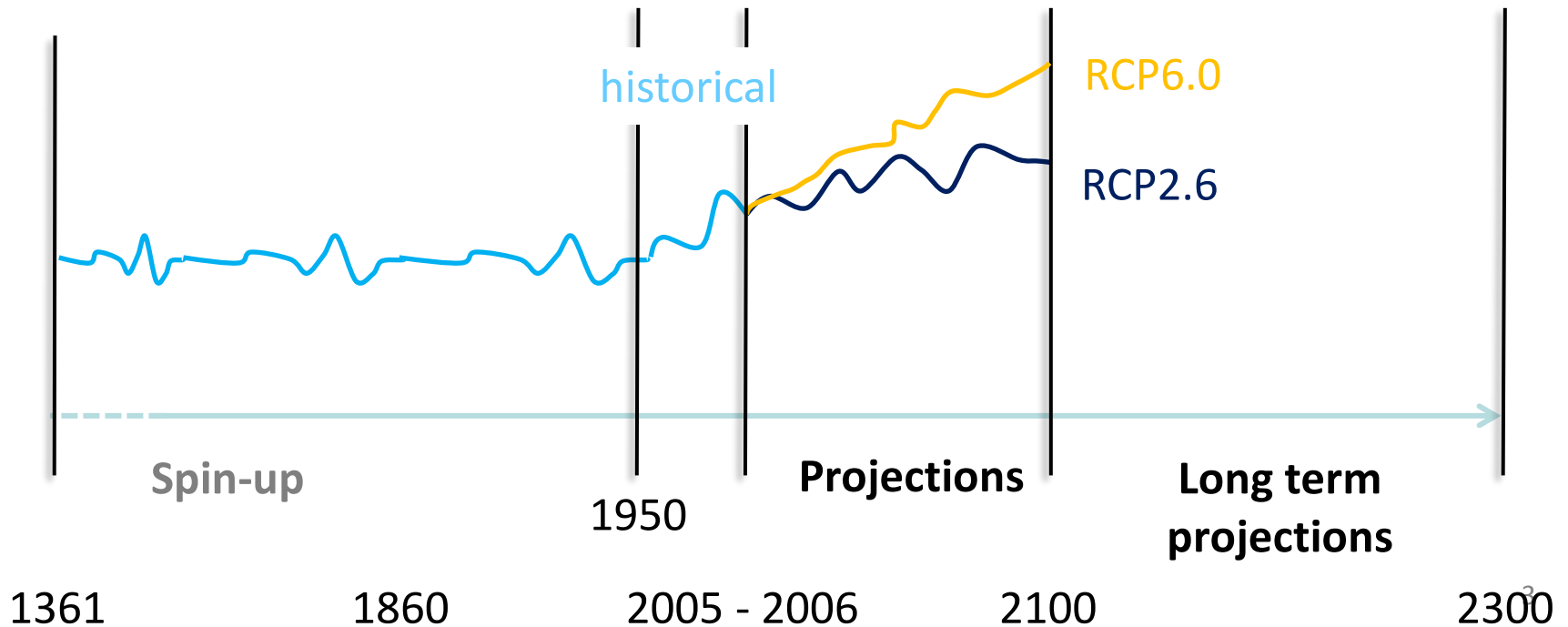
Dr. Katja Frieler

June 22, 2016

What is the effect of 1.5°C of global warming?



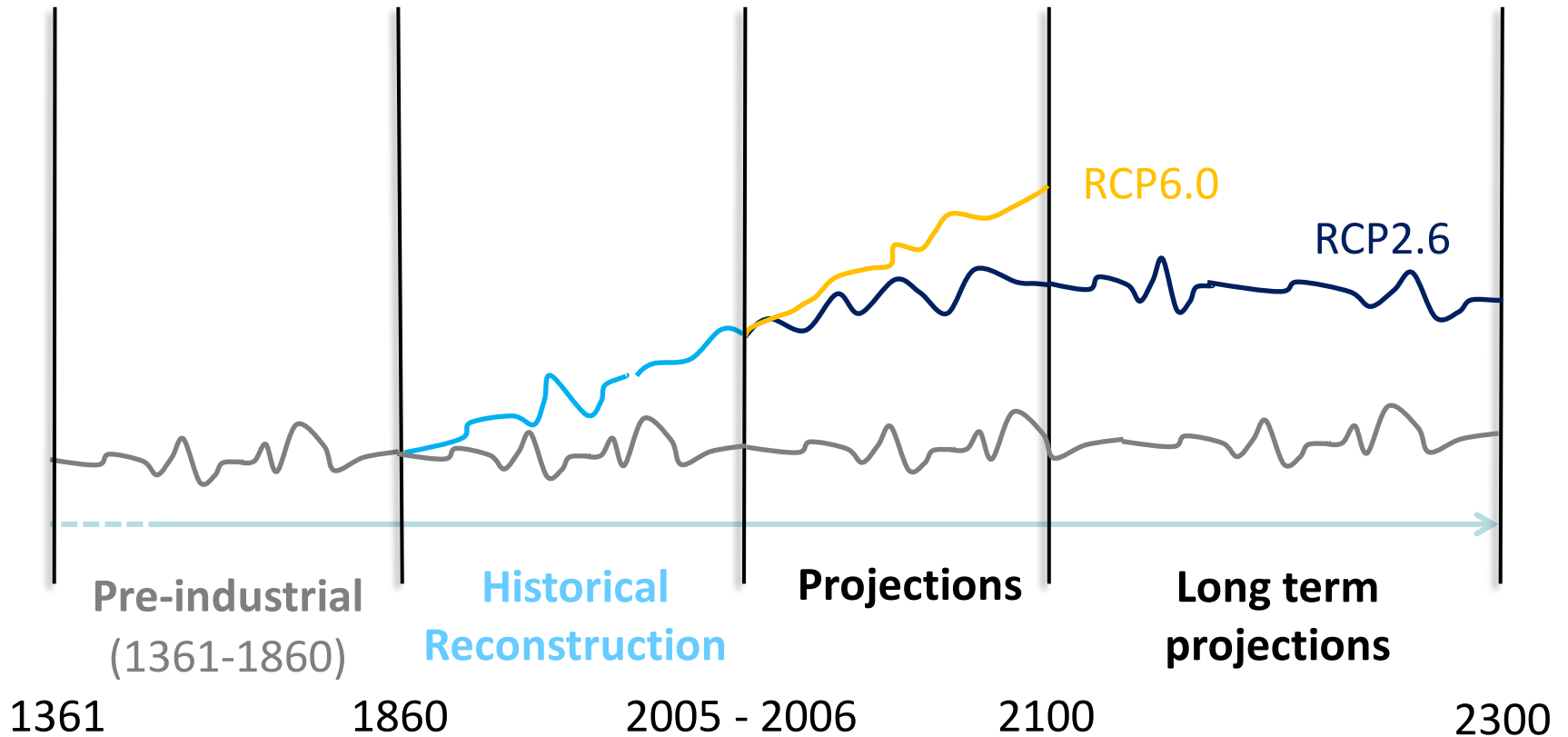
ISIMIP Fast Track



Limitations

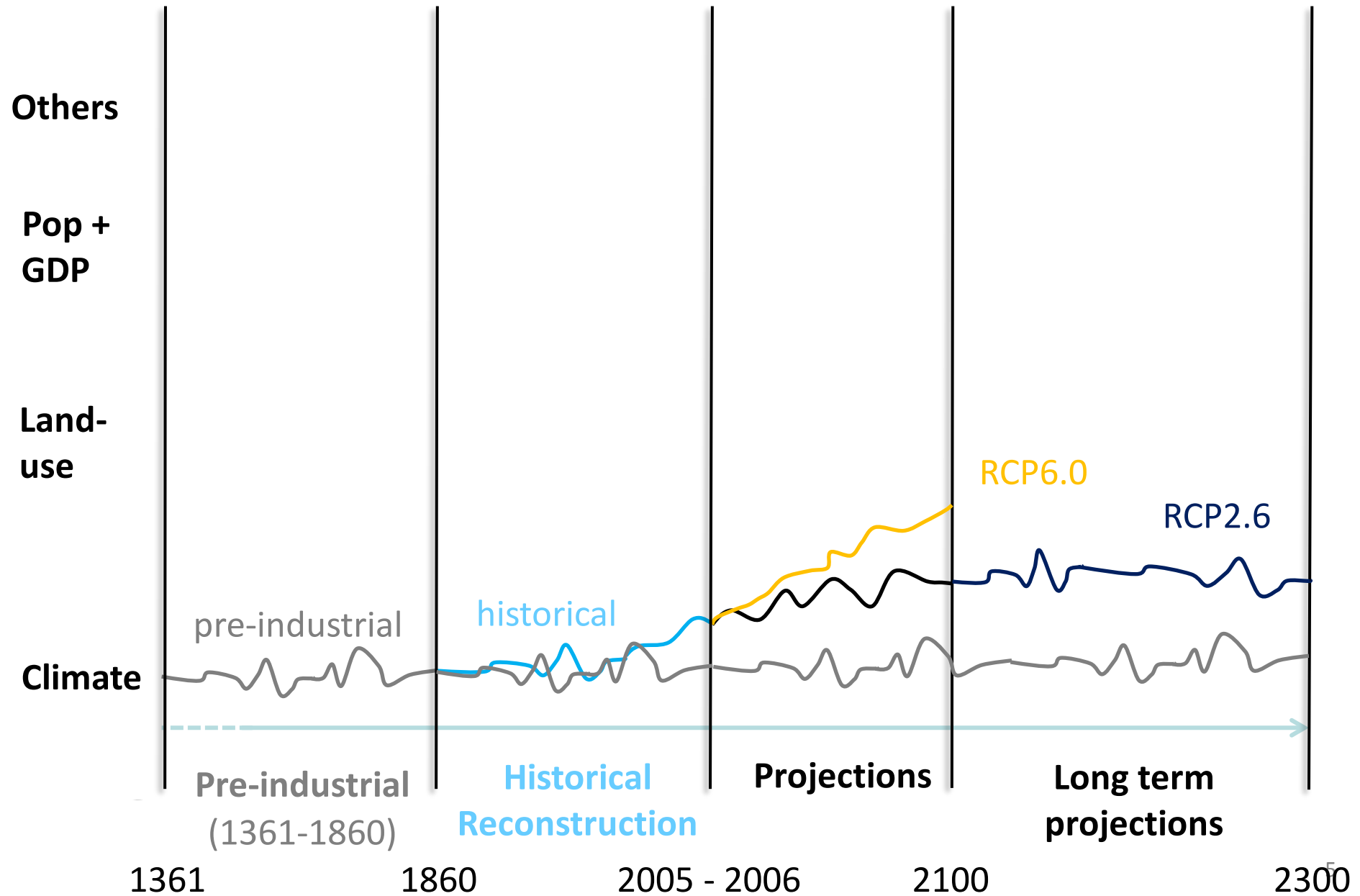
- 1) Unrealistic „present day spin-up“ within the biomes sector
- 2) No quantification of impacts of the full historical warming of $\sim 1^{\circ}\text{C}$
- 3) No representation of long-term impacts beyond 2100

ISIMIP2b

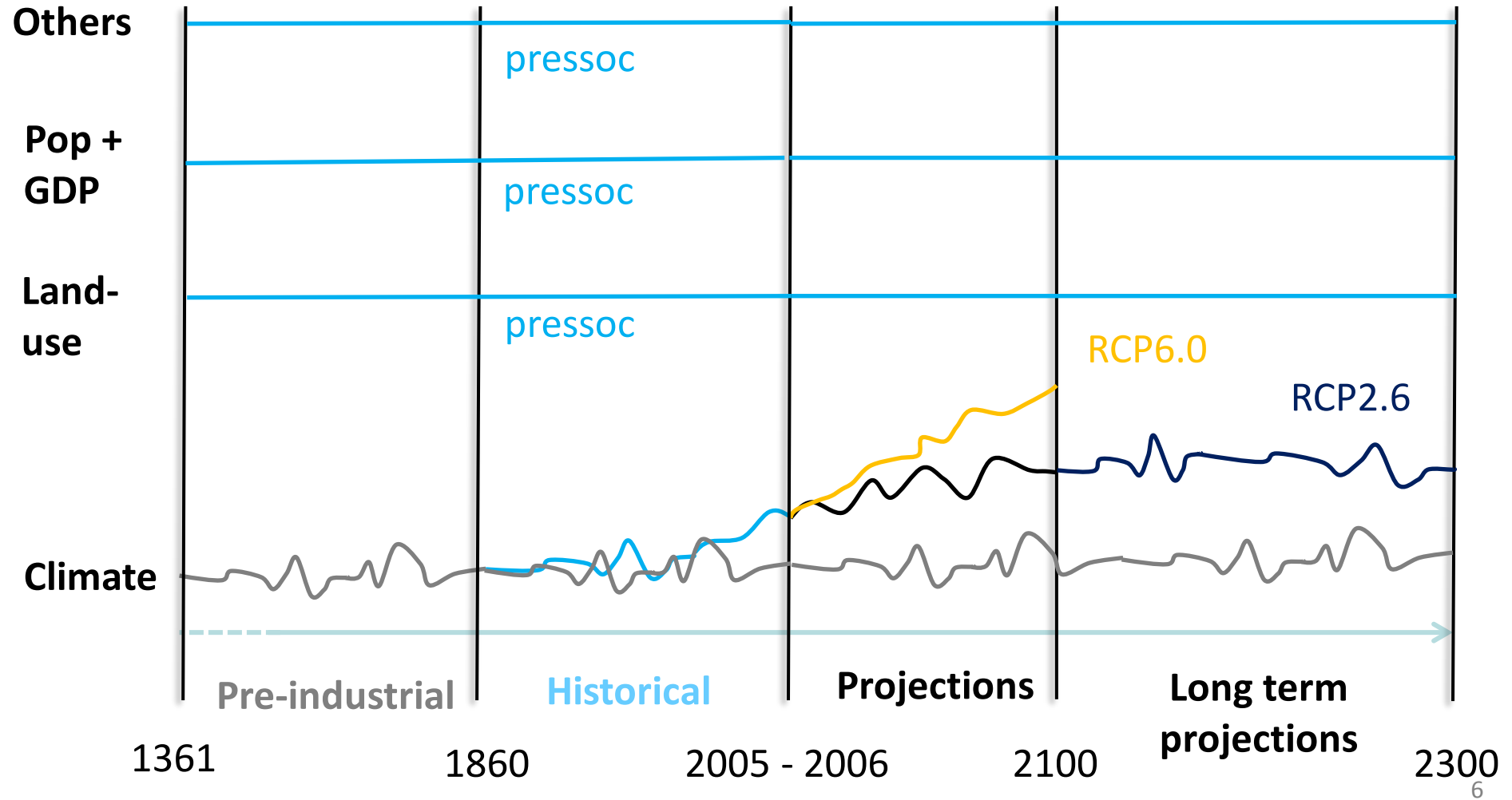


- 1) Realistic „pre-industrial spin-up“, large pre-industrial reference distribution
- 2) Full quantification of the impacts of present day + future warming
- 3) Estimation of long-term impacts up to 2300

How to vary the other human influences?

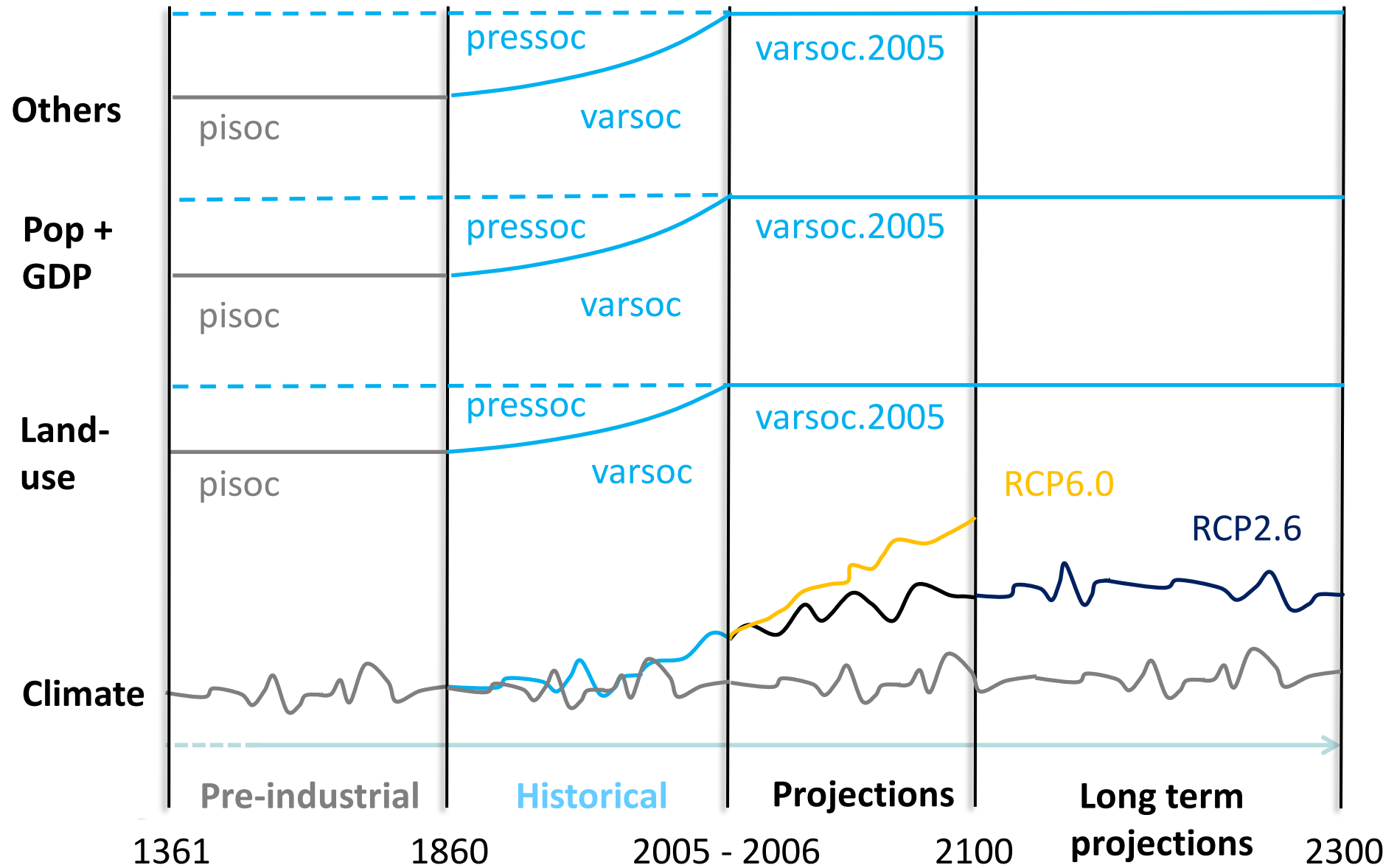


First idea – fixed present day situation

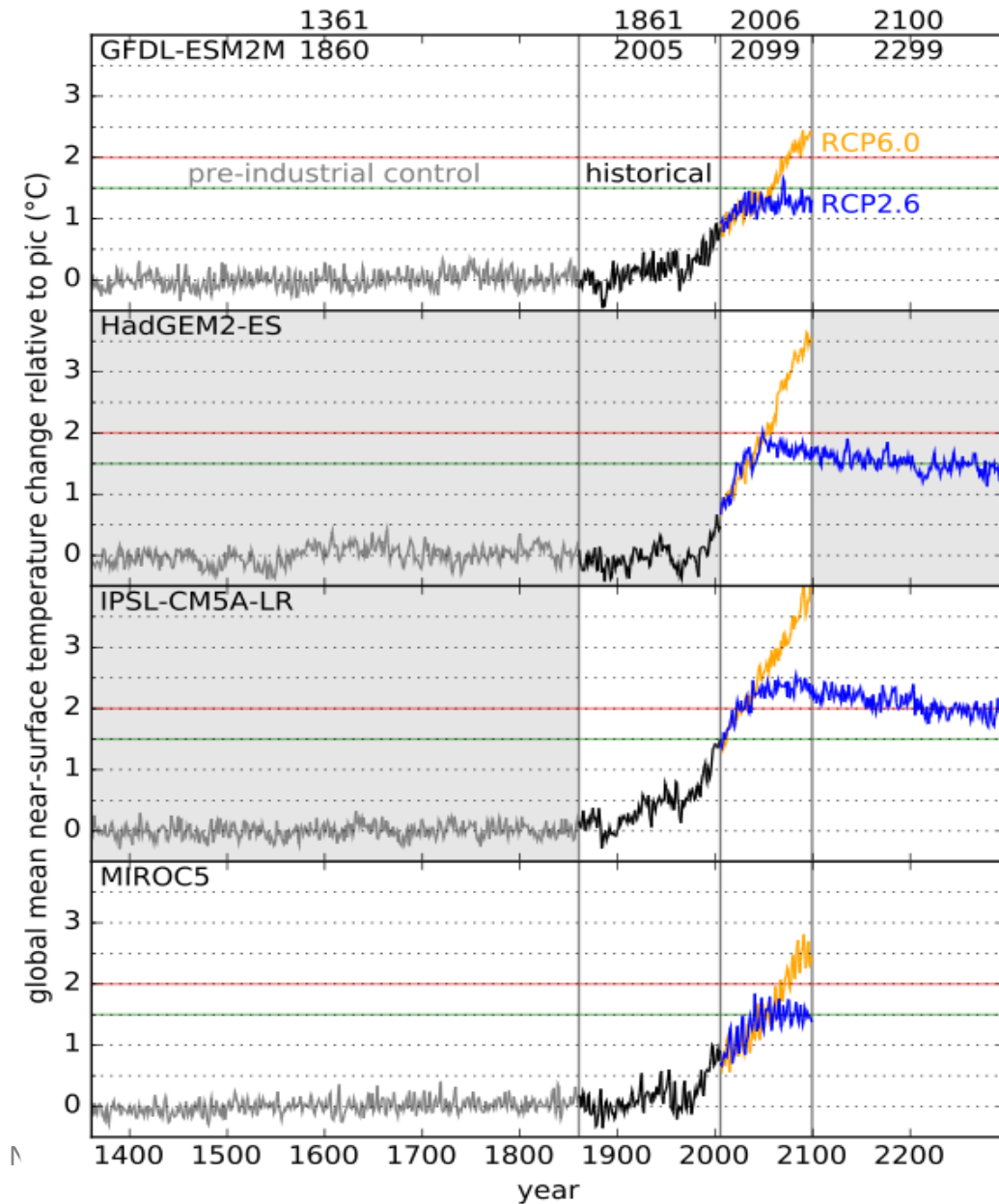


Unrealistic present day conditions in the biomes and fish and marine ecosystems sectors

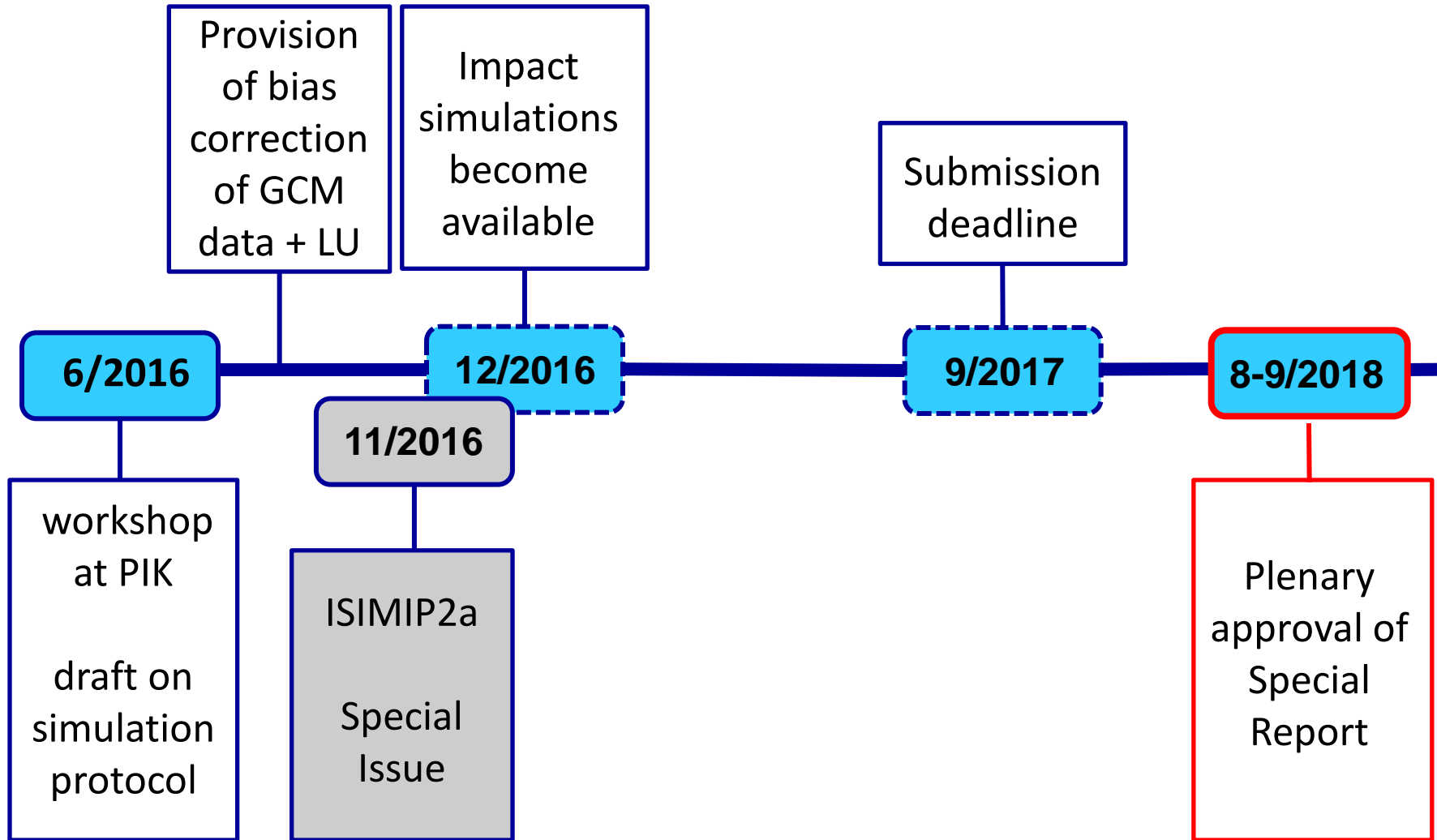
The solution!



Available GCM data



Timeline? Fast Track +



Quantification of the pure climate effect

(Climate change + varsoc) – (pre-industrial climate + varsoc)

Side-effects of mitigation measures – land use changes

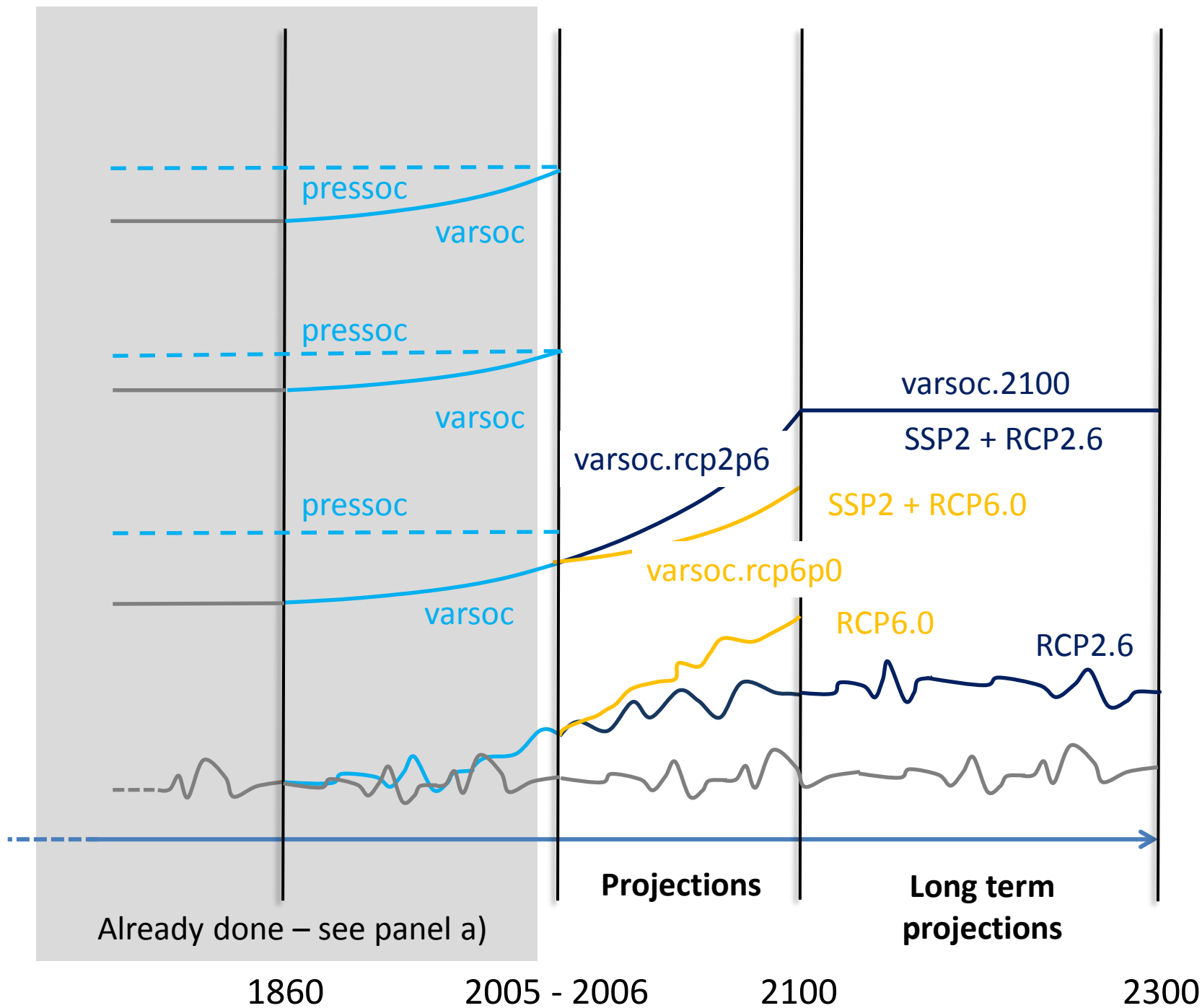
b)

Others

Pop + GDP

Land-use

Climate



**Consistent accounting for population changes
and economic development**

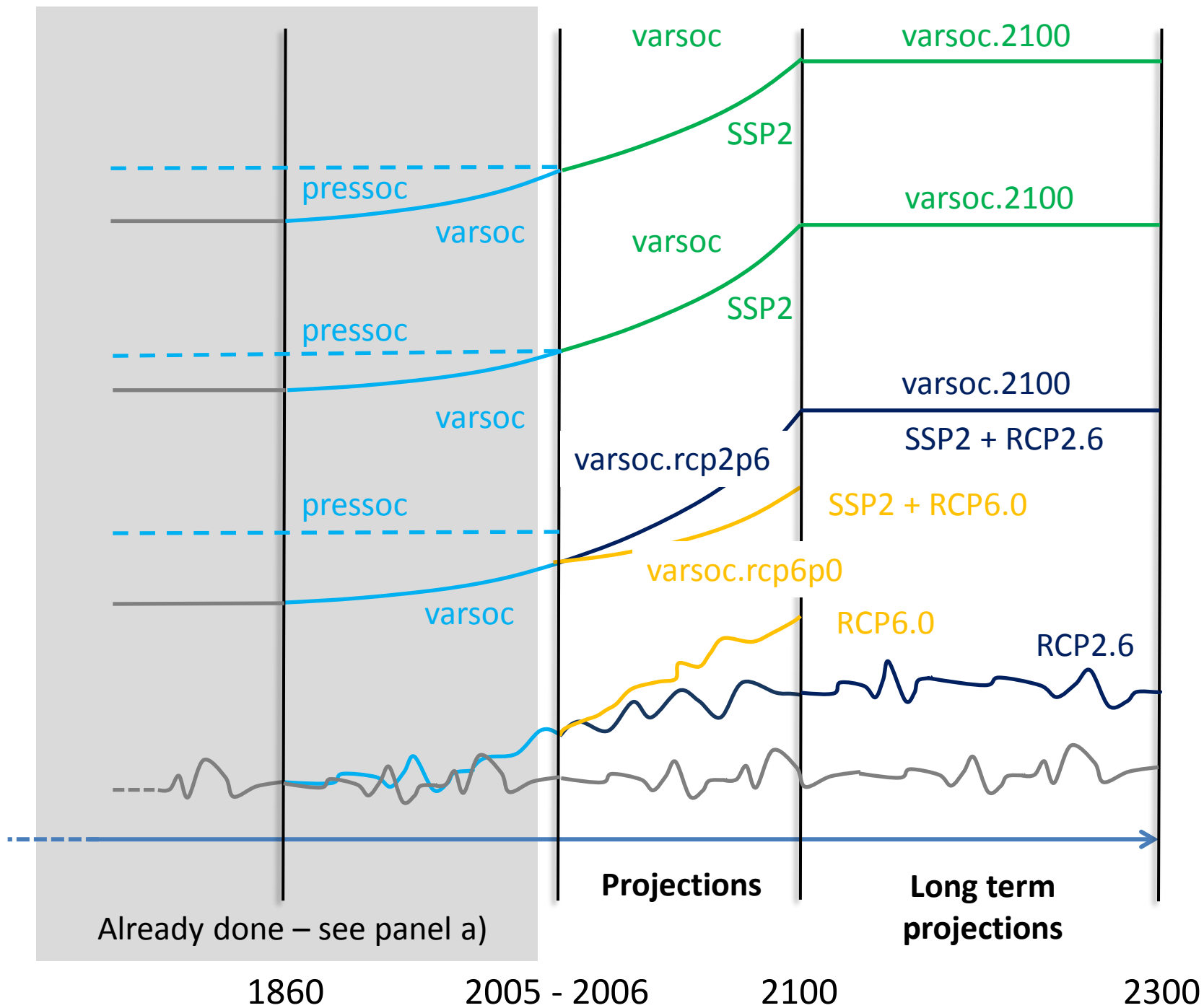
b)

Others

Pop +
GDP

Land-
use

Climate



Already done - see panel a)

Projections

Long term
projections

1860

2005 - 2006

2100

2300

Should we add

- 1) Further LU patterns from other IAM-LU models?
- 2) Historical simulations according to ISIMIP2a if the mode, version has changed?

The role of geo-engineering?