Visions for MACSUR Phase 3 (2017-2020)

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A FACCE MACSUR workshop for policymakers

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What if the gulf stream ends?
Approach

• Prepare for 2030 targets, and test options for European agriculture to be climate neutral by 2050
• Cross-sectoral, with more climate and water focus (e.g. establish interaction with JPI Climate; JPI Water)
• Link spatial scales: regional - national - continental - global
What if the gulf stream ends?

- Gulf stream is driven by differences in water salinity (meltwater, rivers), water temp. and earth rotation.
- Salinity may reach a tipping point so that GS ends after 2-4 centuries, many unknowns remain.
- [Iceland Low, Azores High]: new weather patterns over Europe => very hard to forecast consequences.
- Storms, sea temp, precip have feedbacks.
- Could lead to cooler European climate: in summer more rain in southern, less rain in northern Europe (Jackson et al. 2015).

http://www.realclimate.org/
‘Surprising’ scenarios - biophysics

A 1984 workshop already emphasized that the oceans are a major source of uncertainty, including North Atlantic Deep Water Formation. A reduction of deep water formation could cause European regions to become colder. This will require knowledge on extreme climate events, including sudden shifts in temperatures and rainfall. How to address ‘tipping points’ in agricultural modelling?
‘Surprising’ futures - socio-economic

Low energy prices seem to run parallel to energy saving.
Such counter-intuitive trends require modelling for in-depth understanding, including agricultural problems.
What are the options for European agriculture to cope with diversifying consumption patterns?
How are sustainability concerns in agriculture affected by climate change?
Prepare for

• adaptation to climate uncertainty and variability, as well as the synergy with mitigation

• evaluate those options in terms of their capacity in achieving climate-smart farming systems
Overview of scope and coverage of MACSUR3

• Climate policies as a serious driver and constraint to agricultural responses to climate change
• Impacts of resource price volatility on agricultural mitigation and adaptation strategies
  – e.g.: Impact of low prices of oil limiting attempts to energy saving
• Changes in consumer behavior: impacts on value chain
• The impacts on agriculture of extreme climatic events are a concern throughout Europe
• Impacts of resource price volatility on agricultural mitigation and adaptation strategies"
Structure of MACSUR3
For Producers and Food value chain

• Working on CAP improvements
• Likely needs for changes in business in 10-20 yrs
• Changes in consumer behavior: impacts on value chain
• Impacts on agriculture of extreme climatic events throughout Europe and on regional economies
For Policy Making

Suggestions for making the next CAP climate-adaptive
● Farm income under BAU+CC ±mitigation
● Farm income under CC±mitigation and shift of farming systems

Feedbacks of CC mitigation/adaptation with SDGs and with ESS

European reviews of what’s known and what’s been done:
● Suggestions for monitoring, GHG accounting
● Efficiency of mitigation options
● Improving inventories
● Measures (and their effectiveness for $C_{\text{org}}$ storage in soil)
● Synergies adaptation-mitigation
For further information please visit: www.macsur.eu & http://www.realclimate.org/