AGROCLIMAA-SSP v1.1

A tool for Scientific Support to Policies for strategy assessment in agricultural systems under climate change scenarios

Margarita Ruiz-Ramos, Alfredo Rodríguez and M. Inés Mínguez

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What are AGROCLIMA-SSP tools?

- Tools for assessment of CC related issues
- Data bases
- Browser and viewer of results
- Friendly synthesis of large content but avoiding generalisation
- Open experiments → feedback for new versions →

FAMILY OF CUSTOMIZED TOOLS
What are AGROCLIMA-SSP tools?

• The aim is to involve agronomists/crop modellers with the decision maker/planner → presenting complex modelling chains
• It is not a simulation platform
• The tool is not open → New versions needed for new combinations RCM-Crop-management
Climate scenarios from RCMs

- **PRUDENCE**: multi-model ensemble
  - 10 RCMs nested in HadAM3H, 50 km
  - Control run (1960-1999) and scenario SRES A2 (2070-2100)

- **AMAVEC**: mixed-physics ensemble
  - 5 parameterisations of PROMES RCM
  - 1 decade of PRUDENCE

- **ENSEMBLES**: multi-model ensemble
  - 14 RCMs, 25 km
  - Continuous simulation 1950-2050, SRES A1B
Crop & cropping systems

• Crop modelling
  – Compensatory effects of CC \( \rightarrow \) Impact sign
  – Crop models: CERES, STICS, CROPSYST
  – Reference crops \( \rightarrow \) indicators, growing season, no N stress, no biotic stress
    • Trees: Grapevine
    • Field crops: rainfed and irrigation
      - Summer: maize
      - Winter: wheat (autumn-sown spring & winter cultivars)
  – Outputs: RELATIVE changes
    • Yield, biomass, phenology, water use (ET, irrigation)
    • Extreme events: temperature and precipitation \( \rightarrow \) climate-phenological indexes

• Feed back info to RCMs
• Adaptation strategies
• Uncertainty evaluation
Browser structure

• Climate → summary
• Impacts → PRUDENCE, AMAVEC
  – Mean and variability
  – Extremes
  – CO₂ effect
• Uncertainty—degree of coincidence
  – Sign of impact
  – Magnitud of impact: time series
  – Extremes
  – Soils
• Adaptation
  – Quantification of autonomous adaptation
  – Identification of strategies for genetics: phenophases duration, yield components
  – Extent of application: Maize vs wheat
• Conclusions
  – Summary and interpretation of results
Select the data you want to check:

- **AGROCLIMA_SSP**
  - **FIELD CROPS**
    - **SUMMER CROPS**
      - **MAIZE**
      - **RESOLUTION_25KM**
        - **FROM_ENSEMBLES_DATA**
        - **RESOLUTION_50KM**
    - **ADAPTATIONS**
    - **IMPACTS**
      - **CO2 EFFECT**
      - **EXTREME EVENTS**
      - **MEAN TRENDS FROM AMAVEC DATA**
      - **MEAN TRENDS FROM PRUDENCE DATA**
      - **UNCERTAINTY**
  - **WINTER CROPS**
    - **IRRIGATED**
    - **SPRING WHEAT**
    - **WINTER WHEAT**
  - **RAINFED**
    - **SPRING WHEAT**
    - **WINTER WHEAT**
  - **TREE CROPS**
    - **GRAPEWINE**

AGROCLIMA DEMO
Results: Uncertainty

- Sign of impact
- Impact magnitude

Irrigated Maize

Ruiz-Ramos, Domínguez, Mínguez and Gaertner (2010) EGU
Ruiz-Ramos and Mínguez (in press, doi 10.3354/cr00933) Climate Research
AGROCLIMA-SSP for Co-Innovation

- Phase I: construction of the tool to organise, interpret results
- Presentation or distribution of AGROCLIMA v.1.1 to administration, extension services, insurance companies, etc
- Phase II: incorporating user’s feedback → open experiments → new versions: Phase I
• Thank you!