

Irrigation and climate change

Implications for water resources in the semi-arid region of Valencia (Spain)

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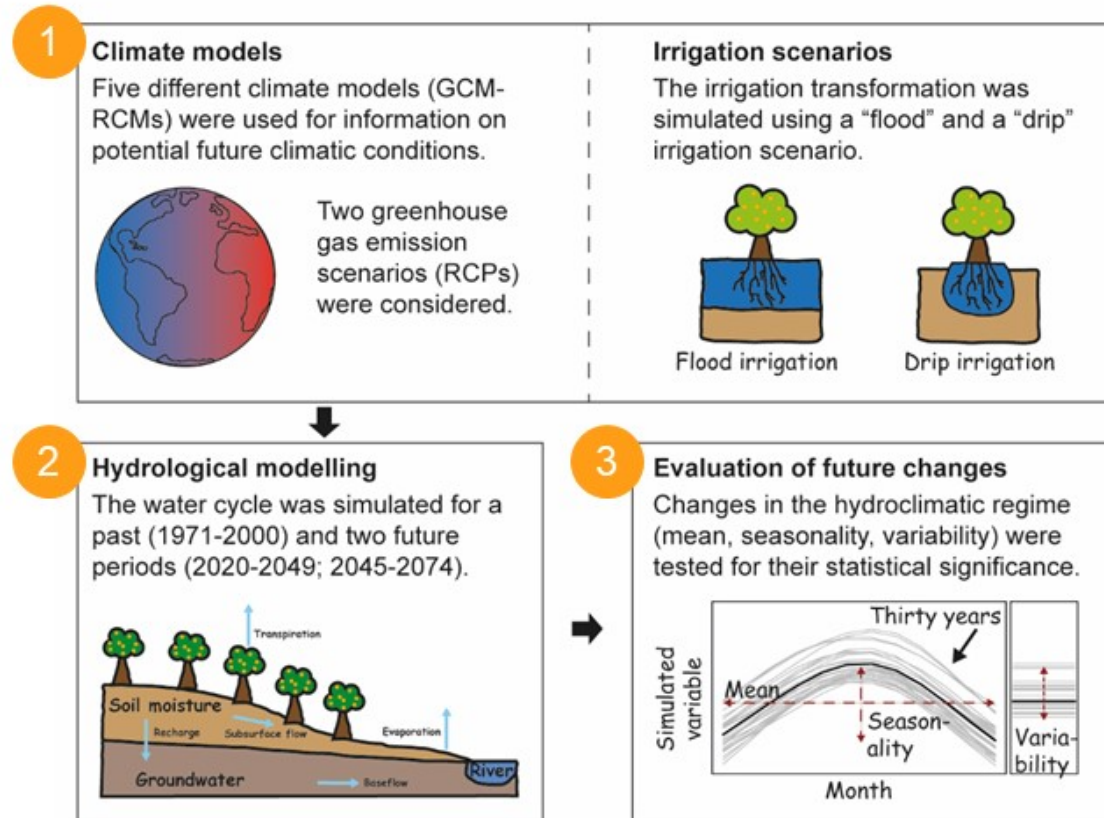
Image: Carles Sanchis-Ibor

Computer modelling for climate change impact assessment

The study area:

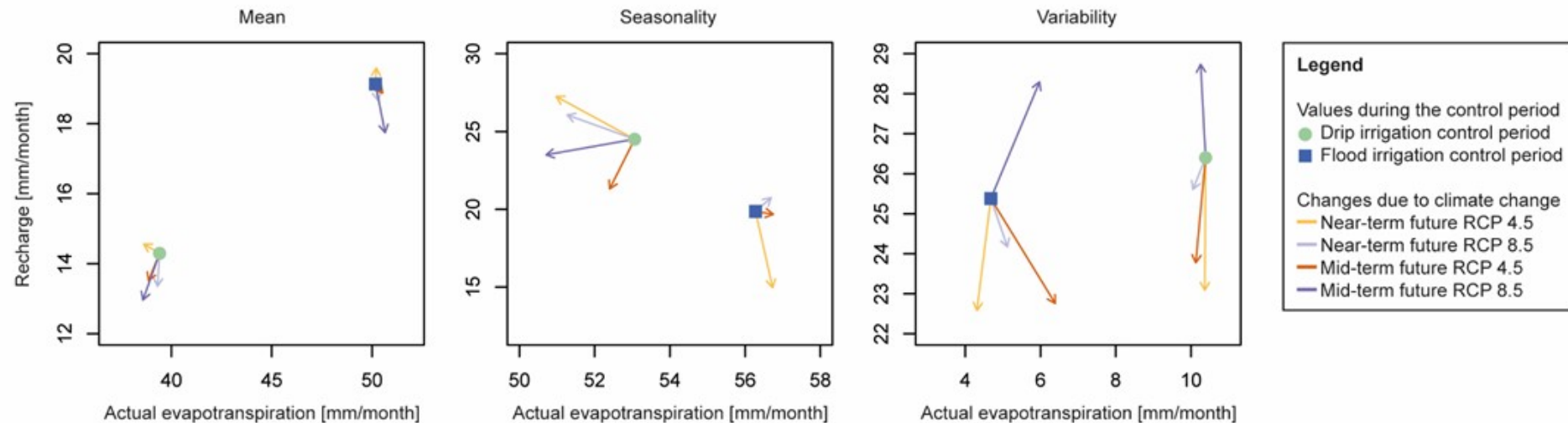
- The semi-arid region of Valencia is the major citrus producer in Europe.
- Irrigated agriculture consumes 89% of the total freshwater withdrawals in Valencia.
- The transformation from flood to drip irrigation is seen as an important step towards increased resilience to water scarcity.
- Here, we use a computer modelling approach to simulate the impact of irrigation transformation on water resources in a climate change context.

The modelling set-up:



On the importance of irrigation techniques in a climate change context

Figure: projected hydroclimatic changes



Key findings:

- Climate change is expected to significantly reduce groundwater recharge in irrigated agriculture.
- Actual evapotranspiration could increase in flood irrigation, but decrease in drip irrigation under *business as usual* irrigation volumes.
- The ongoing irrigation transition in Mediterranean areas may have a greater impact on evapotranspiration and recharge than climate change alone (see figure).



ACTION TRACK #5:
BUILD RESILIENCE TO
VULNERABILITIES,
SHOCKS AND STRESS



Our results suggest that irrigation techniques may have a greater impact on water resources in the Mediterranean region (of Spain) than climate change and are therefore an important aspect in the assessment and mitigation of water-related vulnerabilities.

Image: www.acequiarj.es