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MINISTERO DELL'AMBIENTE E DELLA TUTELA DEL TERRITORIO E DEL MARE

EUROPE-INBO 2012
10th International Conference
Istanbul - Turkey, 17-19 October 2012

Tool for Regional scale assessment of groUndwater Storage improvement in adaptation to climaTe change

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COORDINATING BENEFICIARY :

- High Adriatic River Basin Authority

ASSOCIATED BENEFICIARY :

- European-Mediterranean Centre for Climate Change (CMCC);

- SGI Studio Galli Ingegneria S.p.A. (SGI)

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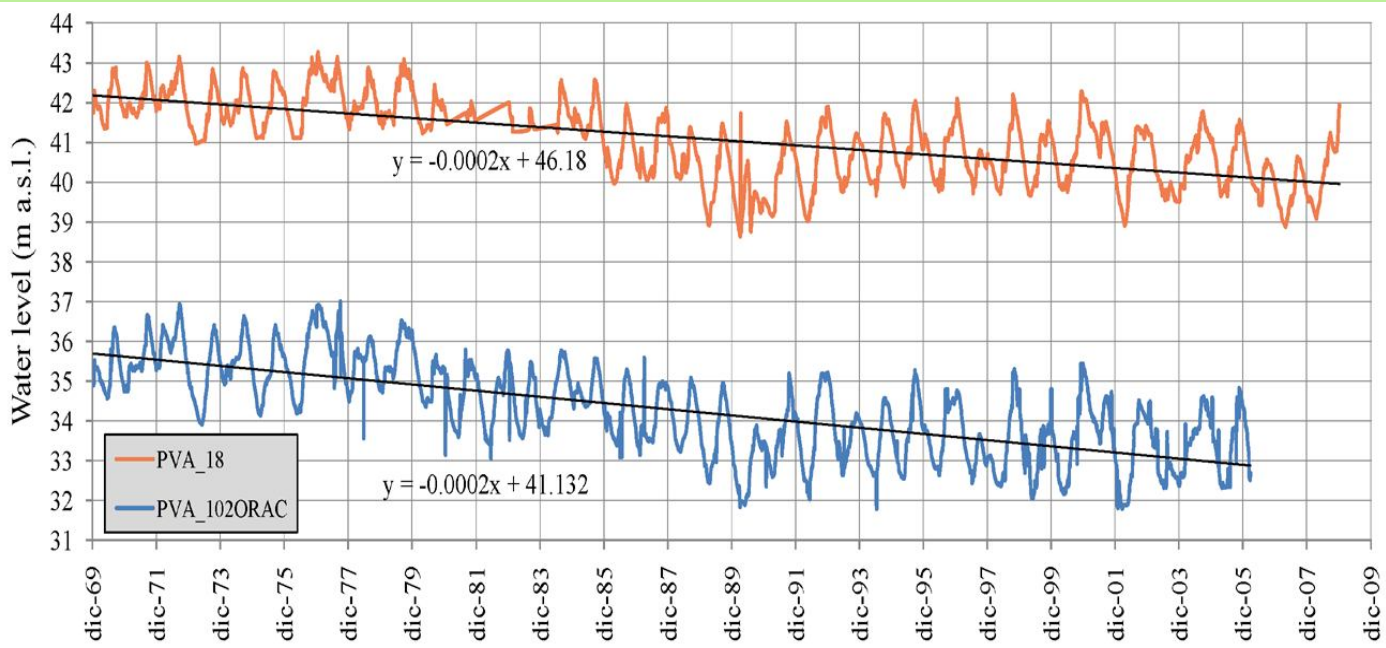
ISSUES

- Groundwater in the Upper Plain of these regions have been exploited for decades for agricultural and industrial uses

- In recent years, aquifers, affected by growing water demand, showed a significant lowering of groundwater levels and artesian depressurisation



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Adaptation to Climate Change and Water Framework Directive

Art.4 WFD 2000/60/CE:

"Member States shall protect, enhance and restore all bodies of groundwater, ensure a balance between abstraction and recharge of groundwater, with the aim of achieving good groundwater status"

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General OBJECTIVES

- Incorporate climate change scenarios in the river basin management in accordance with WFD 2000/60/CE

- Examine issues related to the development of water management strategies at river basin scale (WFD) in relation to the CC scenarios

Specific OBJECTIVES

- Develop a database that may characterize the groundwater (and the related water balance terms) to regional scale

- Assessing the possible negative impacts on aquifers of the Veneto-Friuli plain, associated with the climate change scenarios

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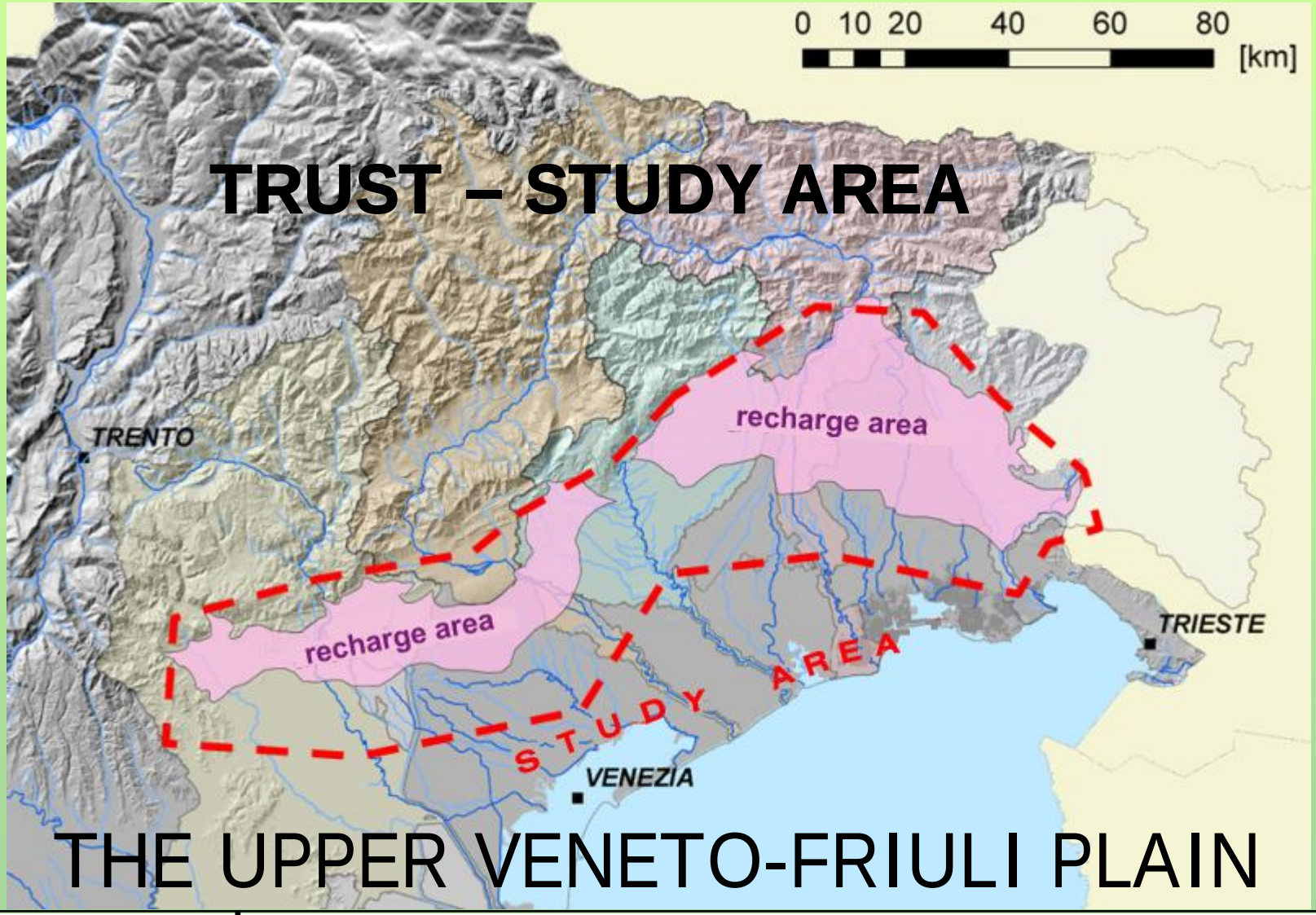


TRUST PROJECT ACTIVITIES

ACTIONS	ACTION TITLE
1	Set up of the stakeholders
2	Acquisition / evaluation of available data
3	Remote sensing and GIS
4	Climate change scenarios
5	Impact of climate change
6	Tools for large scale groundwater balance
7	Objectives and measures definition
8	Capacity building
9	Project dissemination
11	Project monitoring

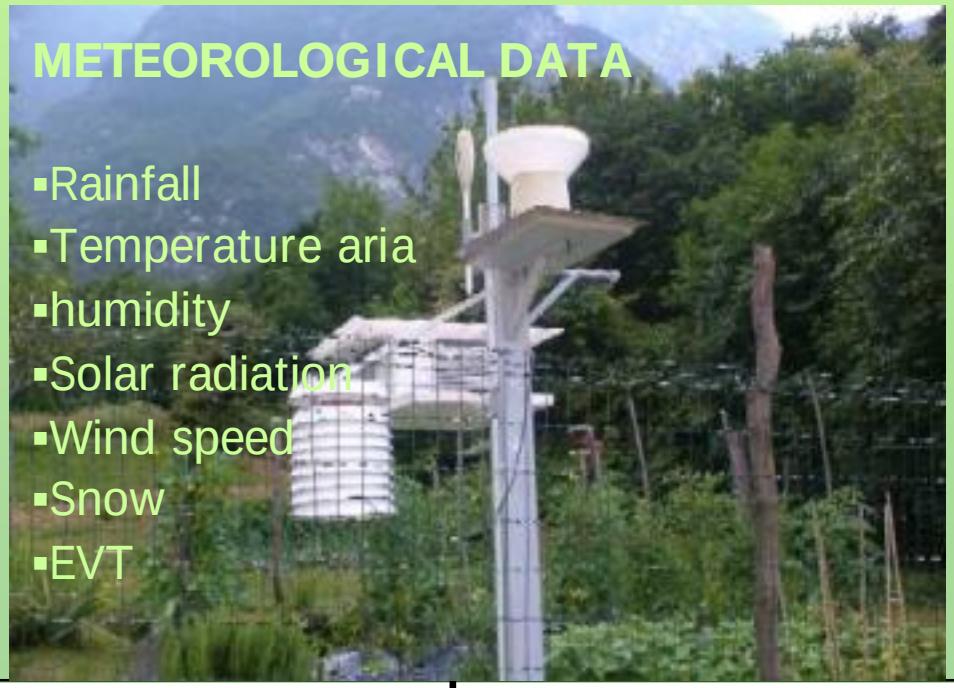
ACTION 1: Set up of the stakeholders and conceptual framework

OUTCOMES:

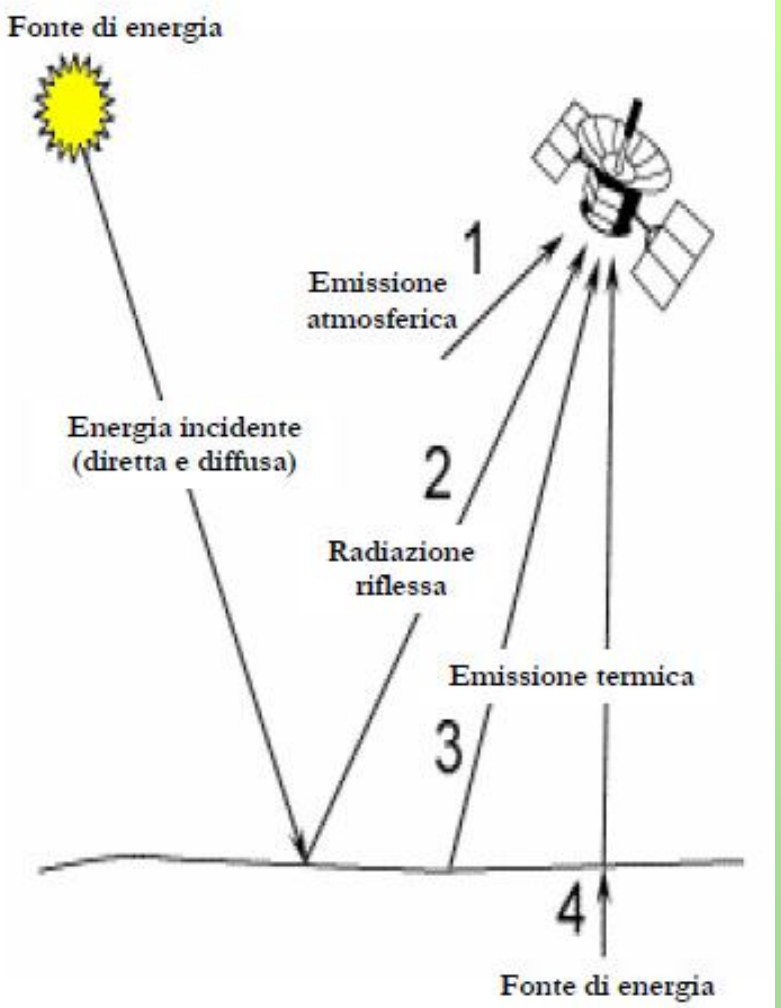
-TECHNICAL ADVISORY COMMITTEE

-AGREEMENT FOR EXCHANGE DATA

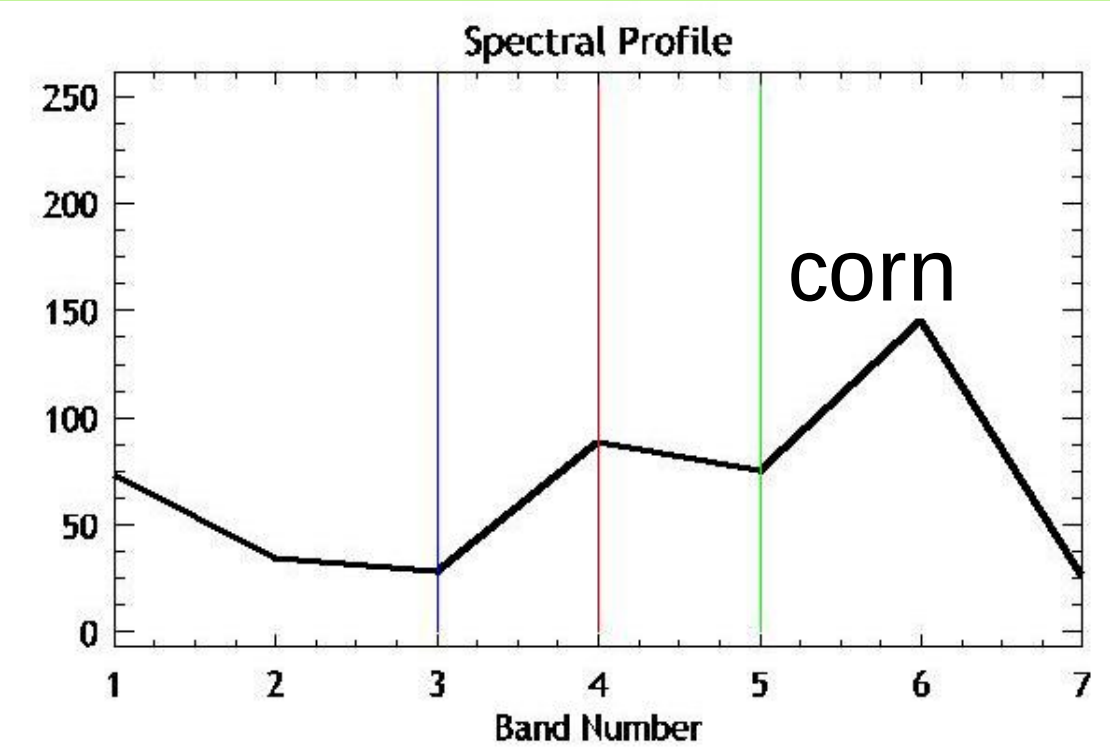
ACTION 2: Acquisition and evaluation of data and studies available



ACTION 3: Remote sensing and Gis (to quantify the irrigation water deficit)



Spectral signature



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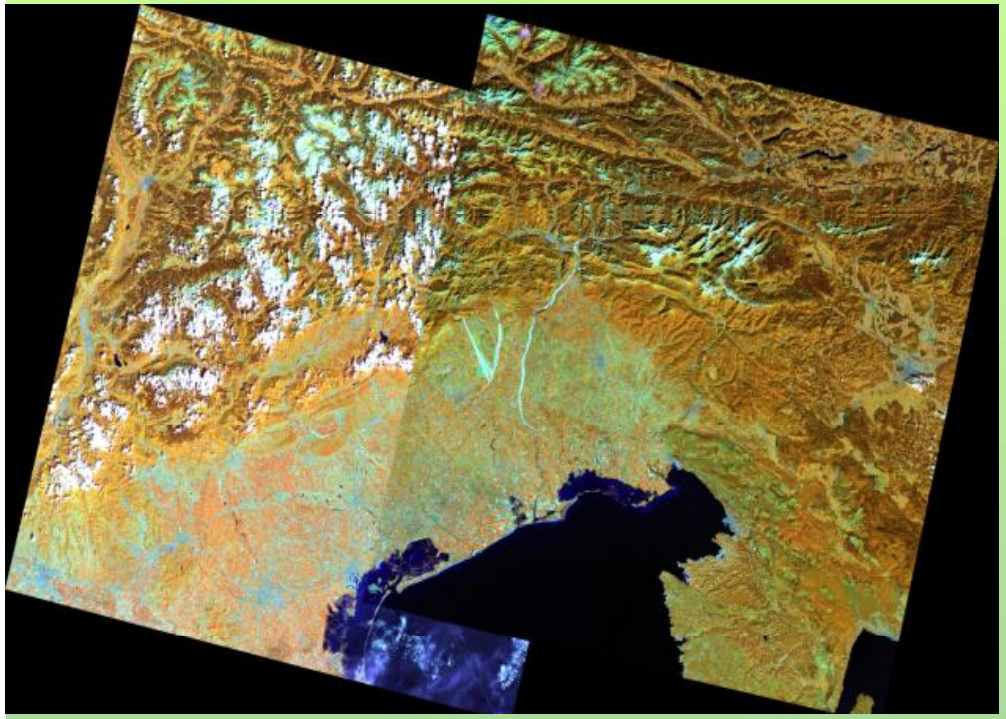
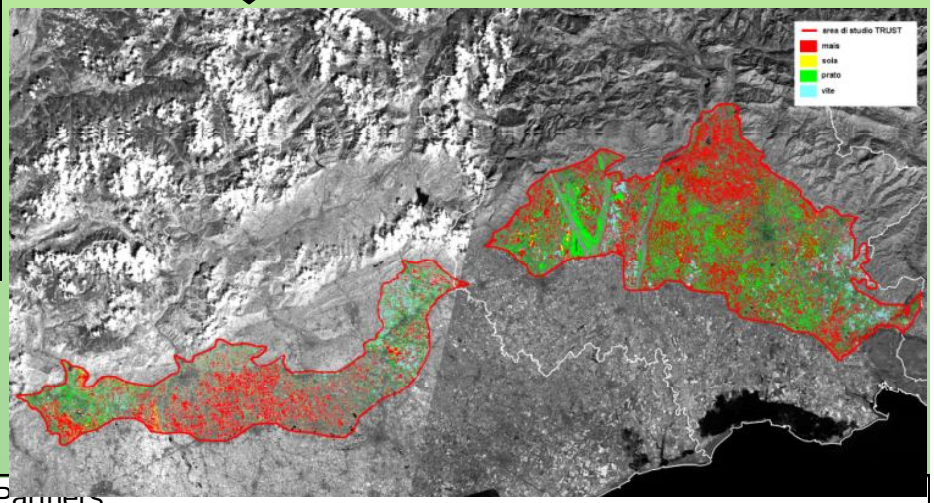


LANDSAT Satellite images

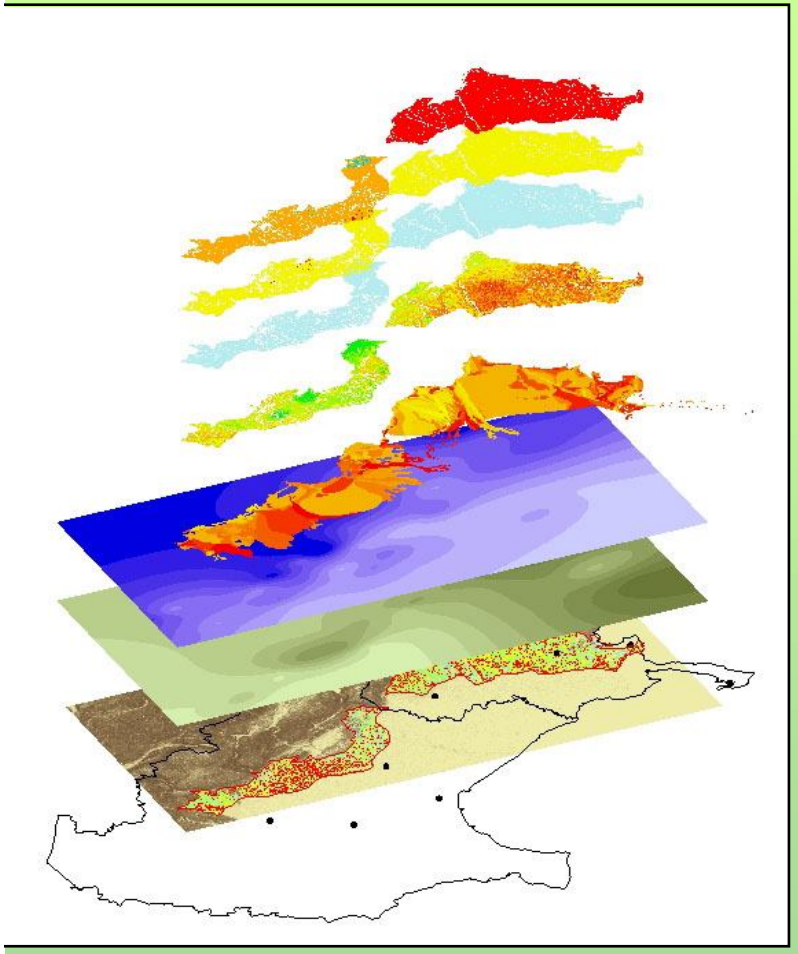
Crops map



Crop water balance

ACTION 3: Remote sensing and GIS (to quantify the irrigation water deficit)

$$D_n = P_n - (ETp_n * Kc_n) + Ru_{(n-1)} - R - In_n$$



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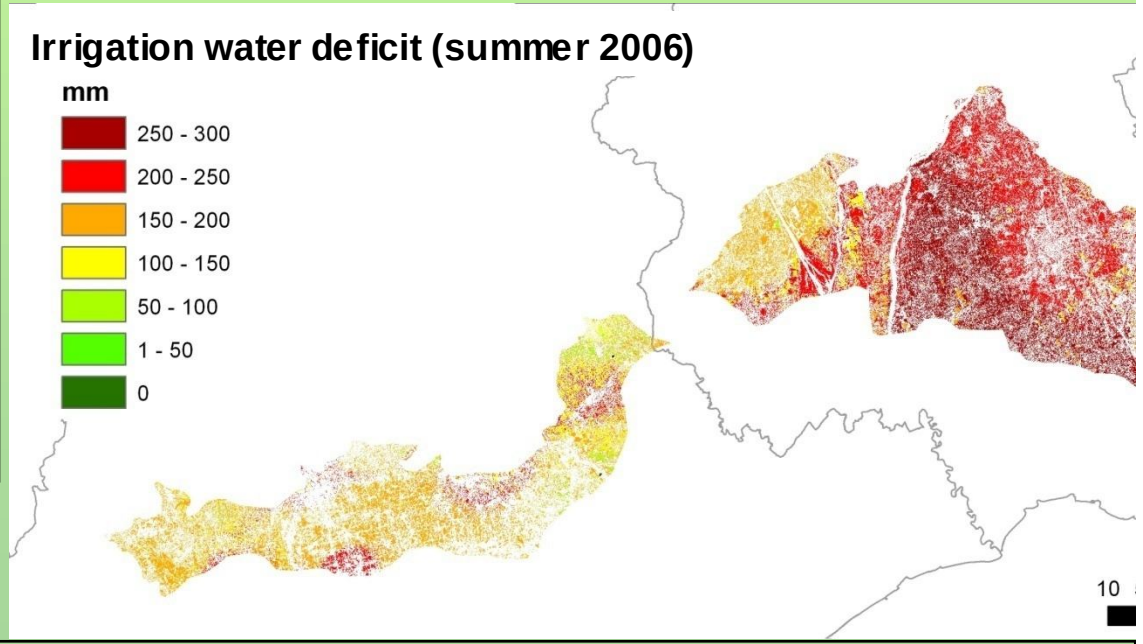
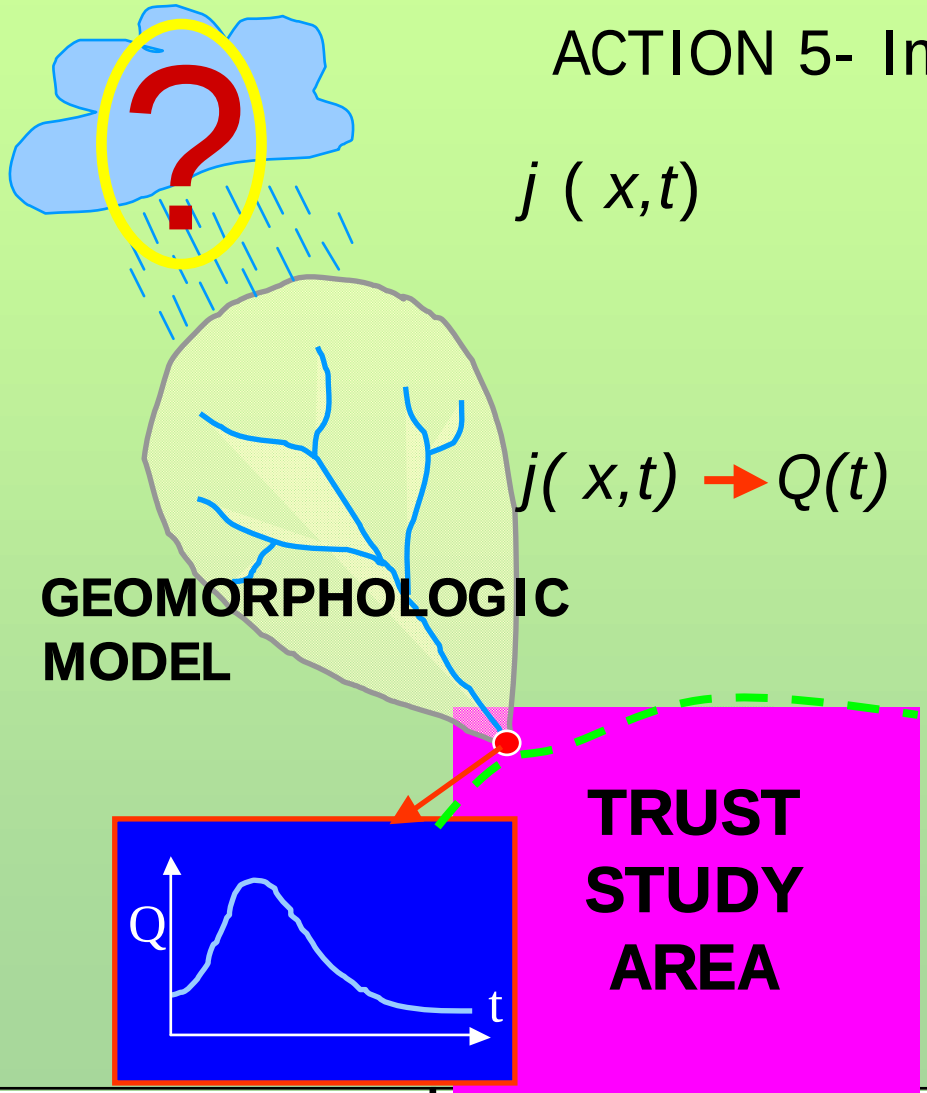


ACTION 5- Impact of climate change



$j\ (x,t)$

$j(x,t) \rightarrow Q(t)$

geomorphoclimatic approach for determining hydrological response of river basins

Possible effects of future climate on the hydrological balance of the studied river basins