

IRRIGATION



QUELLES STRATÉGIES POUR ÉCONOMISER L'EAU ? WHAT STRATEGIES FOR WATER SAVINGS ?

REGARDS CROISÉS EUROPÉENS
SHARING EUROPEAN VIEWS



13 - 14

nov. 2019

MONTPELLIER

FRANCE



PROJET COFINANCÉ PAR LE FONDS EUROPÉEN AGRICOLE POUR LE DÉVELOPPEMENT RURAL
L'EUROPE INVESTIT DANS LES ZONES RURALES



Analytical irrigation management system

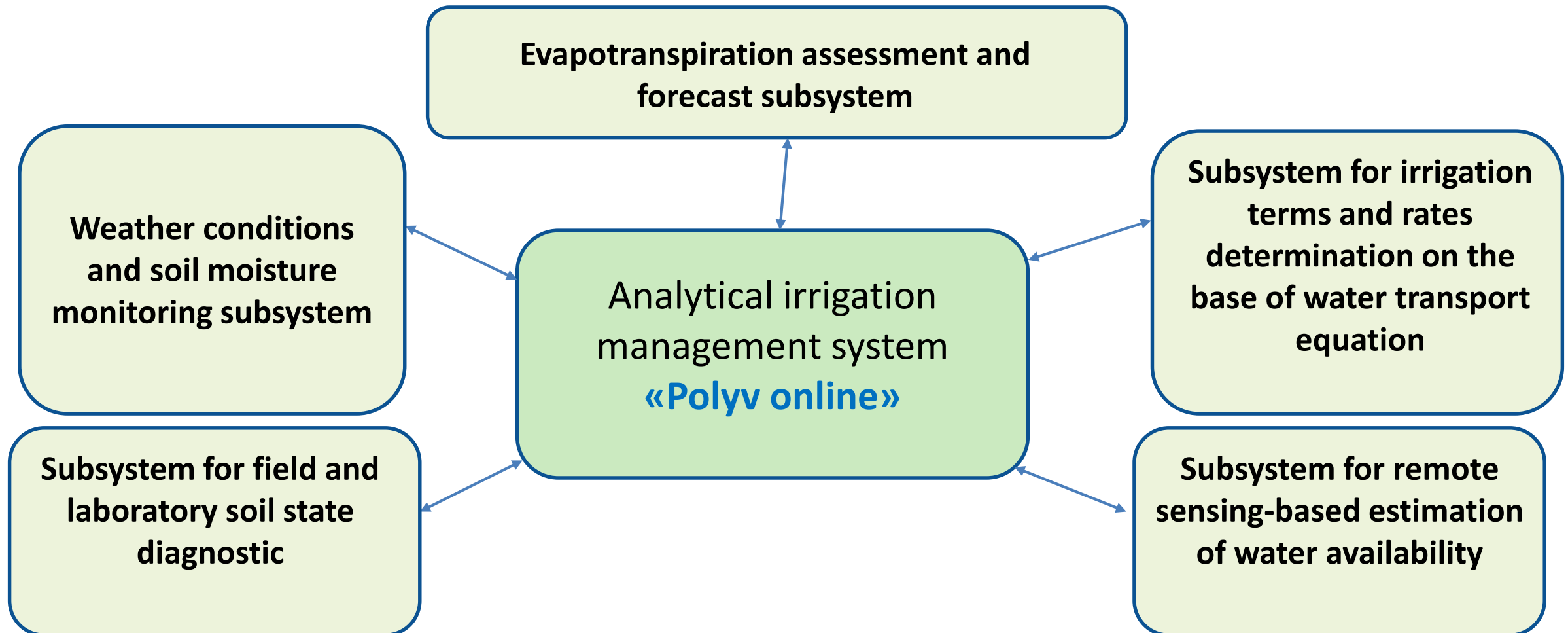
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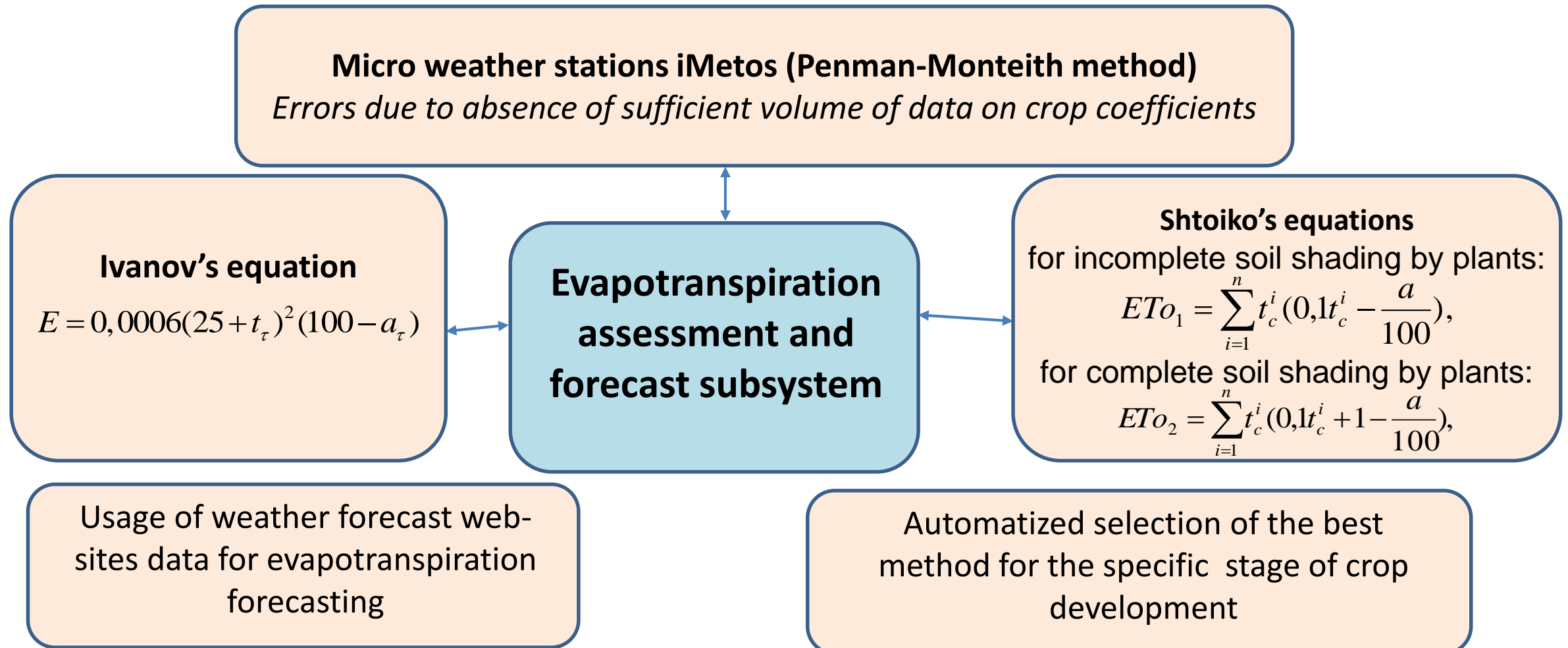
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Analytical irrigation management system «Polyv online»



Evapotranspiration assessment and forecast subsystem



Weather conditions and soil moisture monitoring subsystem

Weather monitoring:
Micro weather stations iMetos,
Davis;
Stationary state-owned
weather stations;
Institute's proprietary solutions

**Weather conditions
and soil moisture
monitoring subsystem**

**Monitoring of soil
moisture availability:**
Tensiometers,
Watermark sensors

**Check measurements and sensors testing:
Thermostatic weighting method**



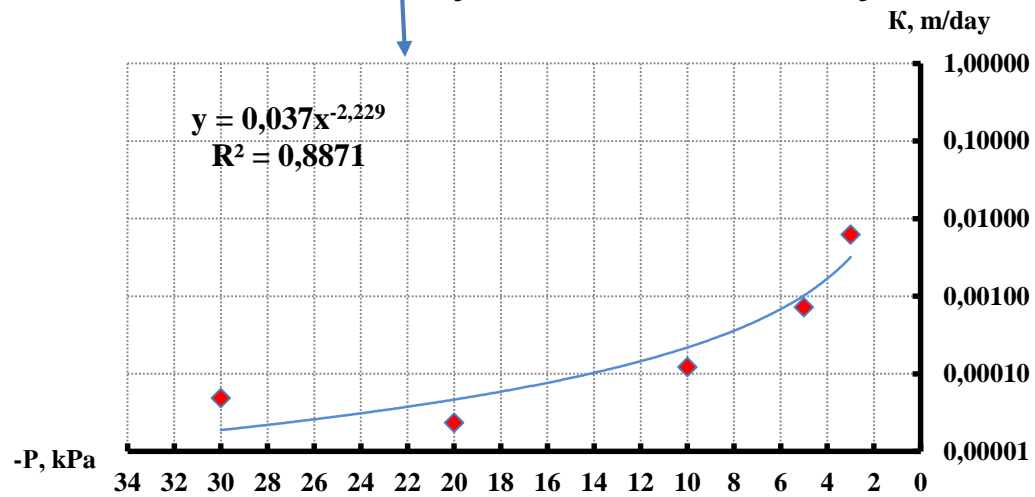
Subsystem for field and laboratory soil state diagnostic

Complete field soil surveys:
Determination of soil types
and classes, their
hydrophysical properties,
presence of salinization

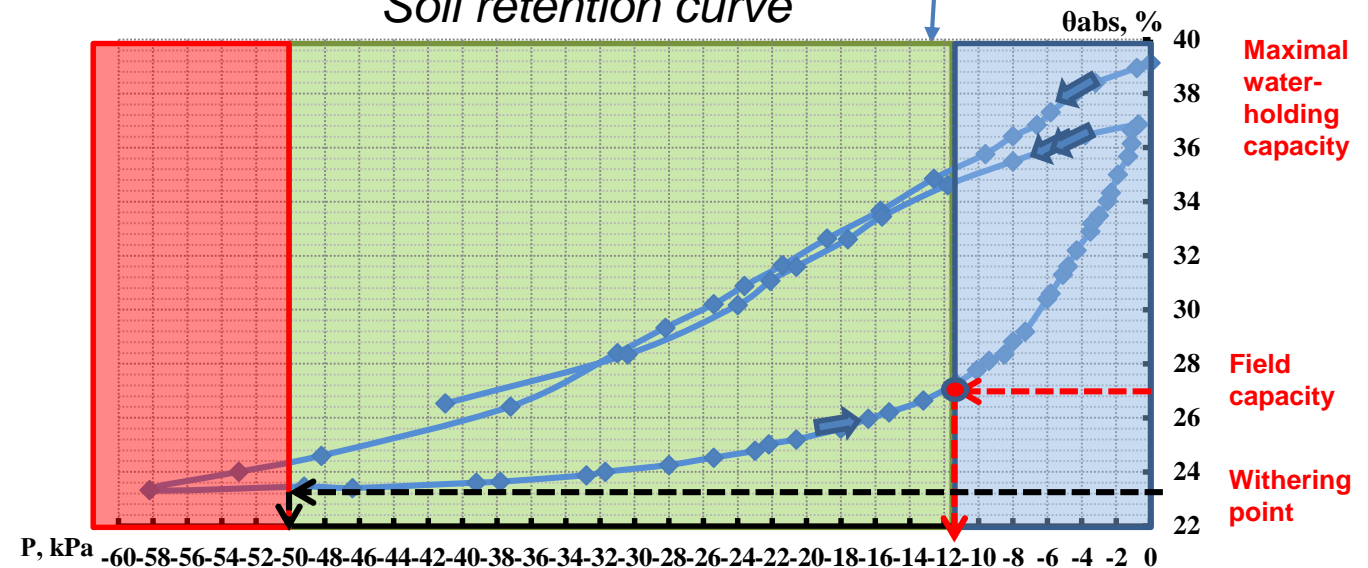
**Subsystem for field and
laboratory soil state
diagnostic**

Laboratory estimation of
soil retention curves and
pore space structure

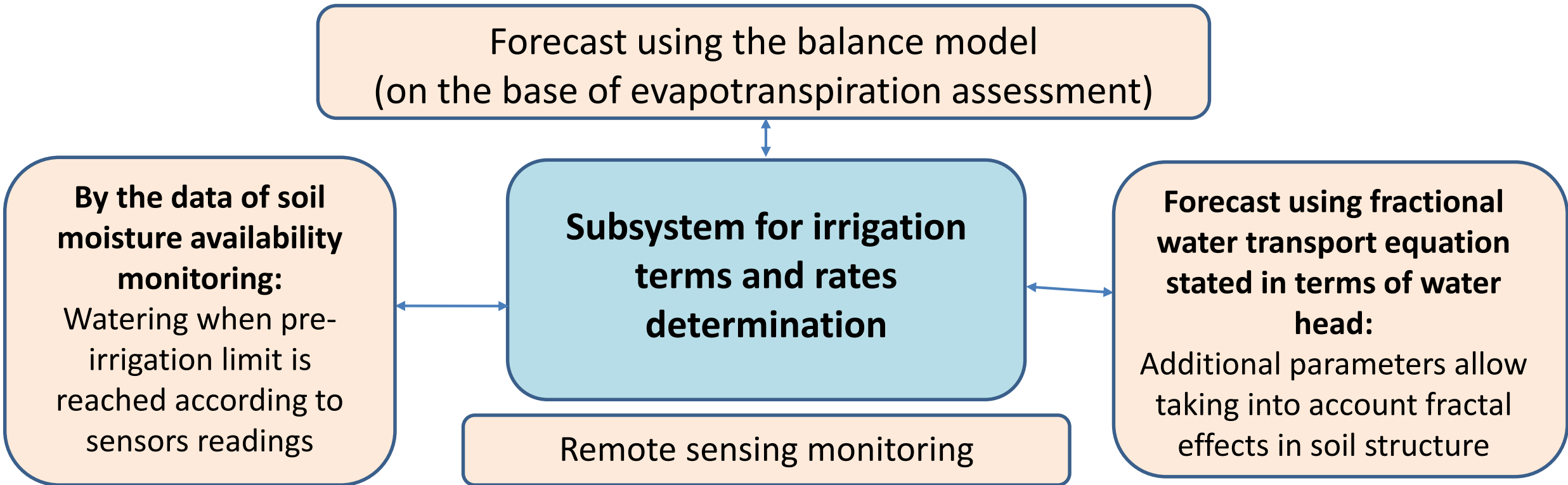
Hydraulic conductivity



Soil retention curve



Subsystem for irrigation terms and rates determination

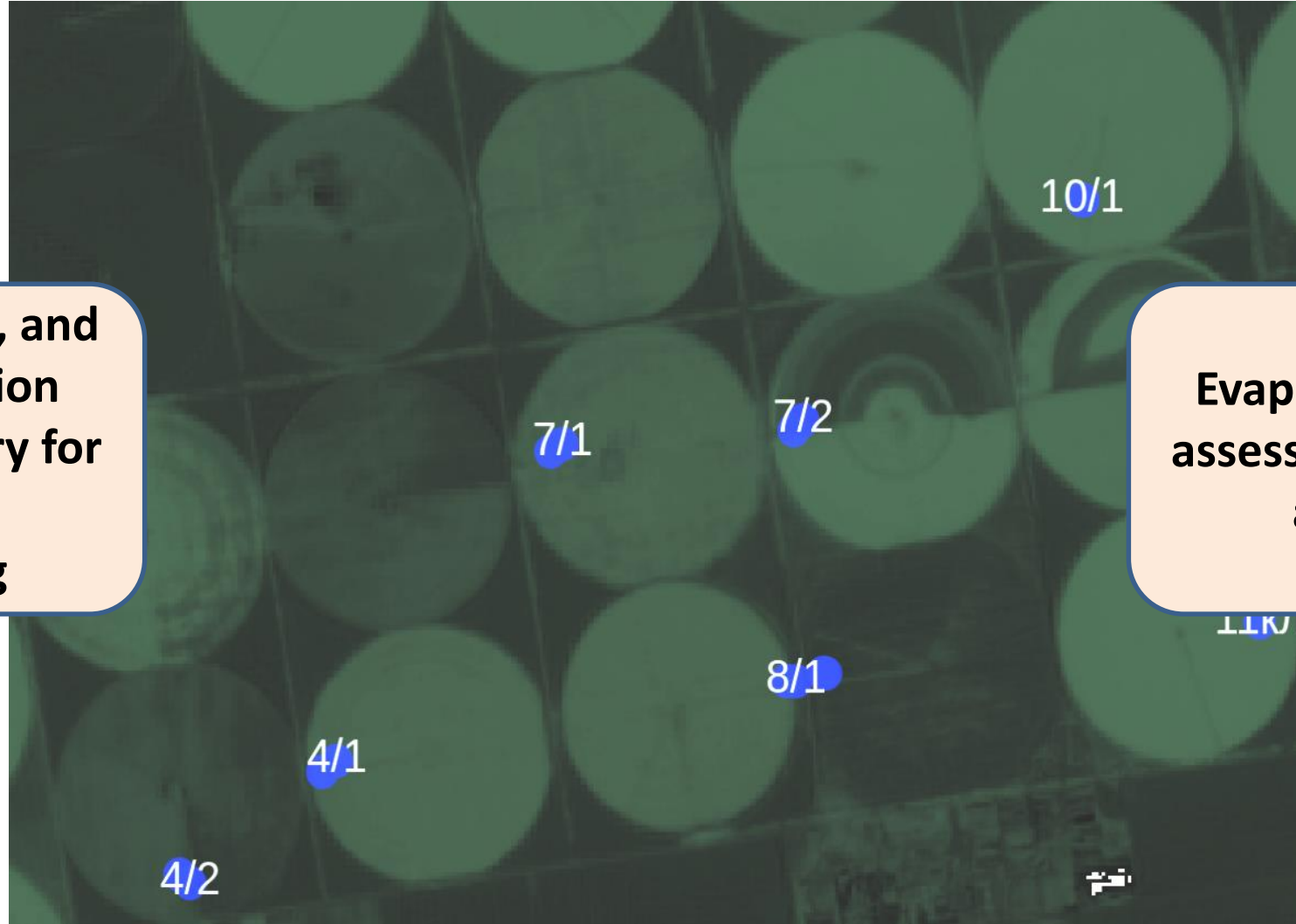


Used fractional water transport equation with Caputo derivatives:

$$D_t^{(\beta)} H = C^{-1}(H) \left[D_z^{(\alpha)} \left(k(H) \frac{\partial H}{\partial z} \right) - S \right], 0 \leq z \leq L, t \geq 0$$

Remote sensing subsystem

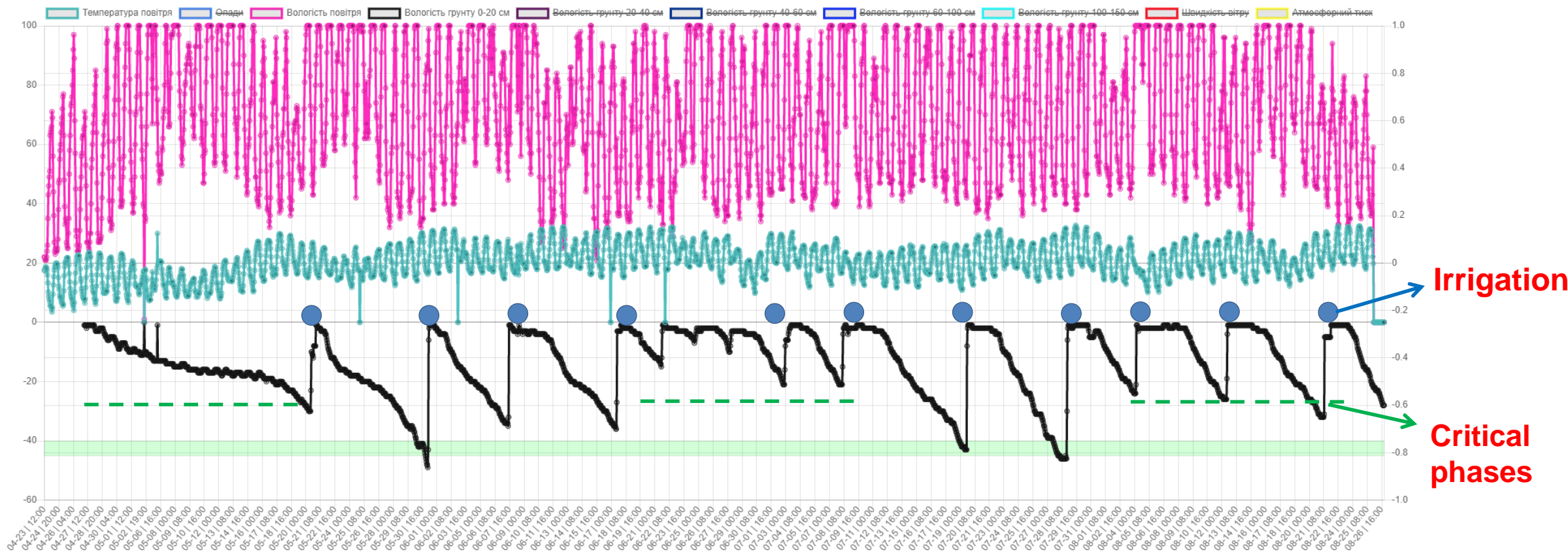
Large, medium, and small resolution satellite imagery for field state monitoring



Evapotranspiration assessment by SEBAL algorithm

Soil moisture dynamics while managing irrigation using “Polyv online” system

Графіки показань: [У вигляді списку](#)



Features of “Polyv online” system

- *Irrigation terms forecast for 5 days*
- *Increased accuracy of forecasting and control of soil moisture*
- *Automatic monitoring of soil moisture and determination of effective irrigation rates*
- *Irrigation water saving*