

Edge-AI in optimized irrigation for smallholder farmers communities

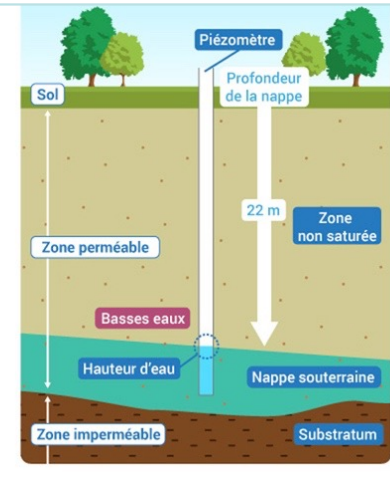
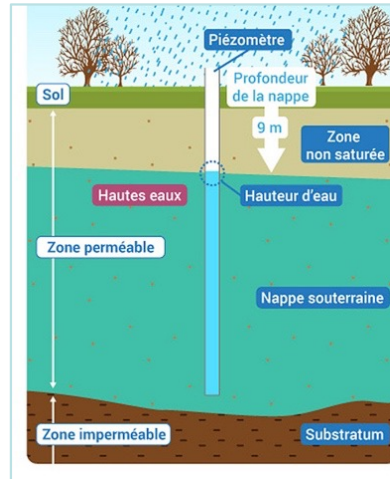
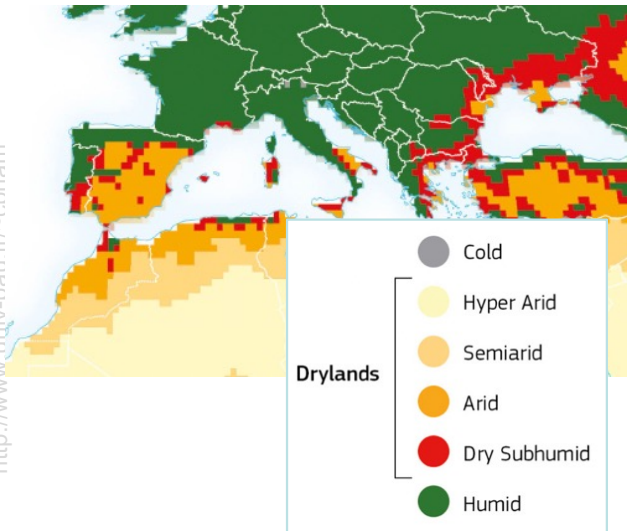
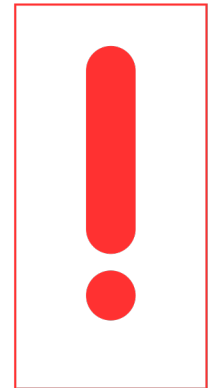
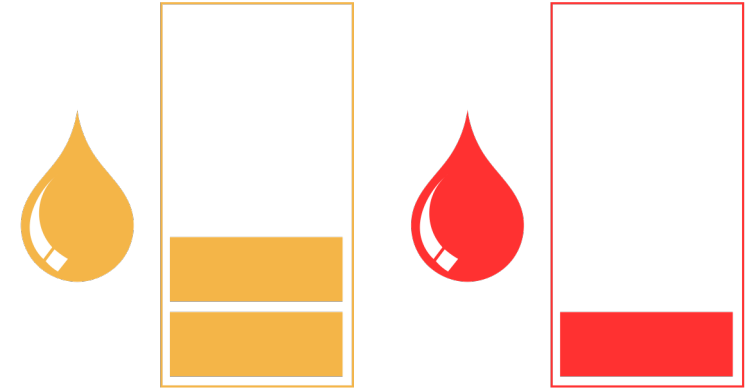
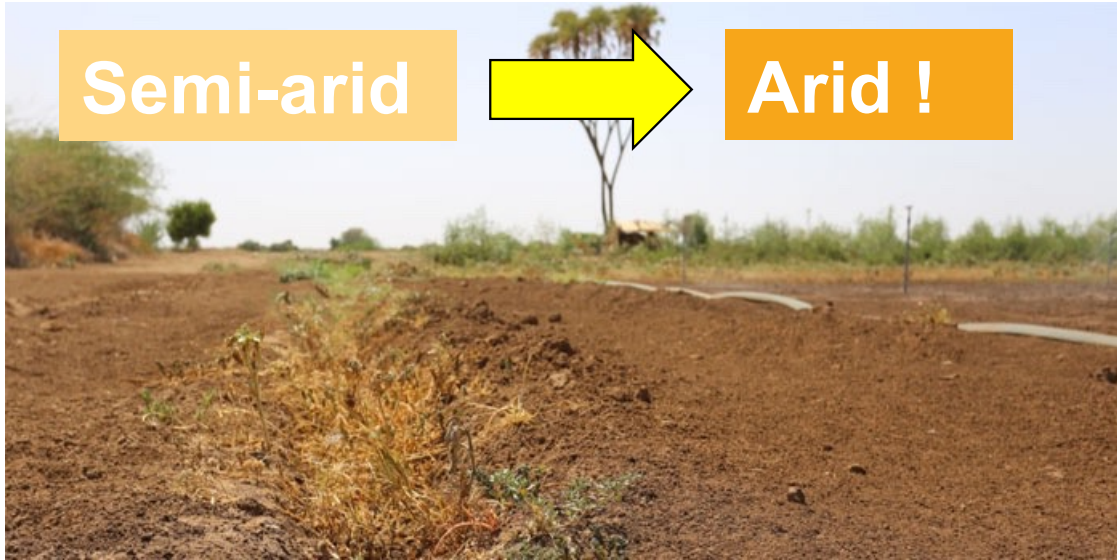


Continuing Education in Applied Artificial Intelligence
Datum Academy Webinar in Latin America
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<http://www.univ-pau.fr/~cpham>
Université de Pau, France



Water resource is precious!



Irrigation with soil moisture sensing

Not as simple as it seems ☹️

Sense

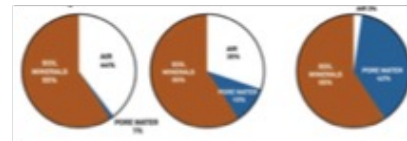


Volumetric Water Content,
 Water Potential, Water
 Tension,...

TDR, FDR, capacitance,
 resistance,



? Analyse



Soil characteristics: bulk
 density, soil salinity, soil
 texture & soil type

Evapotranspiration, soil-
 plant-atmosphere
 continuum,...



? Decide

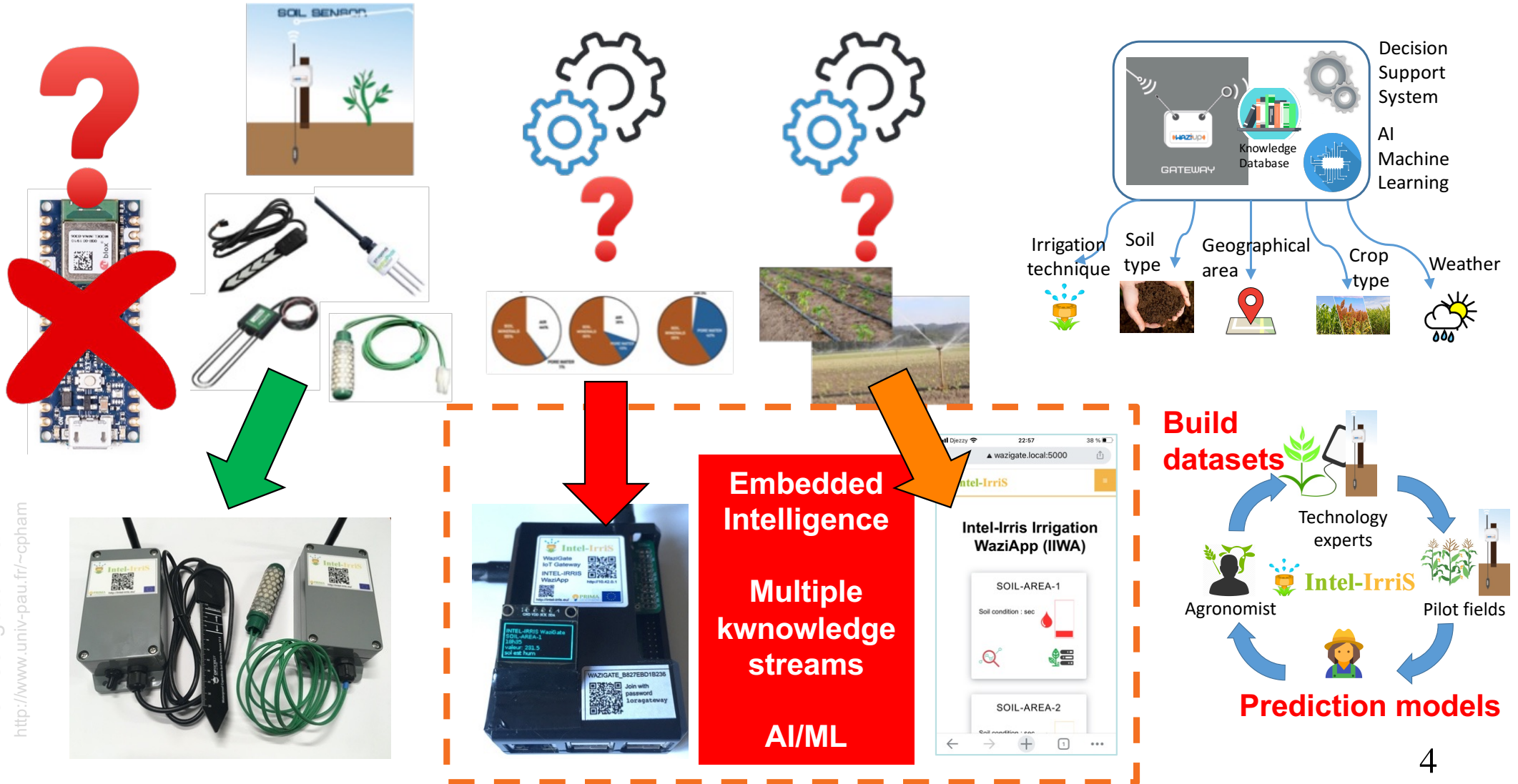


Irrigation type: drip,
 furrow, sprinkler,...

Plant/Crop varieties

Relationship with other
 agriculture inputs

INTEL-IRRIS: embedded intelligence



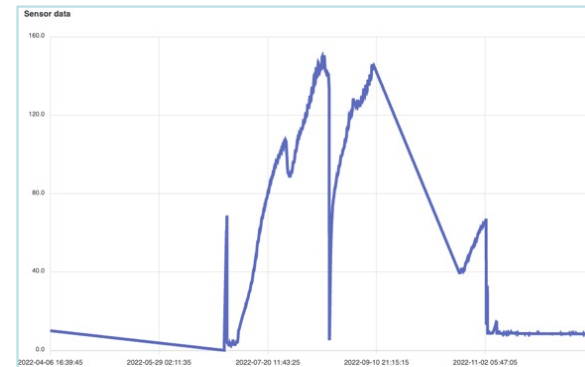
From raw data to dataset

SOIL-AREA-1
ID 63a7191a68f3190886...

- Soil Humidity Sensor** 106
Raw value from SENO308 6 months ago
- Soil Temperature Sensor** -99
degree Celsius 14 hours ago
- Battery voltage** 3.35
volt, low battery when lower than 2.85V 6 months ago

SOIL-AREA-2
ID 63a71aa368f3190886...

- Soil Humidity Sensor** 8.4
centibars from WM200 6 months ago
- Soil Humidity Sensor** 104.4
scaled value from WM200 real=x10 6 months ago
- Soil Temperature Sensor** 9.2
degree Celsius 6 months ago
- Battery voltage** 2.82
volt, low battery when lower than 2.85V 6 months ago



- Soil type, plant type, evaporation, weather condition,...
- Where to apply IA, how to handle irrigation cycles, ...?

Towards prediction of soil humidity?

