

# Bachelor Project

# Irrigation Machine Learning

Adrien Chabert



# Motivation

To predict water quantity necessary for a specific plant for it to remain in its confort zone



# Motivation

- 200'000 km<sup>3</sup> of fresh water on earth
- Nearly 2/3 are used for irrigation
- With intelligent irrigation, we can decrease water consumption of 20%-25%



# Plan of the Project

Research of Literature

Collect Data

Implementation of Machine Learning Algorithm

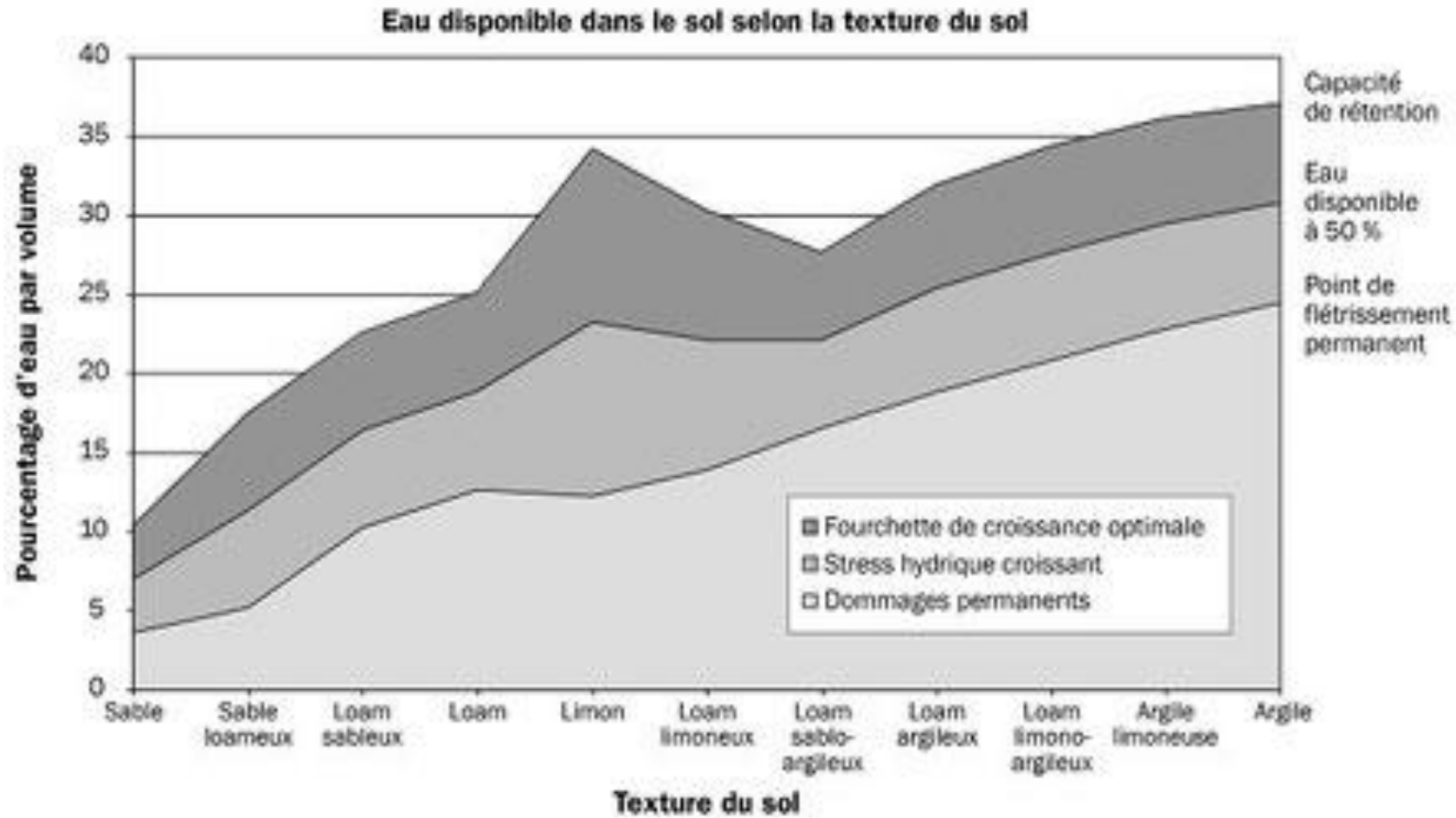
Test our result

Create a watering plan



Basilic, onion, spinach  
Planting

# Optimal soil Moisture depending of the soil



Source : <https://www.capteurs-et-mesures-agralis.com/mesure-humidite-sol/>



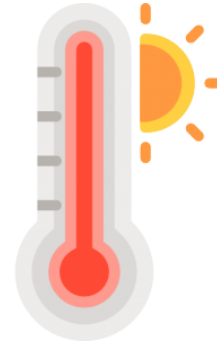
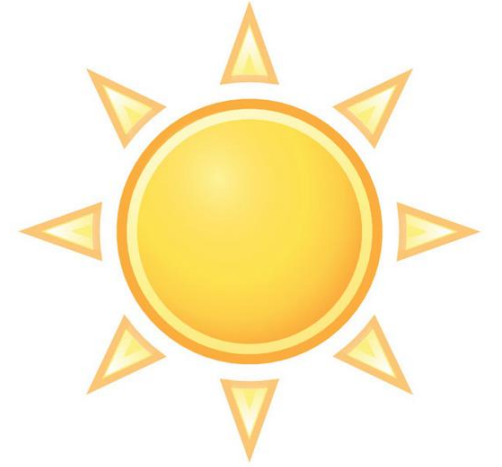


Installation and understanding of the  
different programs

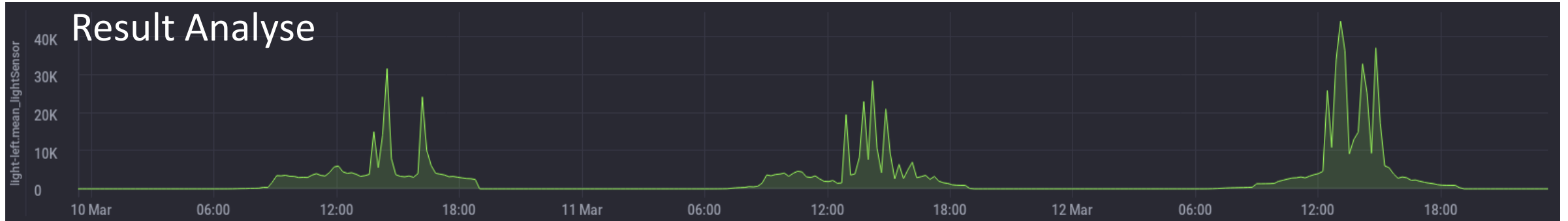


# Impact soil moisture

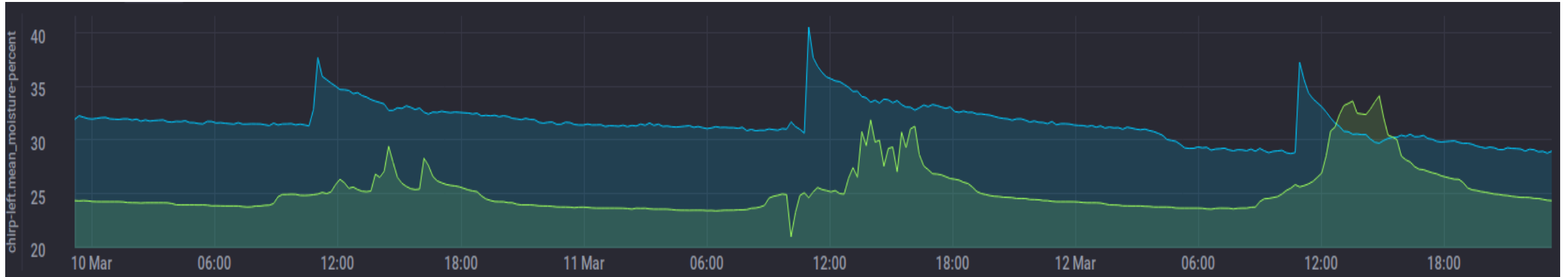
- Temperature
- Wind
- sunshine
- Air moisture
- Plant's growth



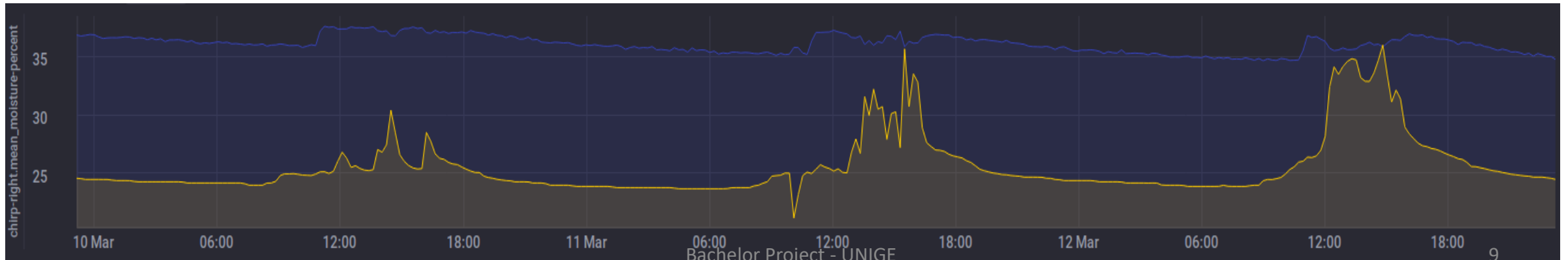




Demeter.autogen chirp-left : Moisture percent and temperature



Demeter.autogen chirp-right : Moisture percent and temperature





# Encountered problem

Position of the humidity sensor

Weird curve

Not found comparable  
experience in indoor small scale

# Planning for the next 3 weeks

- End of the research of Literature
- Research about Machine Learning algorithm
- Implementation of a first easy ML algorithm
  - Bayesian learning machine approach for Regression
  - Least Squares Multiple Linear Regression
- Vary the watering with respect of the plants

# Project Planning

