



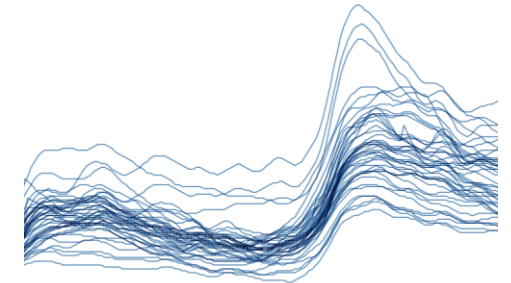
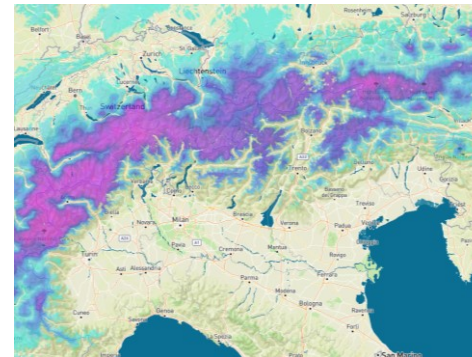
WEGAW

 Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
  
Swiss Confederation  
  
Federal Department of Economic Affairs,  
Education and Research EAER  
State Secretariat for Education,  
Research and Innovation SERI  
Swiss Space Office



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and the Swiss Space Office

# REMOTE SENSING SATELLITE DATA WITH MACHINE LEARNING FOR ENERGY OPTIMIZATION



## 7+ ESA/NASA satellites

We download raw, real-time data from **multiple satellite sensors** and pre-process them in-house as fast as technology allows.

## RADAR & Optical sensors

We combine **RADAR** and **optical** satellite sensors with **ground, meteorological and ancillary data** (solar radiance, temperature, etc.)

## Deep Learning & Models

We fuse the resulting historical satellite base data with Deep Learning and Environmental models to **forecast the evolution of environmental variables**

## Energy forecast

Comparing the environmental variables (snow & water) with historical energy production we **forecast energy production for a given power plant**

# DATASETS FOR RENEWABLE ENERGY

## HYDRO



### Datasets:

- Snow cover
- Snow Depth
- Soil humidity
- Water height

## OCEAN & WIND



### Datasets:

- Ocean Surface Wind Direction
- Ocean Surface Wind Speed
- Wave height
- Tide height

## SOLAR



### Datasets:

- Ground temperature
- Air temperature
- Aerosol monitoring

# WEGAW HYDROPOWER PLATFORM

## DATA COLLECTION

### Geospatial Data input

Precipitation & Temperature

Soil Moisture

Snow Data

Digital Elevation Model

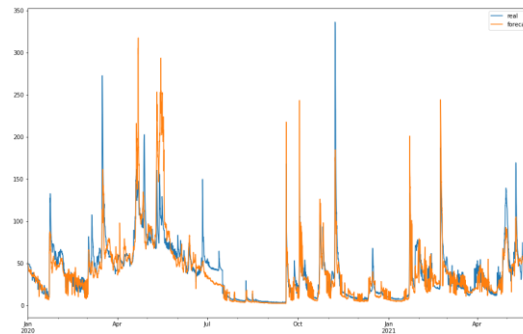
Historical data

Hight accurate geo-datasets

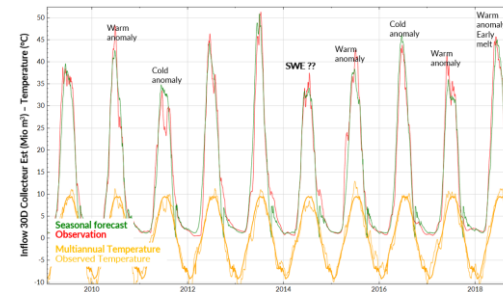
## OPERATIONS

### Water Inflow Model

#### Short Term forecast (48h)



#### Long Term forecast (60 days)

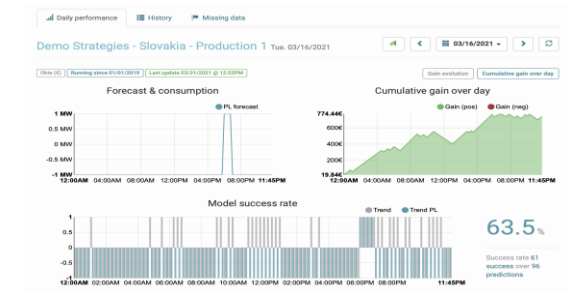


10% production increase

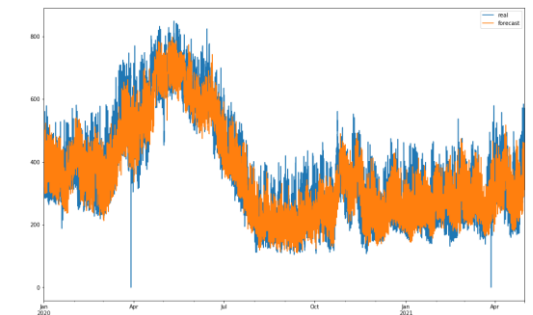
## TRADING

### Energy Forecast

#### Price Forecast (48h)



#### Load Forecast (48h)



5% Price optimization