LAI from satellite and measurements

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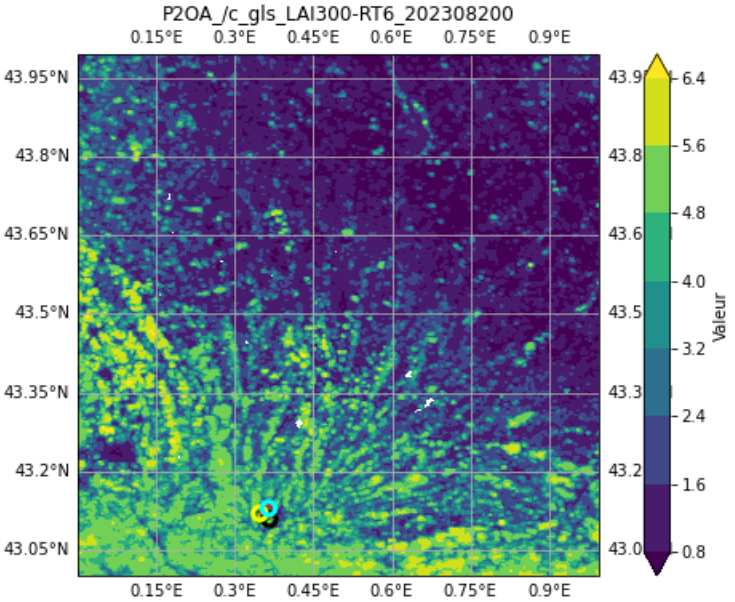
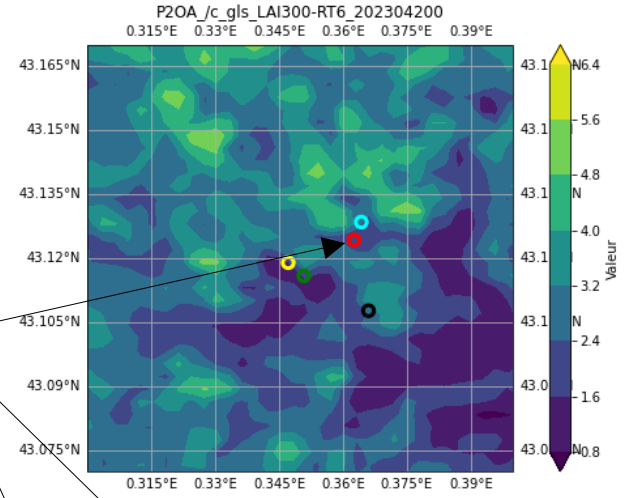
LAI from sentinel (300m)

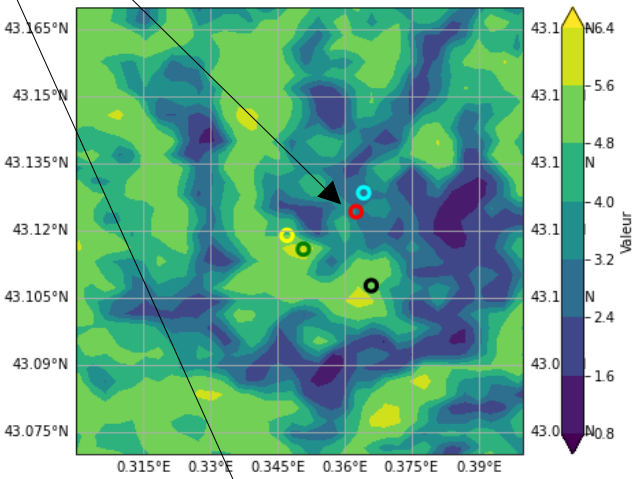
-Data every 10 days
-300m of resolution
-all the globe
- Copernicus database



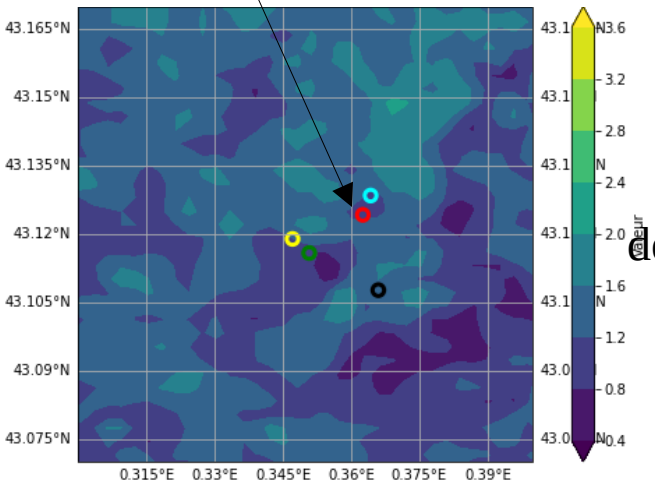
P2OA 60m tower



april



august

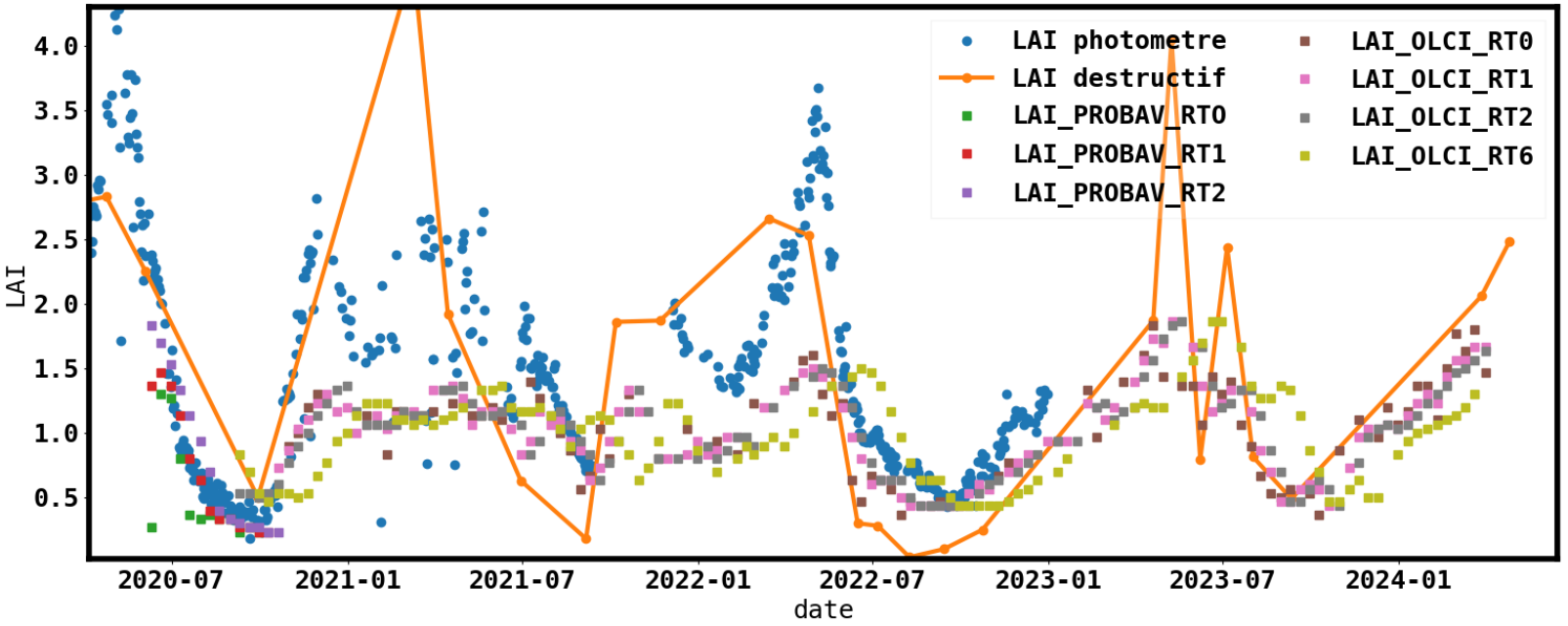


december

Evaluation with destructive data (300m)

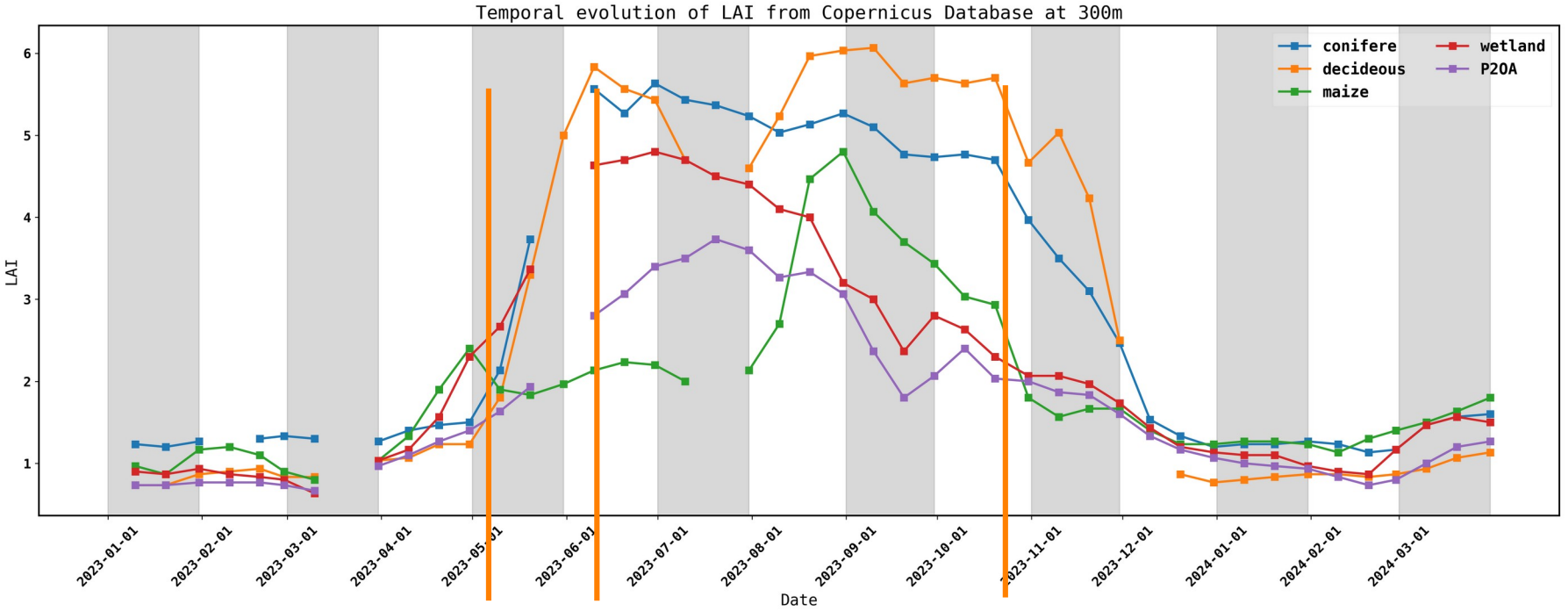
At the meteopoleflux station we try to make a database with a destructive LAI method :
-3 times per year before 2021
- every month since 2021 between march and october

We also have a photometer that targets the surface every hour to obtain the NDVI, which is then linked to the LAI (Calvet et al. 2023)



LAI during EOP P2OA at several sites

LAI for each culture from copernicus



We find various chronologies :

-LAI from wetland and forest start to increase earlier than maize (in august)

Maximum for the deciduous forest

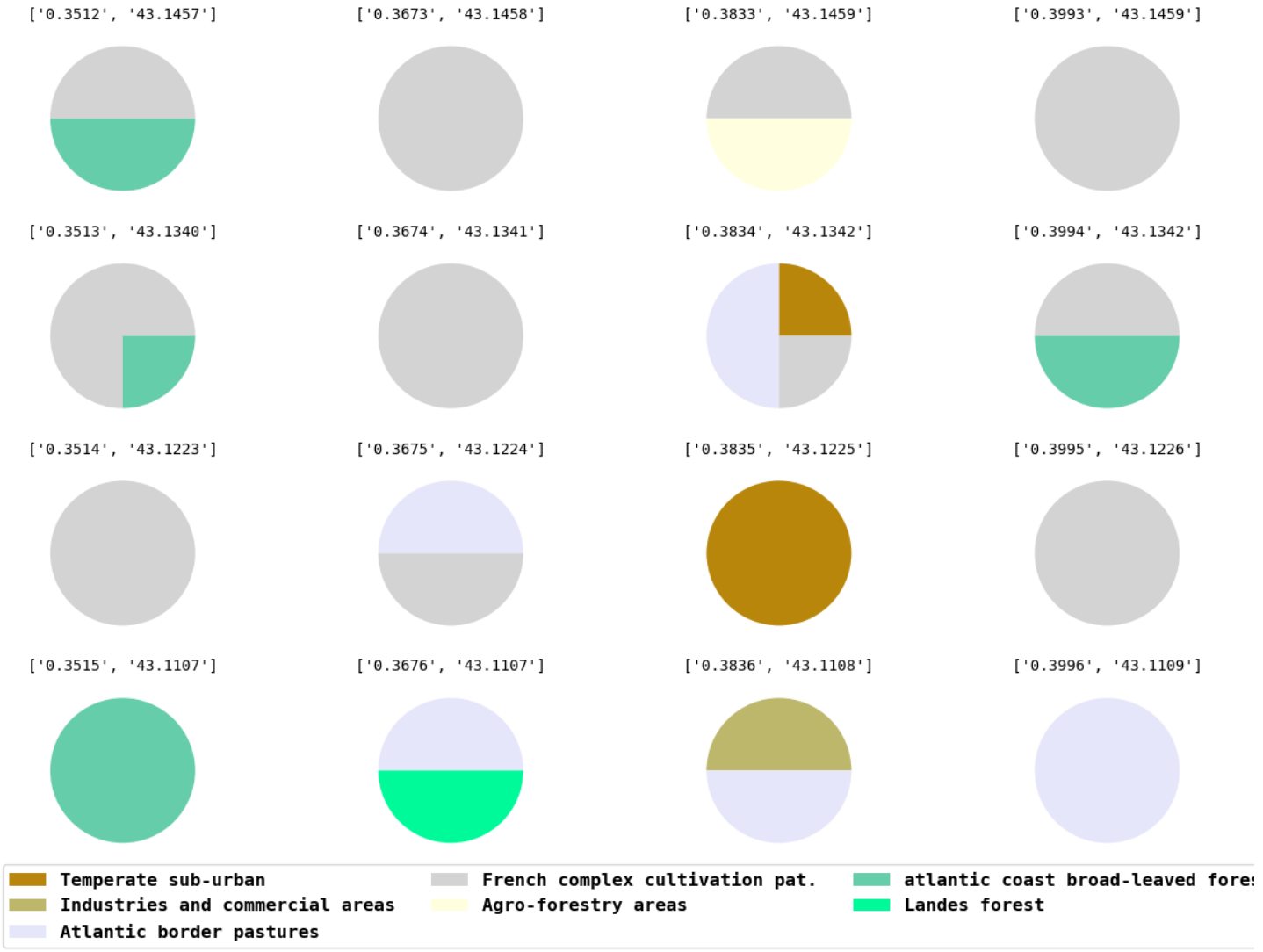
Maximum for P2OA curent july

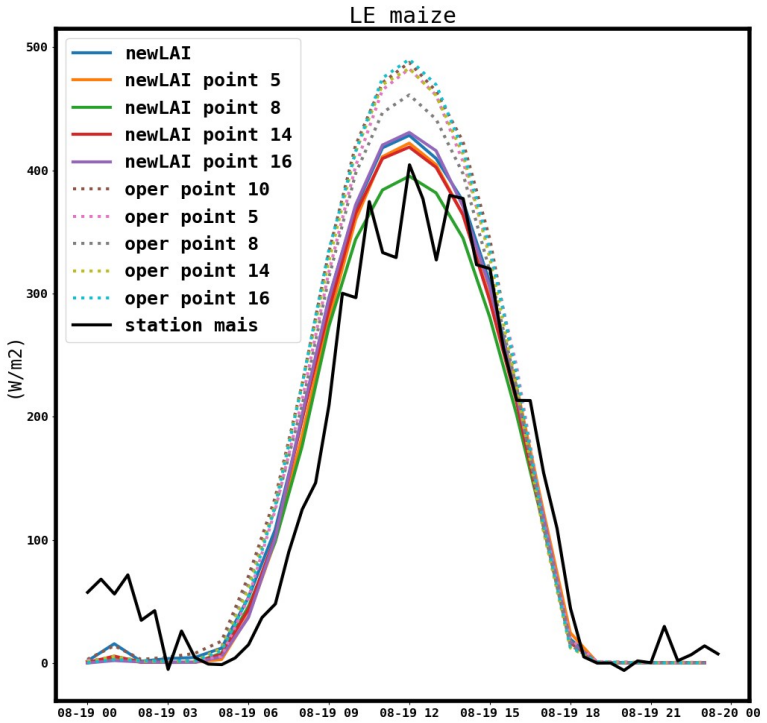
TEST to change LAI on AROME

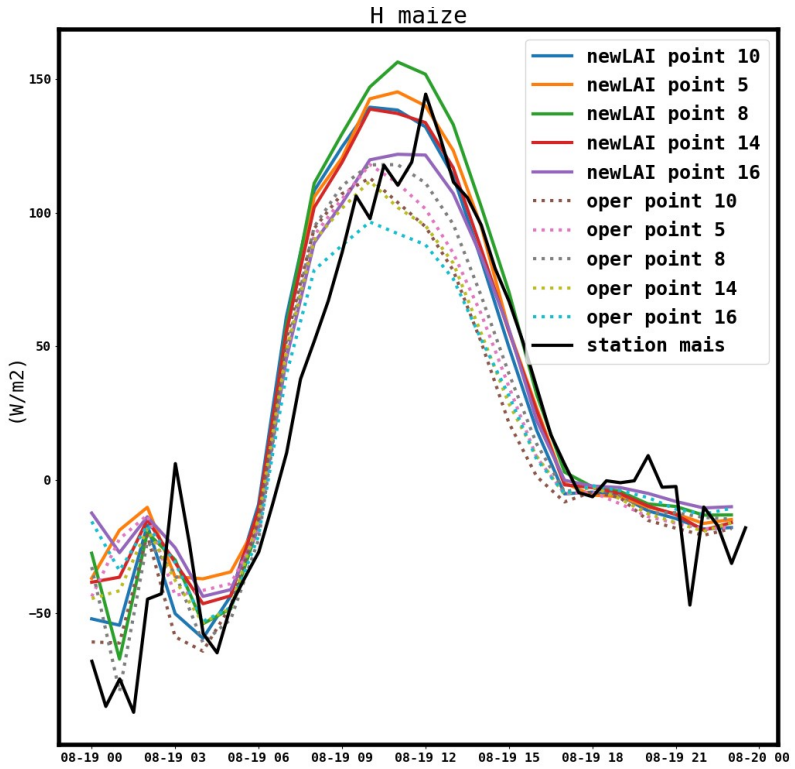
Point 1...16

Experience at Dephy :

- AROME with LAI satelite change on 100% crop and 100% forest points

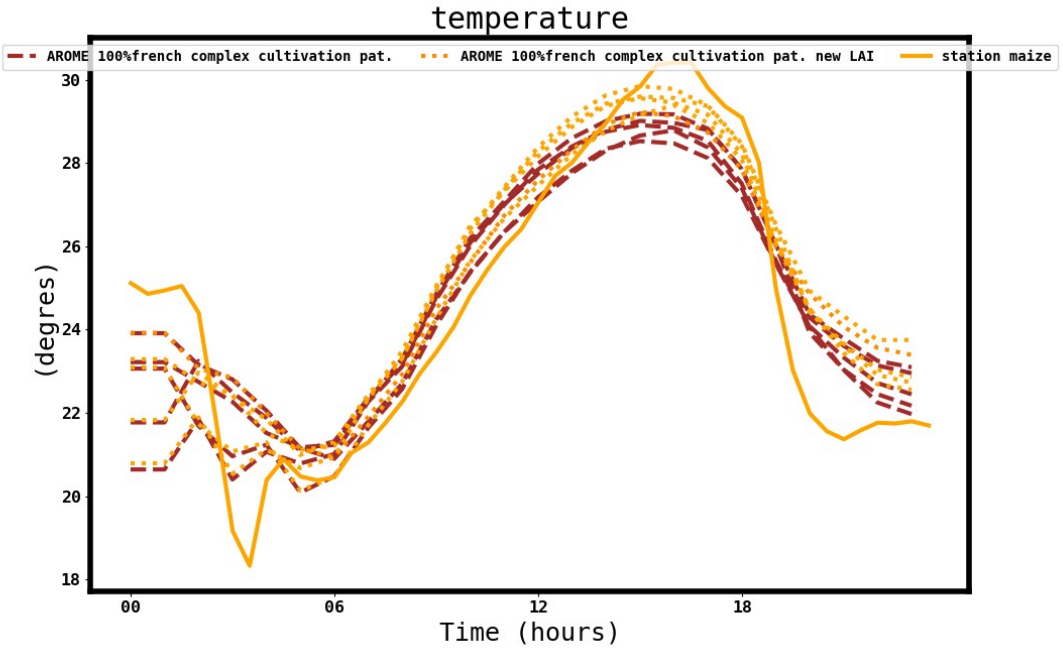






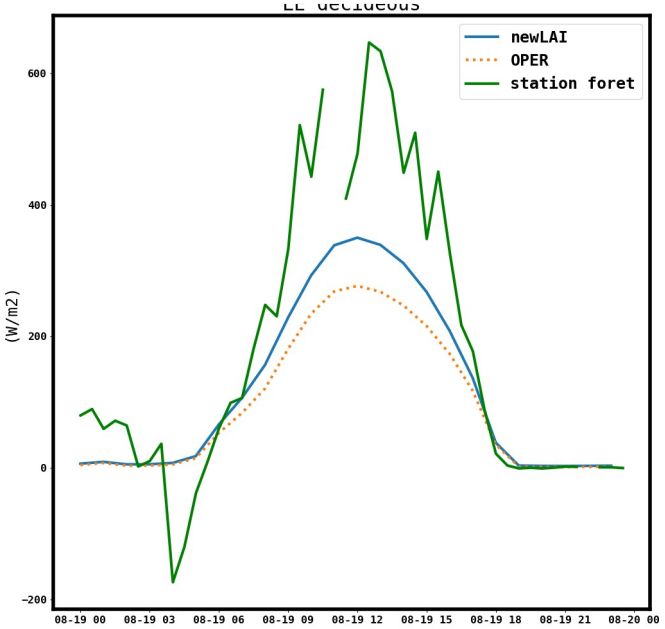
100 % French complex cultivation pat.

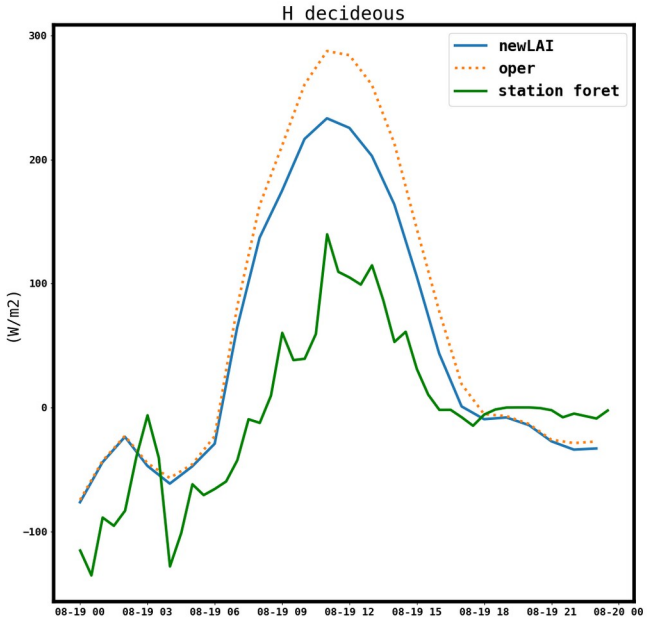
-impact on H and LE
-impact on the temperature

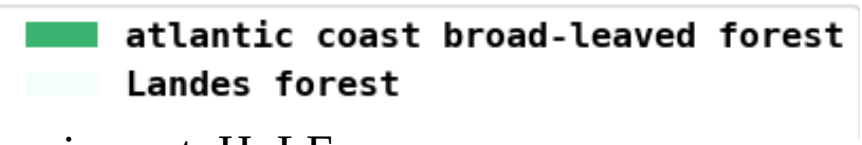


Variability between the 5 points of the domain not negligible

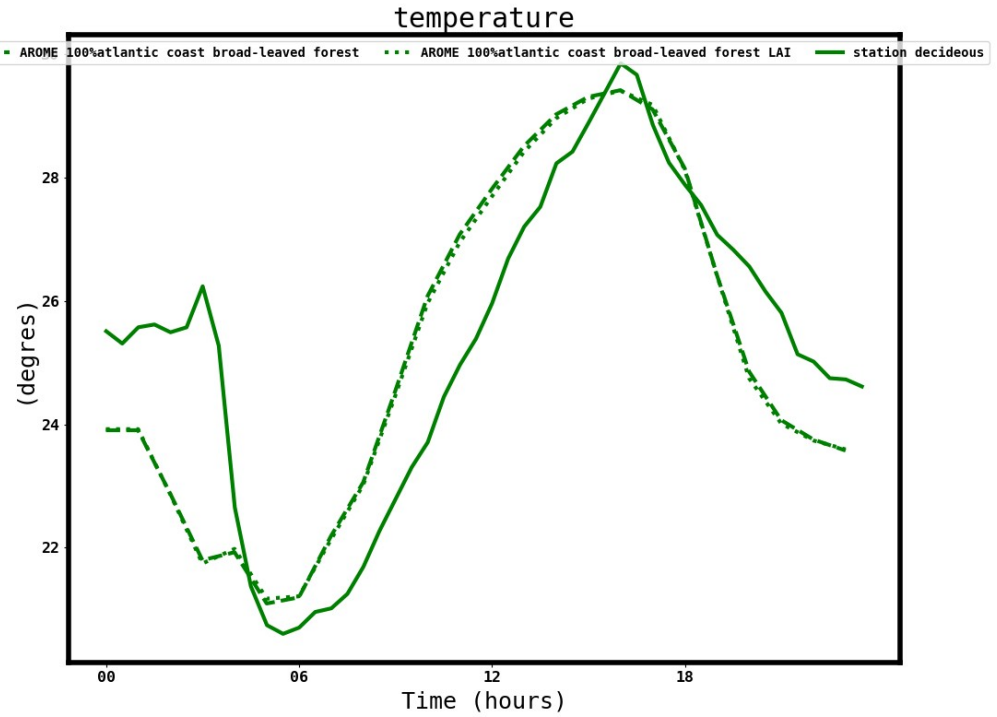
TEST to change LAI on AROME



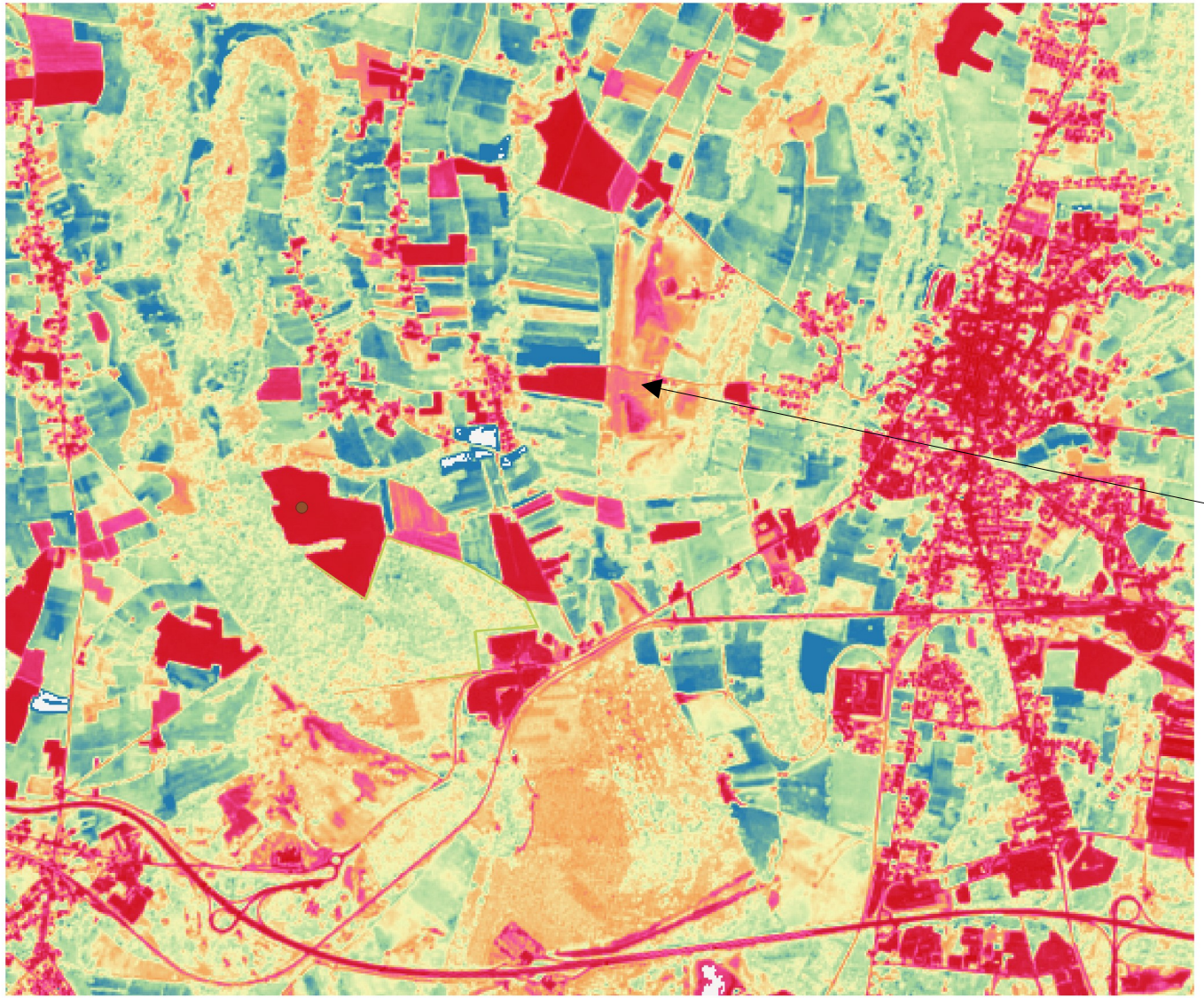




-impact H LE
-negligible impact on 2m temperature



LAI from satellite, 10 m resolution, ~1/month



05 May 2023

Conclusion

- Would it be interesting to have this short dataset on the database?
  - I saved only nc files on a 1x1degree area because the annual data set is 800 GB when you recuperate the year on the globe.
  - For 10m resolution, it's a file around 100x100km