

Want to come help fight the climate and biodiversity crisis?

Master thesis topics with
Jonas Lembrechts (PLECO)
and The 3D Lab

Want to know more?
Always welcome on
www.the3dlab.org





We have a
place for you
if you...

- ... want to join the biggest global study on the effects of climate and land use on **mountain** plants
- ... want to join the largest **citizen science** project on climate ever
- ... want to join the largest effort ever to get **good climate data** for ecology

... love plants

... love mountains

... love citizen science

... love DNA-analyses

Topics part I

Scandinavian mountains



- Plant invasion along mountain roads
- Assessing ecological niches
- Long term climate change

Topics Part II

Microclimate



- Improving climate models for Flemish cities
- Soil microbial diversity
- How much has (micro)climate really changed?



Scandinavian mountains

1 - Plant invasion along mountain roads

- Vegetation monitoring along mountain roads
- Assessing if species have moved over the last 10 years
- Which species are invading our pristine mountains?

2 - Assessing ecological niches

- What climate can species really survive in?
- Vegetation monitoring, seed harvest and soil sampling

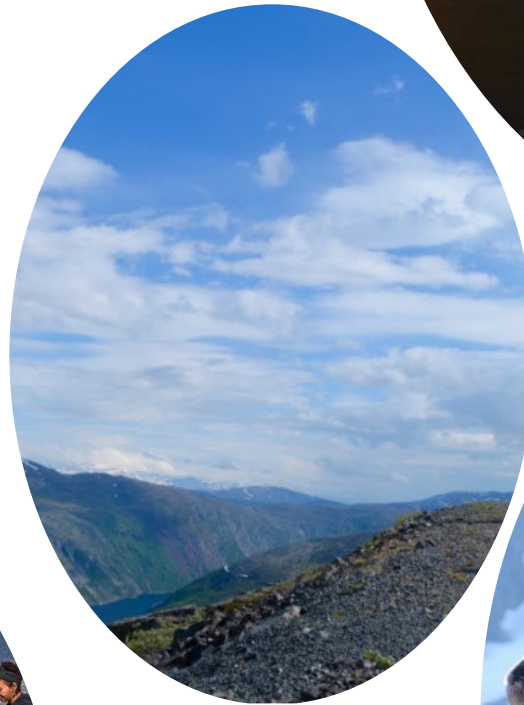
3 - Long term climate change

- Travel back in time: 100+ year old vegetation data from northern Sweden
- Resurvey the same plots and see what has changed



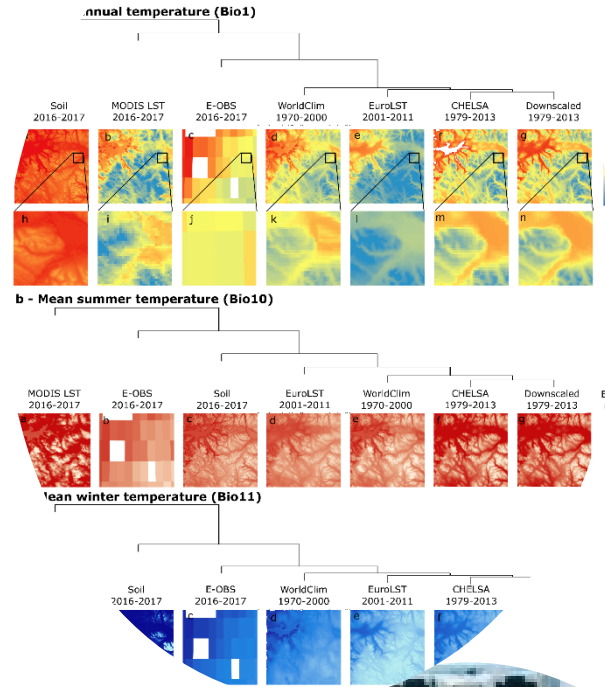
The practical part

- 20-30d fieldwork in summer 2022 in Norway/Sweden
- Mountain hiking involved
- Interest in plants required



Applied methods

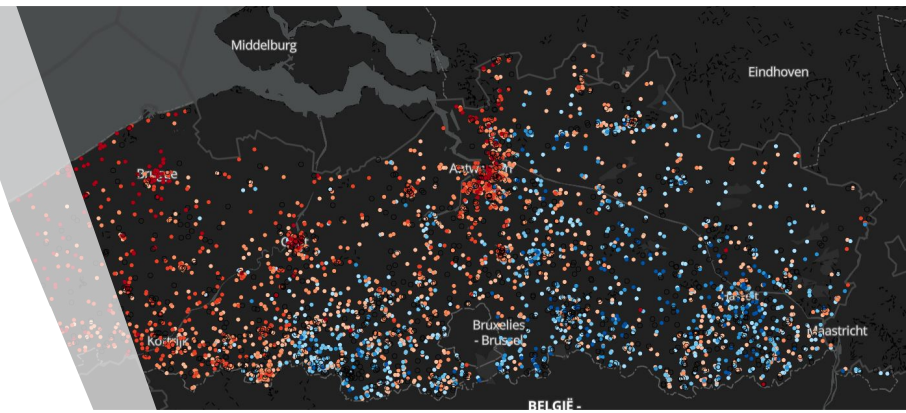
- **Fieldwork (all)**
 - Plant species inventories
 - Taking soil samples (roots, pH, soil nutrients ...)
 - Harvest seeds
 - Be part of an enthusiastic team
- **Lab work (depending on topic)**
 - Soil extractions for pH and nutrients
 - Modelling in R and ArcGIS



Microclimate

1 - Improving climate models for Flemish cities

- Join CurieuzeNeuzen in de Tuin, the biggest citizen science project on climate change ever
- Use data from the 5000 mini-weather stations to verify the predictive power of urban climate models from the Royal Meteorological Institute



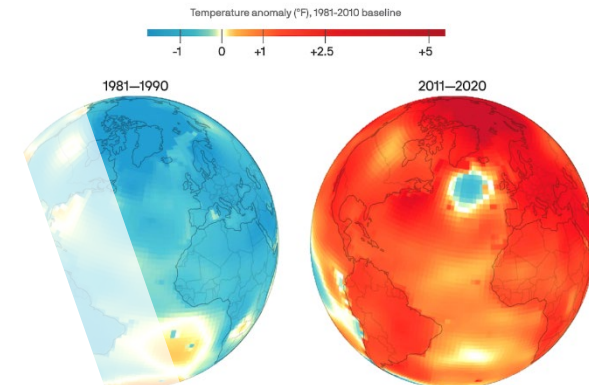
2 – How much does soil microbial diversity vary?

- Help answer a fundamental question in ecology!
- Either as part of the Flemish citizen science project, or using a global dataset
- Assess microbial diversity using DNA-analyses
- Soil sampling across Flanders



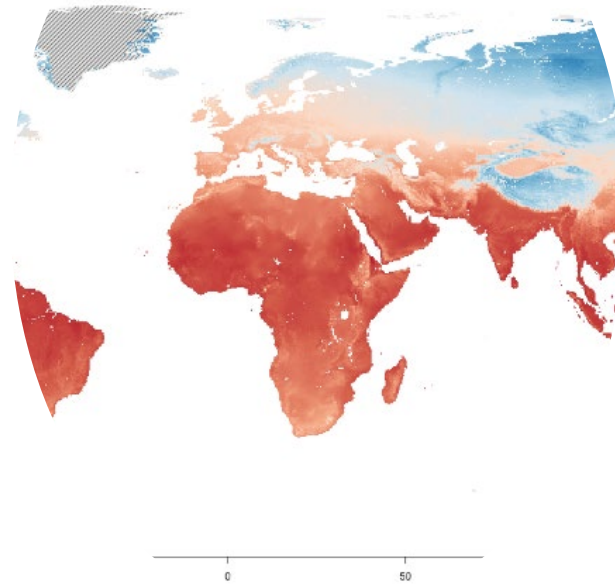
3 - How much has (micro)climate really changed?

- Reported changes in climate based on weather stations are irrelevant for organisms living near the soil surface
- You can help fix that error!
- Play with the largest global database of soil temperature data and cutting-edge satellite data



Applied methods

- Join the project team of the citizen science project throughout its second campaign year
- Team up with global experts in climate (KMI) or satellite-data (VITO Belgium)
- **Optional lab work**
 - DNA sequencing for soil microbial diversity
- Modelling and map-making in R and/or ArcGIS



More information

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