

# PEACE

**Permafrost Ecosystem changes across the Arctic: Carbon and nutrients cycling in terrestrial-aquatic Environments**





# Question

How do climate-driven degradation of permafrost and vegetation changes affect Arctic ecosystem C-N-P dynamics and transfers along the plant-soil-hydrosystem continuum?



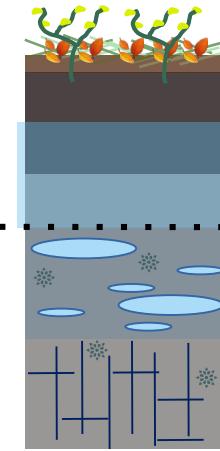
Institut national  
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**WP2 – SPATIALITY**  
Spatial distribution of the C-N-P?



**WP3 – PROCESSES**  
Mineralization, leaching and storage effect on stoichiometry cascade?



**WP1 – ARCTIC-THEQUE**  
database: Spatial and temporal heterogeneity of C-N-P stocks & fluxes?

**WP4 – CONNECTIVITY & TEMPORALITY**  
Permafrost degradation control on C-N-P lateral fluxes?



**WP5 – MODELLING**  
Impact of C-N-P evolution on C stocks in the Arctic under climate change ?





# 2024 - start & progress



- **Alienor Allain** as postdoc on SOM & nutrients characterization in permafrost soils and rivers
- **Laura Del Franco** as Assistante Ingénieure on isotopic labelling of plants and incubations in Ecotron IDF
- **Theoretical & methodological development of incubations**
  - Ongoing vegetation, SOM, DOM characterization in Abisko
  - In-situ incubations trials in Abisko
  - Tests on water sample preservation
  - Ecotron parametrization and tests for Arctic conditions



# 2024 - missions

- Partnership in Canada 
- Fieldwork in Churchill (Canada) & Abisko (Sweden)





# 2025 - missions, analyses, incubations, modelling

- Canada for permafrost core sampling 
- Fieldwork in September in Churchill (Canada) & June in Zackenberg (Greenland)
- Isotopic labelling of Arctic plants and start of incubations in Ecotron



Bi lateral and temporal fluxes