RÉPUBLIQUE FRANÇAISE
Liberté Égalité Fraternité

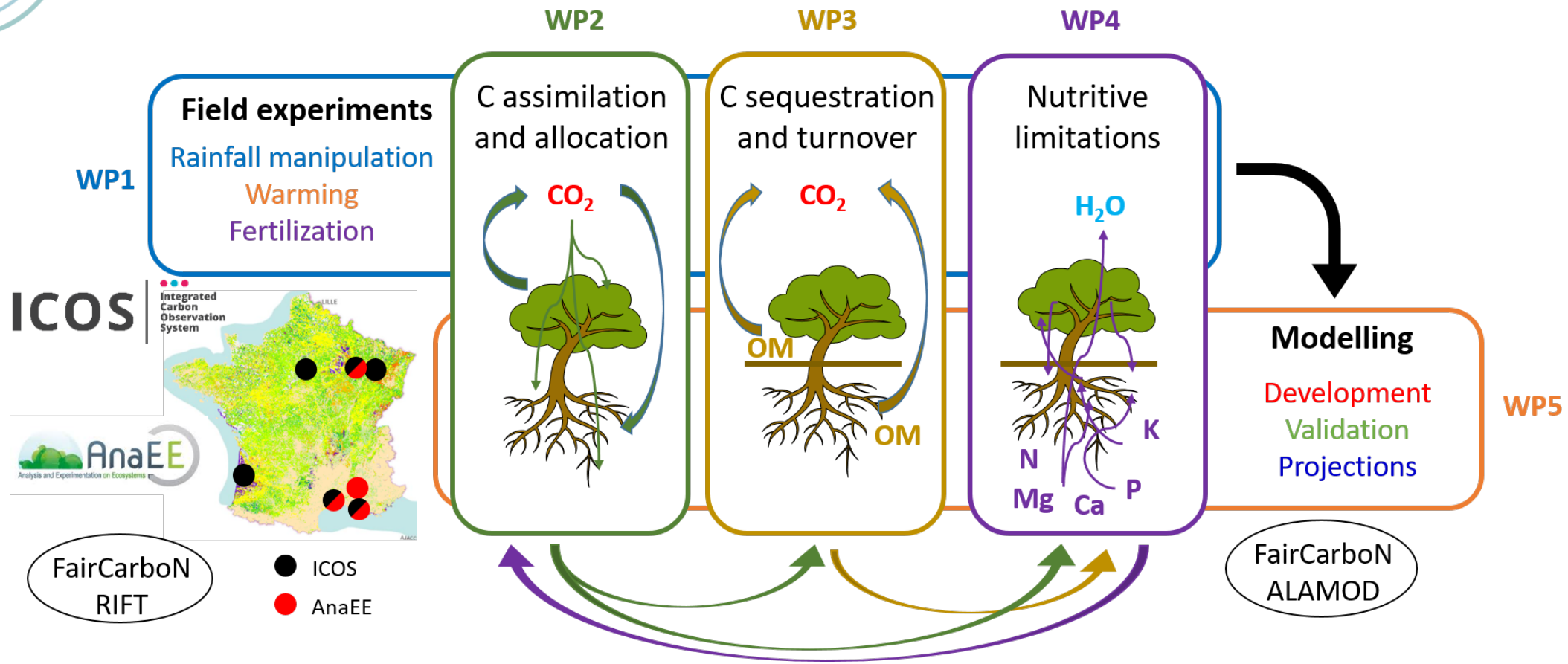
FRANCE 2030
PROGRAMME DE RECHERCHE
CARBONE ET ÉCOSYSTÈMES CONTINENTAUX

Drought ForC

Drought impacts on carbon stocks and fluxes in forest ecosystems: experiments and modeling

cnrs INRAE

Drought ForC – Climate change impacts on C sequestration in forests



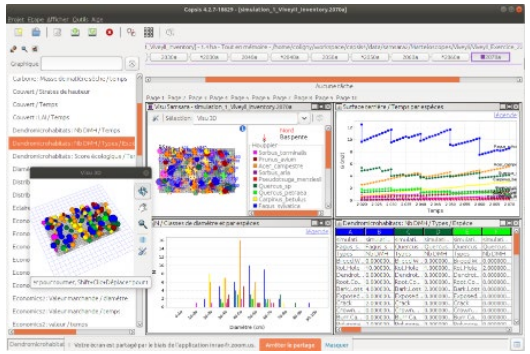
Monitoring, experiments and modeling

Long-term monitoring of forest C fluxes

Eddy covariance measurements of CO_2 and H_2O exchanges with the atmosphere
→ ICOS ERIC network of Ecosystem stations
→ 5 labelled stations in various French forest ecosystems

Rainfall manipulation experiments

Gutters or mobile roofs preventing the precipitation from reaching the soil
→ AnaEE research infrastructure of open-air experimental stations
→ 5 rainfall exclusion experiments in AnaEE-France



Numerical simulations with forest process based models

Wide diversity of hypotheses and mechanisms in forest models
→ A large number of forest models developped and used in France
→ 11 forest models brought together for the first time

FairCarboN
ALAMOD

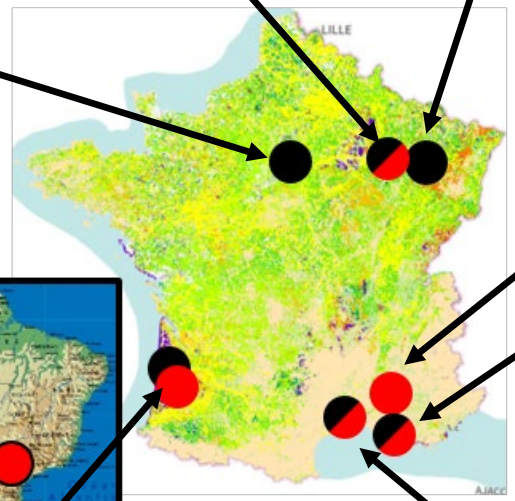
A network of eight experimental sites

Montiers

Hesse

O3HP

Barbeaux



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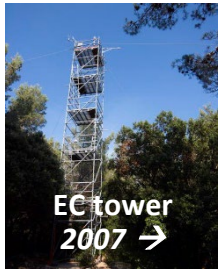
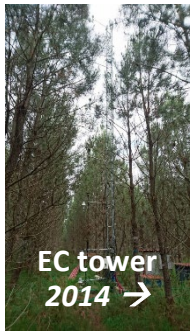


Itatinga

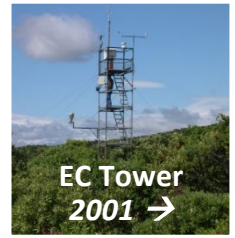


ICOS

AnaEE

Bilos

Puéchabon



Drought ForC highlights in 2023-2024

37 people from 9 research units participated to the kick-off meeting in Montpellier in 2023

2 PhD students have been hired in october 2024:

- ***Jeanne Poughon***: carbon allocation
- ***Philippine Dubertrand***: modeling NPK cycles

Soil cores collected in all the sites and experimental treatments in spring 2024:

- Root biomass
- Soil carbon and nutrient content
- Root carbon and nutrient content
- Root in-growth cores installed to be collected in 2025 and 2026

Drought ForC plans for 2025

- Gather the data regarding net primary production in all the focal forest sites
- Start common experiment on litter decomposition
- Collect and centralize plant and soil samples from the different sites for common analyses
- Format data sets for the modelling WP ← ALAMOD
- Start a new experiment to manipulate soil temperature