The french long-term intensive observation and experimentation network for environmental research in forest ecosystems


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The overall objectives are to understand the functioning of forest ecosystems by studying stocks and fluxes of carbon, water, and nutrients; by identifying the processes involved in these fluxes; and by evaluating their responses (and resilience) to perturbations (in particular global changes).

Design of the network: it combines 15 highly instrumented sites with two networks of permanent sample plots. F-ORE-T operates both in France and in the tropics (with local partners).

Some results:

- Annual net ecosystem C sequestration:
  - Average of \( \pm 1.7 \text{ C ha}^{-1} \text{ an}^{-1} \)
  - 30% of GPP (or 60% of NPP) used for tree growth
- High inter-annual variability of C sequestration (8 years of continuous measurements are necessary to get a good precision on Reco; 5 years for GPP and 6 years for NEE)

Impact of fertilisation (P – phosphorus only; F – phosphorus and nitrogen) and irrigation (I) on biomass partitioning (Maritime Pine Landes sites).

Higher impact on above-ground compartments (Trichet et al. 2008)


- Time lag in soil
  - Brech: 12 – 32 h
  - Oak: 14 – 26 h
  - Pine: 39 – 110 h
- Peak time in soil
  - Brech: 41 – 89 h
  - Oak: 36 – 89 h
  - Pine: 89 – 278 h

Fertilisation with potassium in Eucalyptus plantation in Brazil: a higher Leaf Area Index due to a higher leaf life span (Lacau et al. 2008)

Teams and Principal Investigators: [Details provided]