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Linking hydrological response to forest dynamics in Mediterranean areas: a new experimental catchment in the Apennine Mountains, Tuscany, Italy

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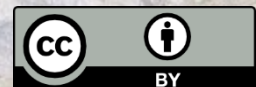
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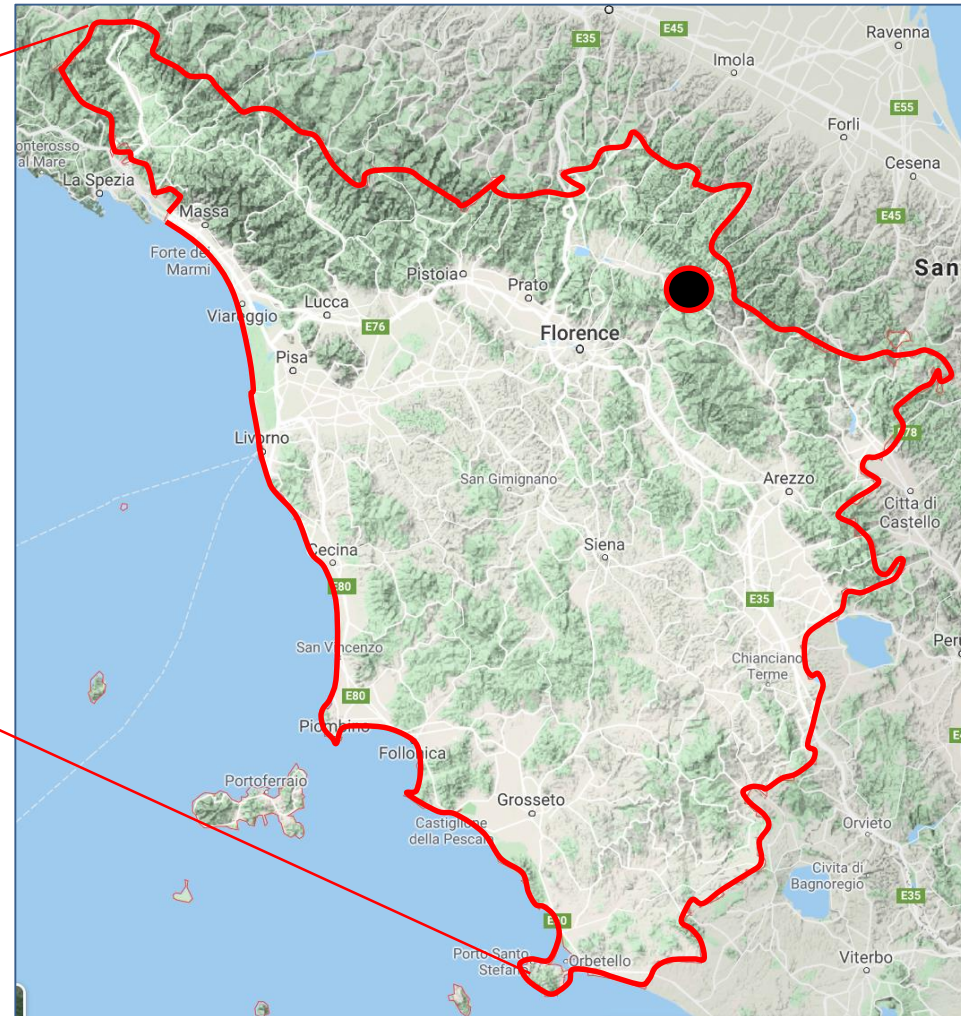


Why a new experimental forested catchment?

- Climate change (prolonged droughts) + human pressure → alteration of **hydrological processes** and **ecosystem services** in Mediterranean forested catchments (Tague et al., 2019, WIREs Water; Zhang et al., 2019, J. of Hydrology).
- Understanding the interaction between forest dynamics and catchment water availability → critical for a **sustainable management of water** and **forest resources** (Keleş, 2019, J. of Sustainable Forests). → need for an **interdisciplinary approach**.
- Lack of forested experimental catchments in the Apennine range → «bridge» between Alpine and Southern Mediterranean environments.

Location: Italy, Tuscany, Apennine Mountains

- Catchment size and elevation: 2 km², 820 - 1360 m a.s.l.
- Main lithology: sandstone
- Vegetation cover > 95% (beech, oaks, pines)



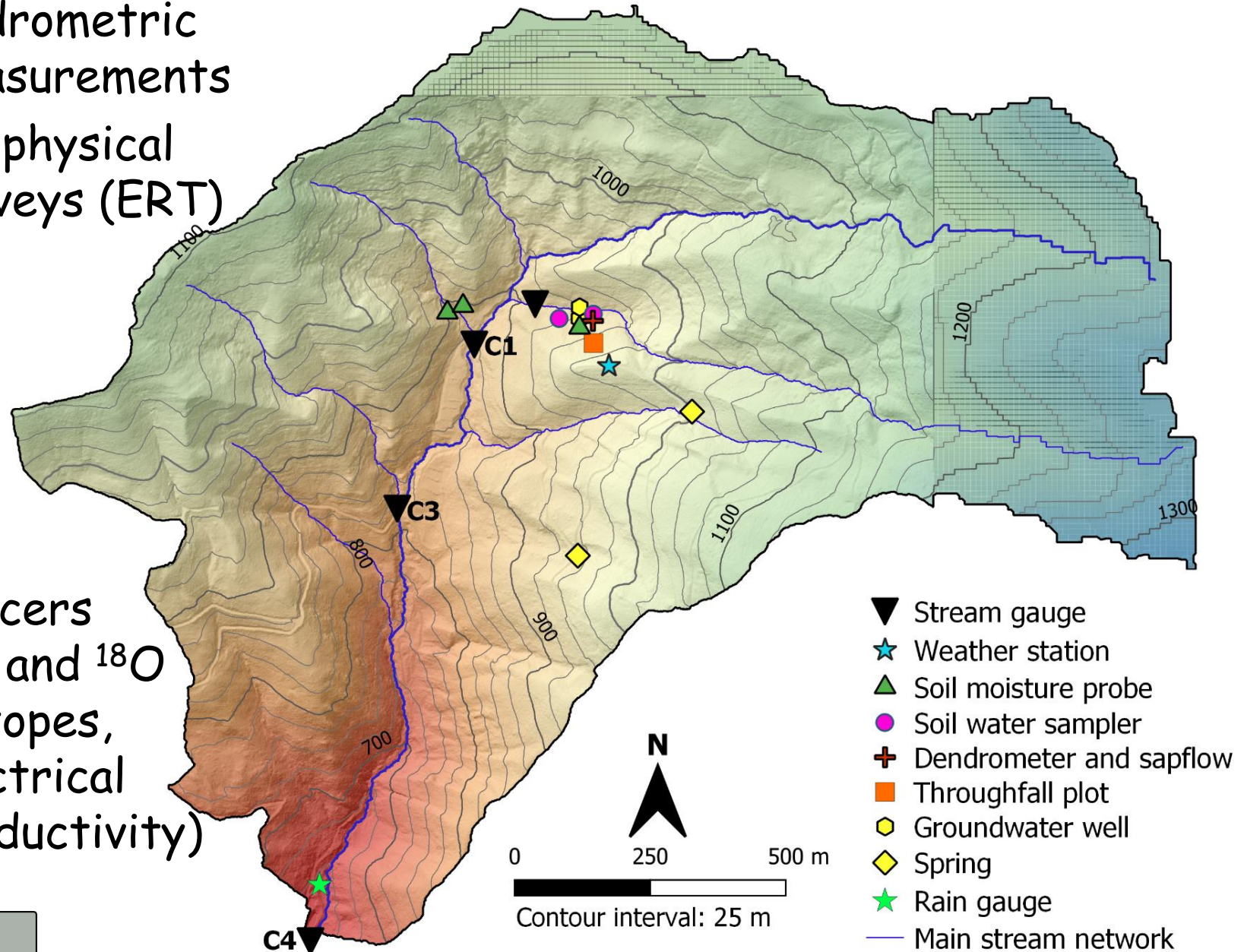
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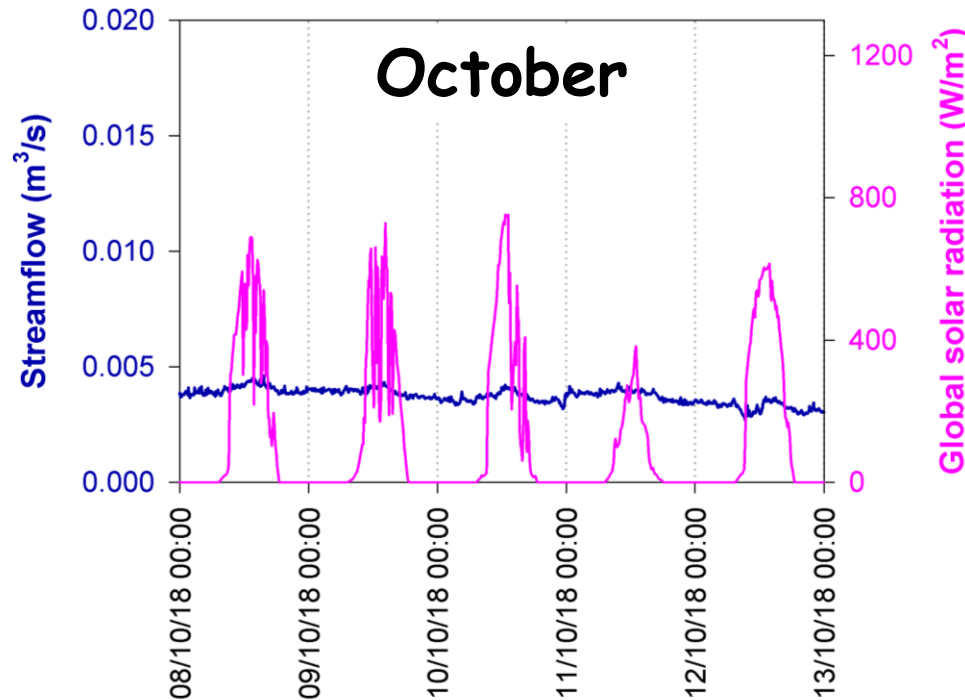
Instrumentation (work in progress)

- Hydrometric measurements
- Geophysical surveys (ERT)

- Tracers (^2H and ^{18}O isotopes, electrical conductivity)

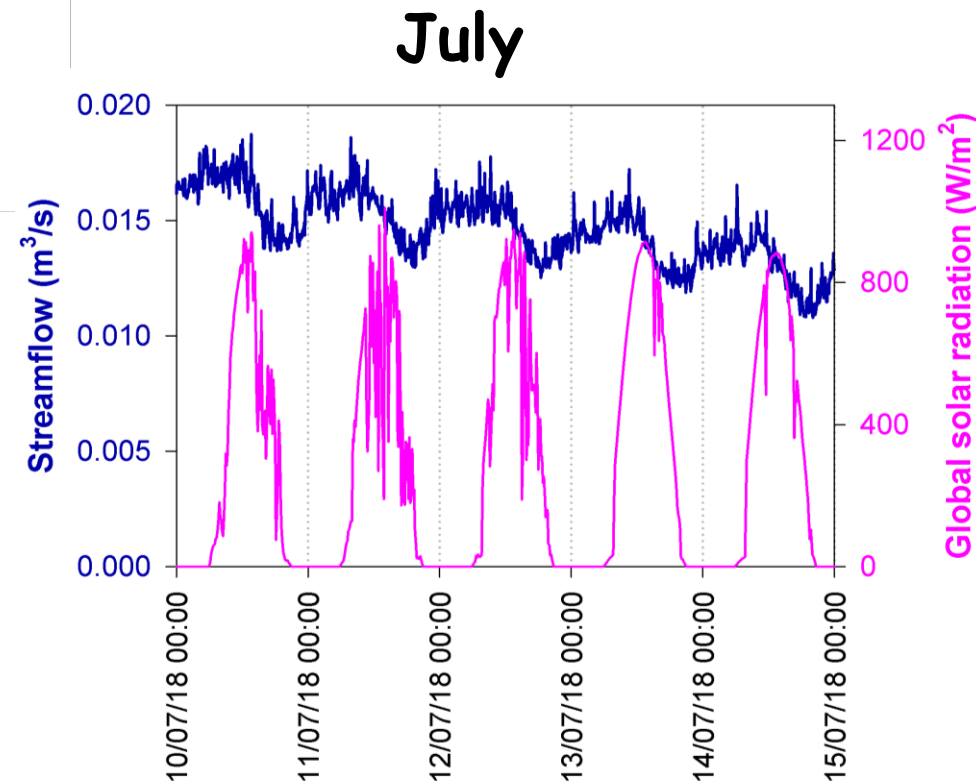


Preliminary results



- Marked seasonality of streamflow
- Strong ET control on streamflow

- Importance of subsurface flow for sustaining baseflow
- Strong temporal stability of soil moisture patterns



ERB Conference 2020 moved to 2021!



Advances in hydrological and ecohydrological sciences in small catchments

We'll be here in Sept. 2021!

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Euromediterranean Network of Experimental and Representative Basins



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