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Assessing microplastics pollution in the atmosphere and riverine system in the Pyrenees

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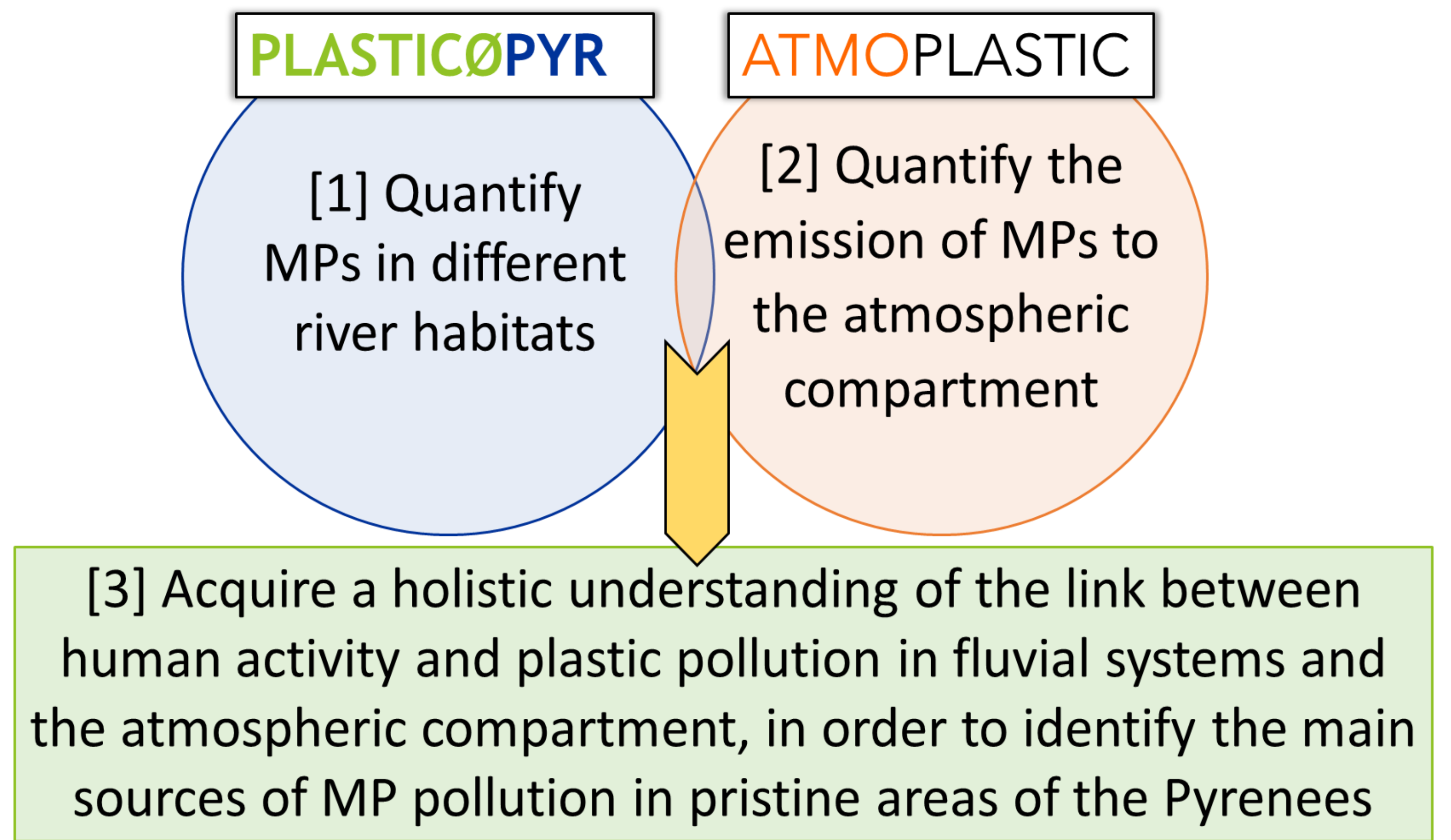
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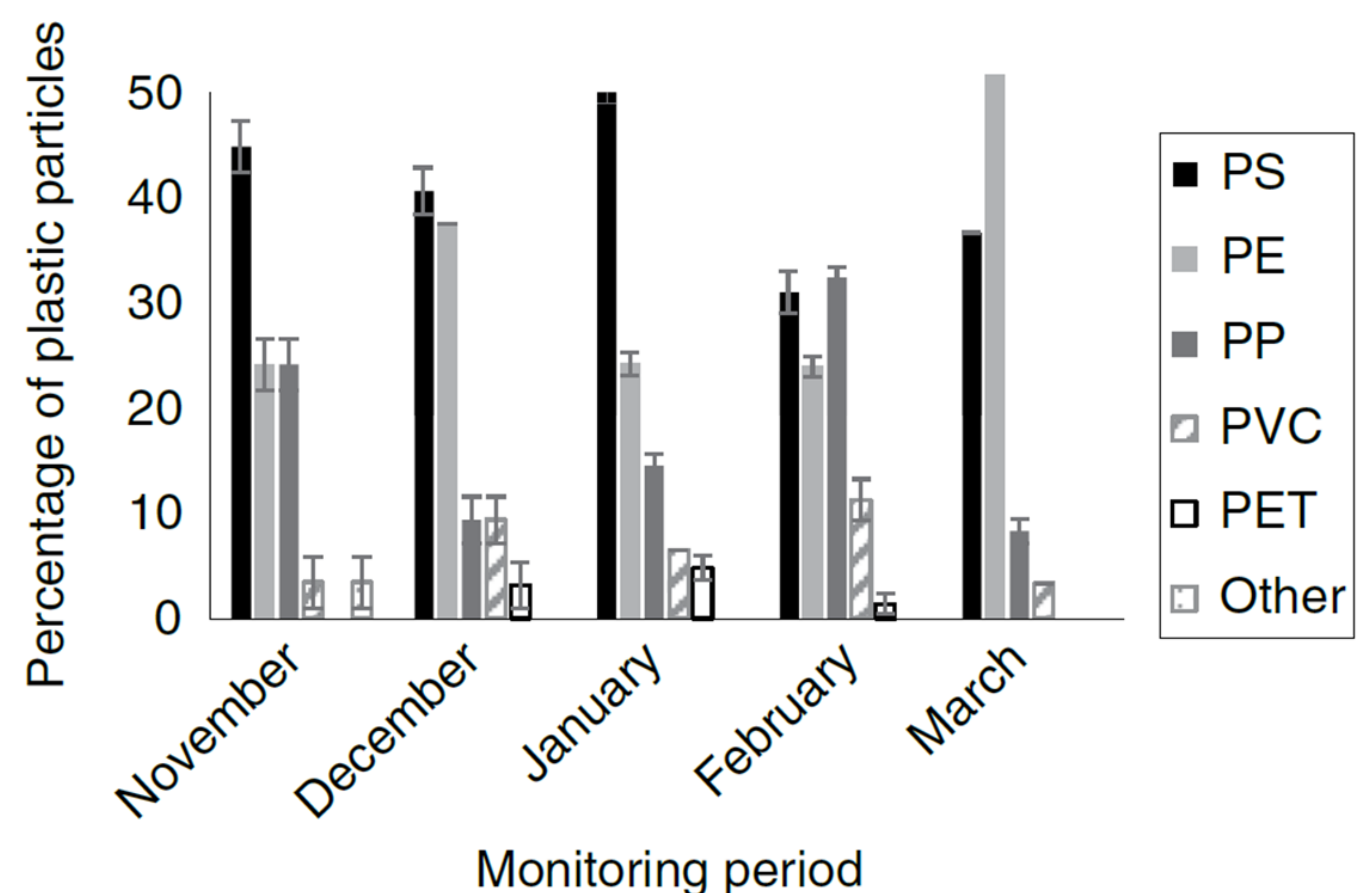
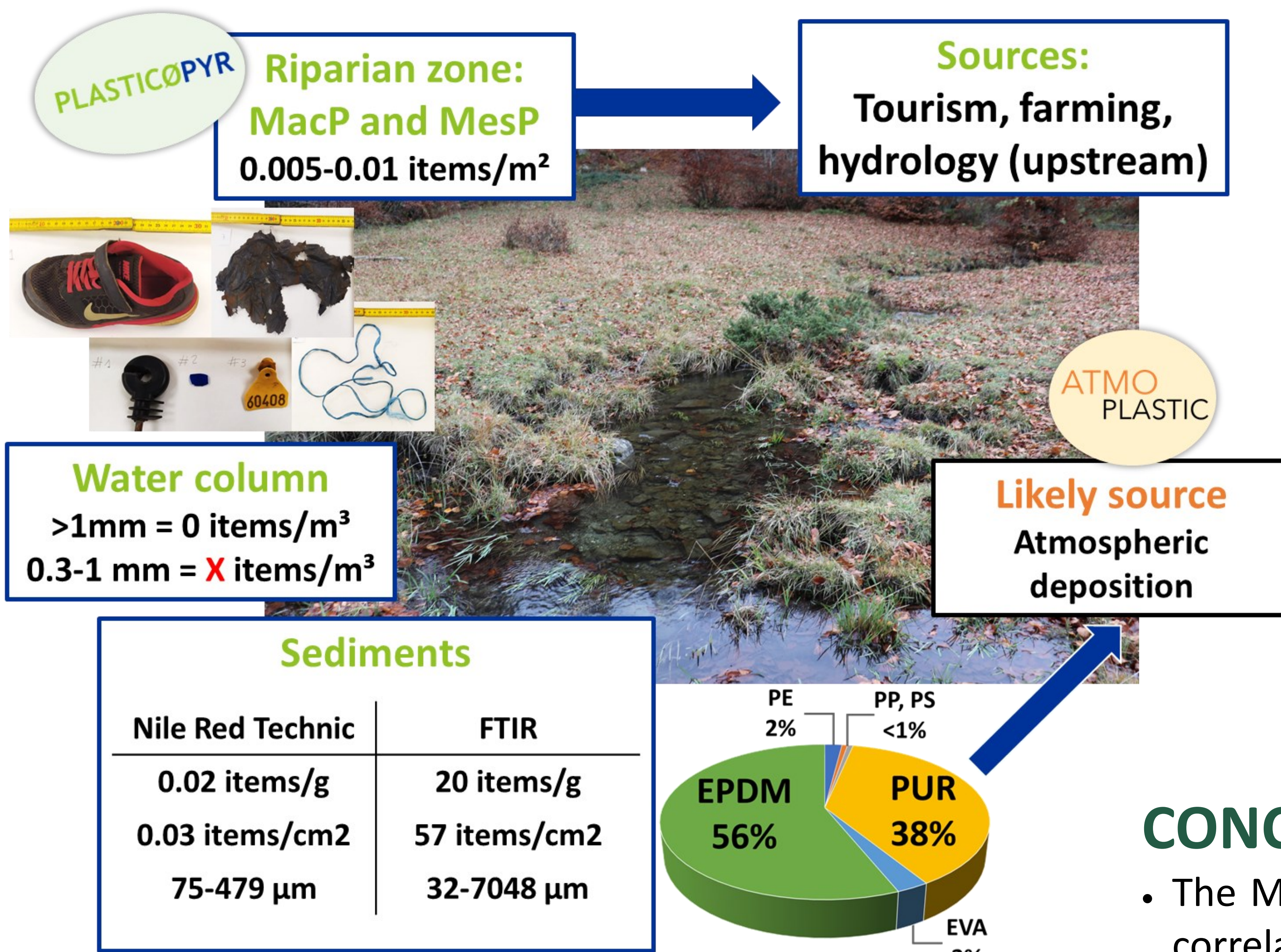
CONTEXT

Plastic pollution is a worldwide environmental issue, which affects all natural habitats, even in the most pristine areas. Recent works suggest that rivers may act as temporary sinks for land-based plastic pollution while also serving as transport “highways” for plastic waste to the ocean. Further, studies have also stated that atmospheric circulation is responsible for the re-emission and return of microplastic (MP) particles from marine environments back to terrestrial habitats. The cooperation between PLASTICOPYR and ATMO-PLASTIC projects, both focused on the impact of plastic pollution in the Pyrenees under different levels of human activity, aims to illustrate that MP pollution is not restricted uniquely to urban sites.

GOALS



FIRST RESULTS: Bernadouze OHM Vicdessos



Allen, S.; Allen, D.; Phoenix, V.R.; Le Roux G.; Durántez Jiménez, P.; Simonneau, A.; Binet, S.; Galop, D. 2019 Atmospheric transport and deposition of microplastics in a remote mountain catchment. Nature Geoscience, VOL 12, 339–344

CONCLUSIONS

- The MP content in soil samples collected in Bernadouze do not exactly correlate with rainwater samples collected in the same location.
- In soil, large quantities of EPDM (rubber) and PUR (polyurethane) constitute the distribution.
- This is in contrast to observations made in rainwater where PE (polyethylene), PP (polypropylene) and PS (polystyrene) were found to be the main components.
- A theory is that a majority of the PE, PP and PS is local contamination from tire rubber and field equipment. This is plausible as the area in question is located next to a road that hikers often set off from.
- To extend the research on atmospheric deposition of MP, ombrotrophic* peat mires are under the scope. These mires may be the perfect MP archives but the isolation of plastic herein poses many challenges!

*refers to soils or vegetation which the only source of water and nutrients is through wind and rain

