



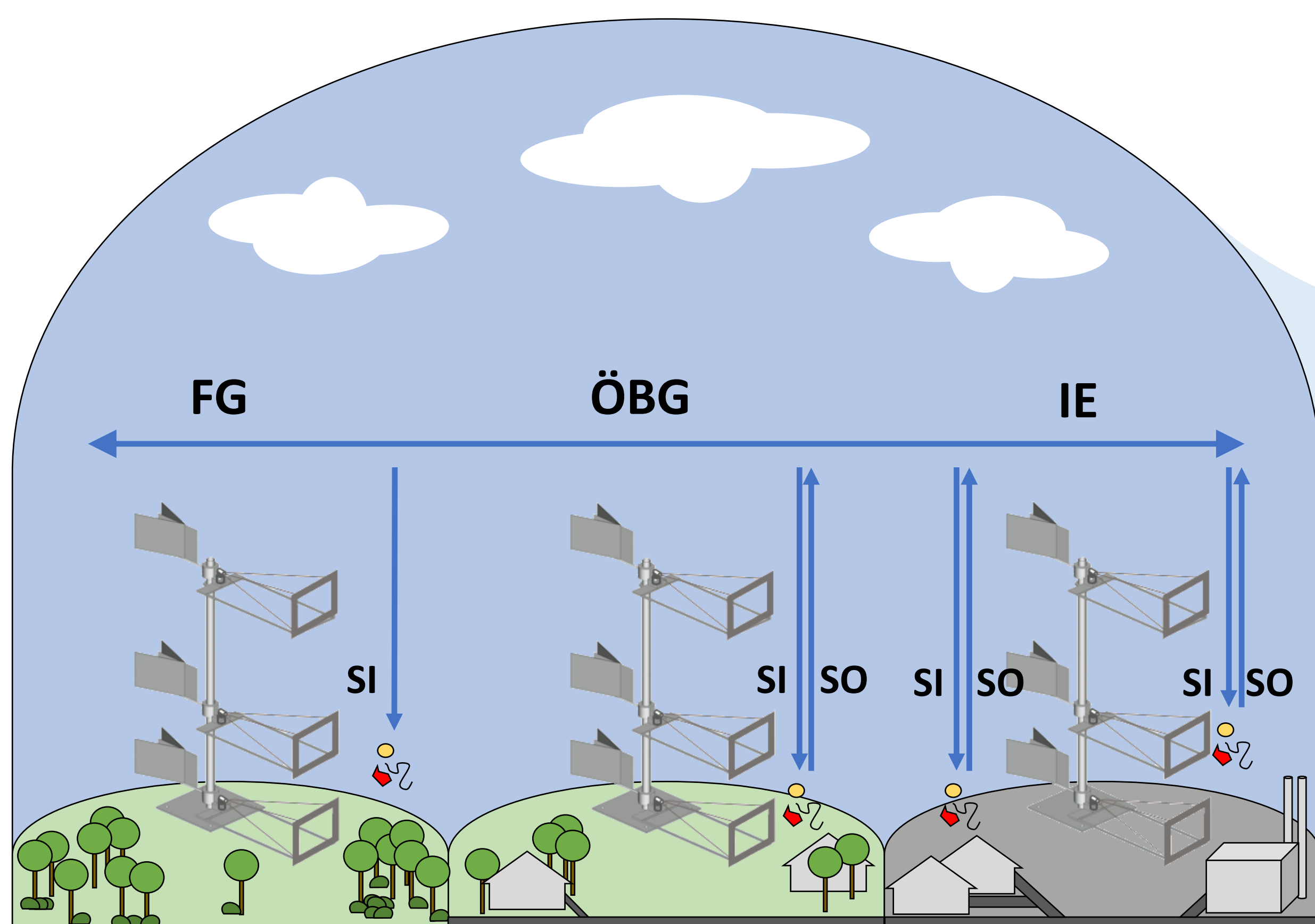
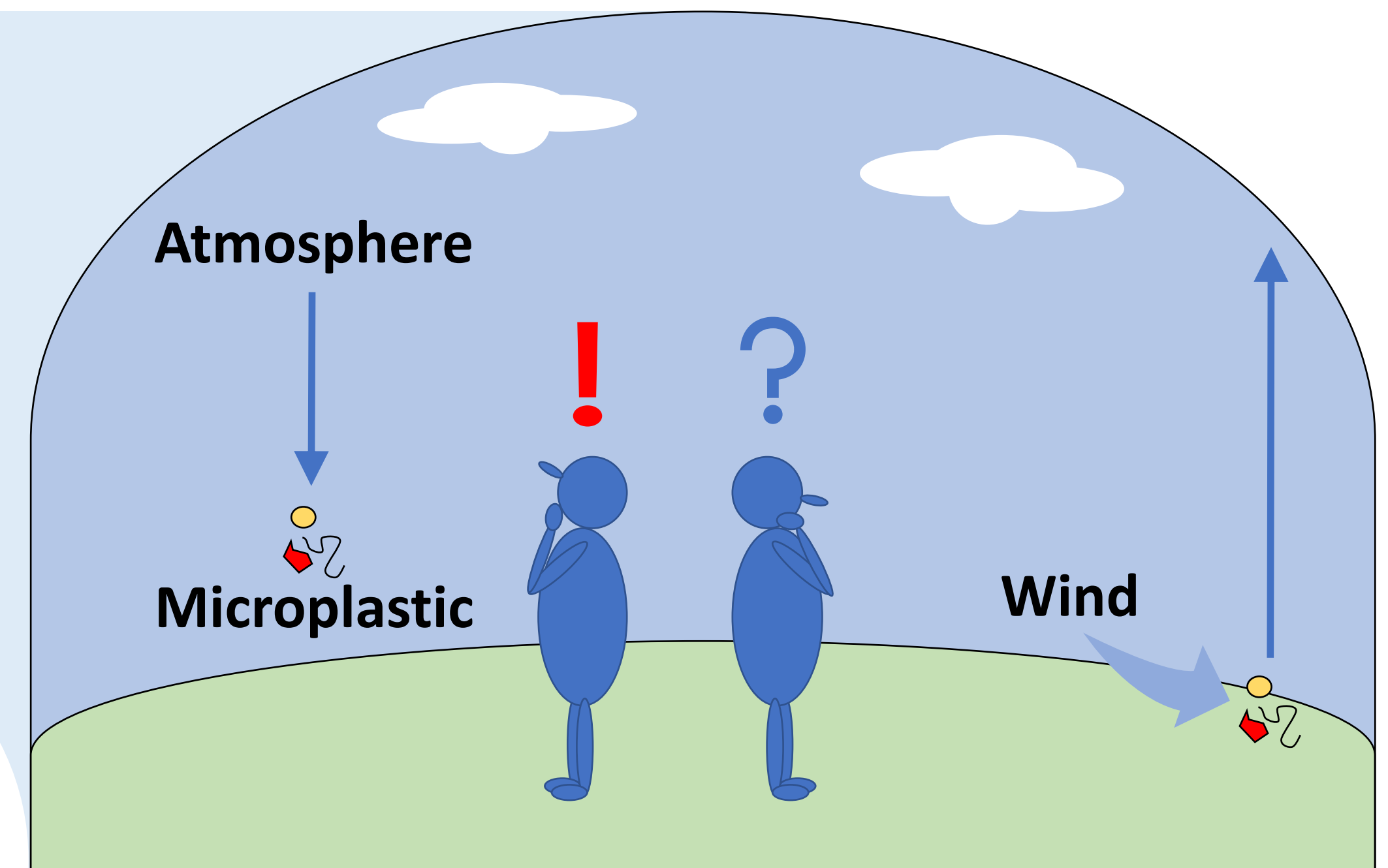
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CRC 1357 Microplastics

BACKGROUND

There is microplastic (MP) in the air! But where is it coming from?

- Wind can disperse MP into the atmosphere and further transport it.
- Is it possible to measure MP actively transported by wind?
- If so, we could better understand sources, fate and transport of MP in the atmosphere.



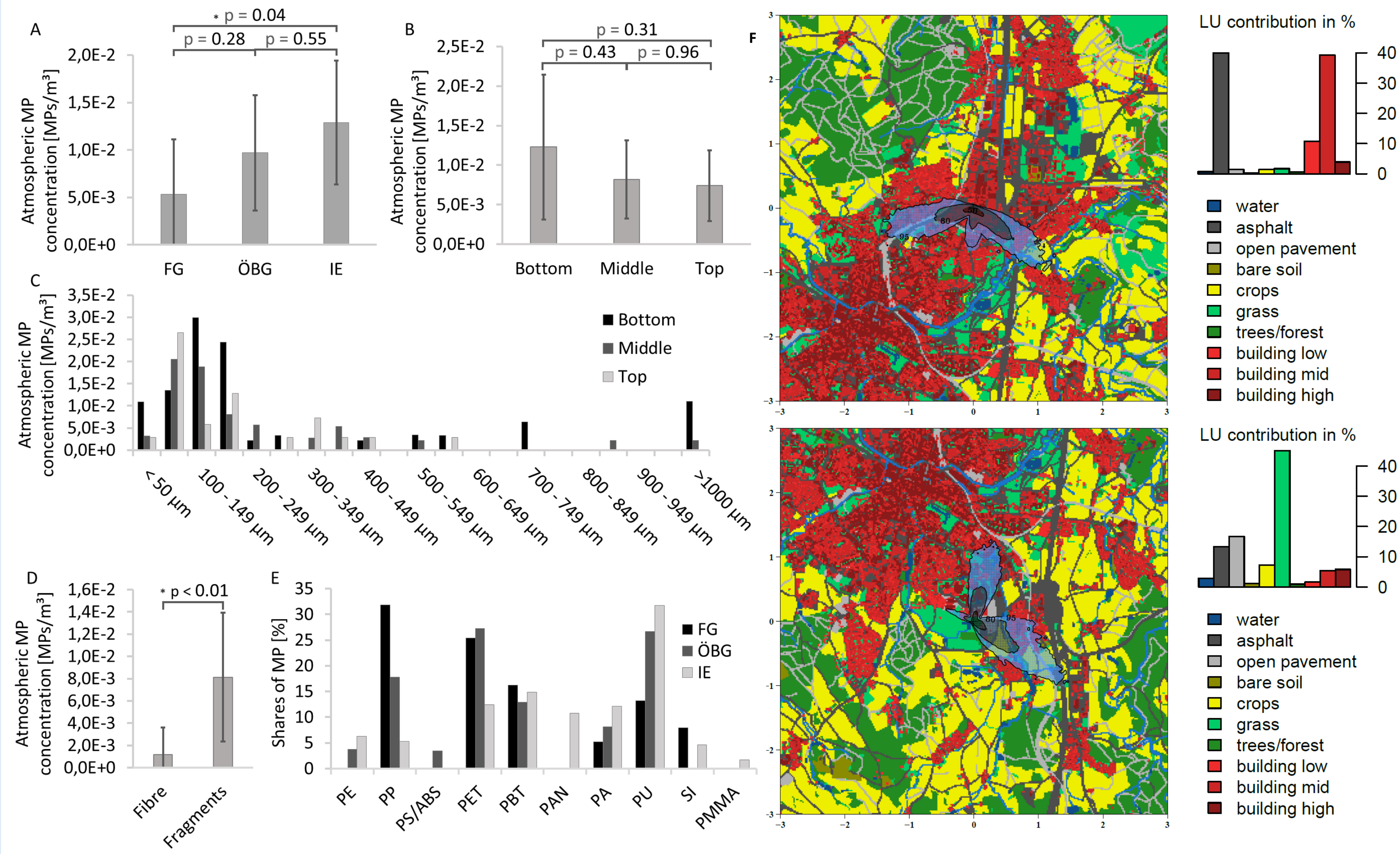
Three sampling sites with different anthropogenic influence. SI = Sink, SO = Source

METHODOLOGY

- We developed an innovative passive sampler for sampling microplastic actively transported by wind (three nets with 5 µm mesh size in three different heights: ground level, 1.5 m and 4 m).
- We sampled three sampling sites with different anthropogenic influence: Fichtelgebirge – FG; Ecological botanical garden – ÖBG and industrial estate – IE)
- We analysed samples via µFTIR spectroscopy down to 10 µm.

RESULTS

- MP concentration significantly differed between FG and IE
- Concentration of MP ranged between $5.32 \cdot 10^{-03}$ - $1.29 \cdot 10^{-02}$ MPs/m³
- Main size of MP was between 50 and 150 µm
- 10 different polymers were identified, mainly fragments
- Footprint analyses show the source areas of the particles found



Fichtelgebirge = FG; Ecological botanical garden = ÖBG and industrial estate = IE. Three heights = Bottom, middle and top. LU = Land use. The errorbars in A,B and D correspond to SDs. Statistics were carried out using t-test and ANOVA. The differently highlighted areas in F denote the areas contributing with 50, 80 and 95% to the concentrations measured.

Assessing the amount of MP transported by wind is possible using our passive wind drift sampler