

### **P3: People, pollution and pathogens: mountain ecosystems in a human-altered world**

**Call:** Mountains as Sentinels of Change

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The P3 project will conduct ecological research and policy relevant actions on pollution, pathogens and anthropological impacts in mountain ecosystems, especially at the interface of aquatic and terrestrial habitats and in the socio-ecological system. The research will be conducted in four mountain ranges: the Pyrenees (France), Dhofar Mountains (Oman), Sierra Nevada (USA) and the Great Hinggan Mountain (China). The mountain ranges proposed to be studied in P3 are on different continents with shared characteristics, but also with differences allowing for the analysis of the different societal and ecological contexts, which will be studied along altitudinal gradients. P3 will augment, align and focus research strands already ongoing in the institutions of P3 partners. The principal aim of P3 is to understand the impact of climate change on mountain watersheds and the risks for stakeholders and the general public. In a first step, P3 will develop a common database, combining information on the different mountain ranges in focus of P3, will establish an international network of mountain field stations, collect data along gradients on pollution and pathogens in the socioecological context and will use this data to model different biotic and abiotic parameters. Based on historical and newly collected data, P3 will develop dynamic indicators and develop essential biodiversity variables relevant for the mountain context to facilitate the engagement with the general public, stakeholders and policymakers. P3 aims to raise awareness for the changes in mountain ecosystems around the world. P3 will then develop a set of headline indicators using the mountains as sentinels and to elaborate policy recommendations to establish mountain freshwater ecosystem as sentinels for biodiversity and climate change. The latter will be summarized in the Mountains as sentinels of change concept note MESC.