Improving conservation targets for forest biodiversity: towards operational solutions from remote sensing technology

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The preservation of biodiversity has become a major challenge for sustainable development from local, national to global levels. To address the current conservation needs, we need operational methods to assess the distribution of natural resources while integrating information on habitat condition; inform conservation planning and support the assessment of ecosystem services. Increased access to satellite imagery and new developments in data analyses can support progress towards biodiversity conservation targets by stepping up monitoring processes at various spatial and temporal scales. Remote sensing has emerged as a fundamental data provider and methods to analyse forested surfaces and monitor stressors, pressures and changes. The variety of sensors available and the ability to develop original methods to use and combine information resulted in many forest ecology applications: the availability of image archives (Landsat) and the development of new satellite constellations (Copernicus) contributes to global monitoring of forest ecosystems, while cutting edge technologies such as imaging spectroscopy, LiDAR and RADAR provide new perspectives on the possibility to accurately map phenology, species diversity, community distribution, leaf traits and biomass, contributing to filling the biodiversity data knowledge gap. All in all, remote sensing technologies coupling to modelling are leading opportunities to predict the consequences of changes in drivers at different scales and plan for more efficient mitigation measures in forested systems.

In this session we aim to discuss the state-of-the-art, challenges and opportunities of remote sensing and coupling modelling for forest biodiversity monitoring and system understanding. We welcome contributions on functional diversity, biodiversity patterns and processes, forest shift and changes.