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## Impact of rising temperature and drought on forest ecosystems across scales

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Recent decades have been characterized by increasing temperatures worldwide, resulting in an exponential climb in vapor pressure deficit (VPD) and soil droughts. Heat and VPD have been identified as increasingly important drivers of plant functioning in terrestrial biomes and are significant contributors to recent drought-induced tree mortality. Despite this, few studies have isolated the physiological response of plants to high VPD, heat, and soil drought, thus limiting our understanding and ability to predict future impacts on terrestrial ecosystems. I will present diverse experimental approaches to disentangle atmospheric and soil drivers of plant functions across scales in this presentation. I will further discuss recent findings suggesting that high temperature and VPD can lead to a cascade of impacts, including reduced photosynthesis, foliar overheating, and higher risks of hydraulic failure, independently of soil moisture changes. Moreover, I will highlight how species interactions can modulate the adverse impacts of soil and atmospheric droughts.