

Special Issue

Plant-Mediated Volatile Emissions upon Abiotic Stress in Forests: Relationships with Photosynthetic Traits

Message from the Guest Editors

In the 1960s, the observation of blue haze and tropospheric ozone pollution in many forested regions prompted plant scientists to think about plant emissions, and how these emissions influence the chemistry and dynamics of our atmosphere. These objectives and the relevant scientific studies led to the birth of the interdisciplinary research field of plant volatiles or biogenic volatile organic compounds (BVOC) in the biosphere–atmosphere component of the Earth system. Previously, plant physiologists speculated that certain volatile organic compounds released from plants primarily contributed to the formation of blue haze in the atmosphere. Since then, they went on to explore how individual and groups of plant volatiles influence the Earth’s atmospheric chemistry and dynamics, and the relationship between plant BVOC emissions and photosynthesis. There is also a strong relationship between some BVOC emissions and photosynthesis. Besides strong constitutive BVOC emission from forest plant species, several abiotic stresses such as heat, drought, and cold stresses, substantially induce the emission of BVOCs from many forest species, previously categorized as non-emitters.

Guest Editors

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