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Blue Haze Plant-Derived Secondary Organic Material in the Air and Ecosystems

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Biogenic secondary organic aerosol (SOA) and deposited secondary organic material (SOM) are formed by oxidation of volatile organic compounds (VOCs) emitted by plants. Many SOA compounds, sometimes visible as "blue haze", have much longer chemical lifetimes than the original VOC, and may accumulate on plant surfaces and in soil as SOM because of their low volatility. This suggests that they may have important and presently unrecognized roles in plant adaptation. On pages 744–753 Jarmo K. Holopainen and colleagues use reactive plant terpenoids as a model to propose a three-tier (atmosphere – vegetation – soil) framework to better understand the ecological and evolutionary functions of SOM. Image credits: Jarmo K. Holopainen. Cover design by Susanne C. Brink.