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GFZ StrucNet - Monitoring forest structure with close-range sensing technologies

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The combined pressures of climate change and resource use on forests demand timely and accurate on forest responses to climate and disturbances. In this context, Earth observation has proven as a valuable tool for large scale, timely assessments. However, EO data always needs to be calibrated and validated based on reference observations. StrucNet aims to provide these reference observations for forest structure and vitality parameters. StrucNet aims to integrate into existing monitoring networks like ICOS, showcase new monitoring technologies and explore their benefits. In particular, we use Terrestrial (TLS) and Unoccupied Aerial Vehicle Laser Scanning (UAV-LS) to take snapshots of forest structure. For monitoring long-term trends in tree structure and water balance, we employ automated laser scanning and Global Navigation Satellite System (GNSS) Vegetation Optical Depth (VOD) measurements. So far, seven monitoring sites have been established across Europe and in French Guiana, and five more are in the planning phase. This contribution will highlight present capabilities, activities and plans for the coming years.

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