



Use of digital images to quantify canopy development and phenological observations

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The year-long remote monitoring project of the forest-tree species phenological phases has been started in Doksany observatory in September, 2006. Two digital cameras, Canon PowerShot S3 and Olympus E-420, has been installed outside in place of International Phenological Garden and networked with inside PC via Ethernet computer network. We expect that this project will help to increase objectivity and preciseness of phenological observations and therefore, will improve predicative capability and accuracy of phenological information. With help of SigmaScan Pro 5.0 software, images are analyzed and vegetation index is calculated daily for each species. Time series of the vegetation index are jointly analyzed with meteorological data and measurements of carbon dioxide exchange between the biosphere and atmosphere. Phenological development recorded by vegetation index significantly correlates with carbon dioxide measurements.

Near the surface sensing provides continuous observation in time, having no contamination by clouds and does not require atmospheric effects correction, unlike conventional satellite remote sensing.