Project Database of ICP Forests
PROJECT DESCRIPTION

PROJECT INFORMATION

Project title: **Linking satellite derived land surface temperature (LST) to defoliation status of forests**

Project ID: 103

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This feasibility study focuses on the application of satellite derived land surface temperature (LST)as an indicatorto detect defoliation in forests.Storing both, waterand energy,the forestcanopy plays an important role in thethermal dynamicsof forests. Losing foliage in the canopy (defoliation) causesa loss of thermal inertia, which will intensify the rate of energy exchange between the canopyand the atmosphere. LST records the temperature at the juncture between the Earth surface and the atmosphere. Therefore, LST can potentially be used to detect defoliationin forests. Time series analysis ofLST records will be performed to derive proxies that indicate loss of thermal inertia. These proxies will be correlated withICP Forestsdefoliation assessment data and LAI measurements. ICP Forestsplots cover a wide and representative part of European forests. Exact geographic coordinatesof ICP Forests monitoringplots will be used to extract daily LST time seriesfor specific plots.Comparisons will be made between northern and southern European forests and evergreen and deciduous forest types.We expect that correlations between LST derived proxies and ICP data (defoliation and LAI) will be strongerfor forest types that have relatively stable canopy conditions (evergreen forests in the south) and less strong for forest types that have less stable canopy conditions (deciduous forests and northern forests).