9 Research Unit Land Change Science

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Position of the RU / Programme / Centre / Initiative at WSL with respect to Swiss AIM and its starting vision.

The Remote Sensing group is already an active part in the NFI programme. We are very much interested in linking and explaining measurements and estimations in-situ with remote sensing data from various platforms (terrestrial, UAV, airplane, satellite). The more in-situ data available – in addition to the operational NFI data catalogue – the better.

Key scientific questions: current and foreseen for the medium (5–10 yrs) and long term (>10–50 yrs).

We want to link close-range and non-close-range remote sensing data to in-situ measurements on e.g. trees/vegetation/soil/microclimate to upscale the plot-based data/measurements (medium term).

Scales of interest (spatial, temporal, ecological, environmental) and/or statistical inference.

The scale of interest is the national scale. We want to get/have collected in-situ data representative of the various forest ecosystem types in Switzerland.

Figure 1: High resolution country wide remote sensing products to be linked with temporal high resolution in-situ data on a subgrid of the NFI.

Statistical requirements (if any) in terms of precision of status and change estimates.

Related data needs: attributes to be measured, plots, instruments, trees, destructive sampling.

The collection of high-resolution close range remote sensing data on NFI plots is currently being tested and developed and could be used in NFI6. In addition to the operational NFI field data catalogue, more frequent data on phenology would be great (e.g. phenocams). Consensus needs to be reached with the NFI program on how to install small measurement equipment on the NFI interpretation plots.
Figure 2: Example of high resolution close range remote sensing data on a test plot of the NFI.

Figure 3: Example of a pheno – image every e.g. week close to the NFI plot.

Support and resource availability.

Mainly within the NFI framework (to be discussed and negotiated within the NFI team). Pilot tests and the development of protocols could be done in ongoing projects (e.g. SILVA, CENTURION, FNEWs) on forest disturbance.