ASSESSING FOREST STRUCTURE FOR AVALANCHE SIMULATION USING REMOTE SENSING METHODS

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MOTIVATION

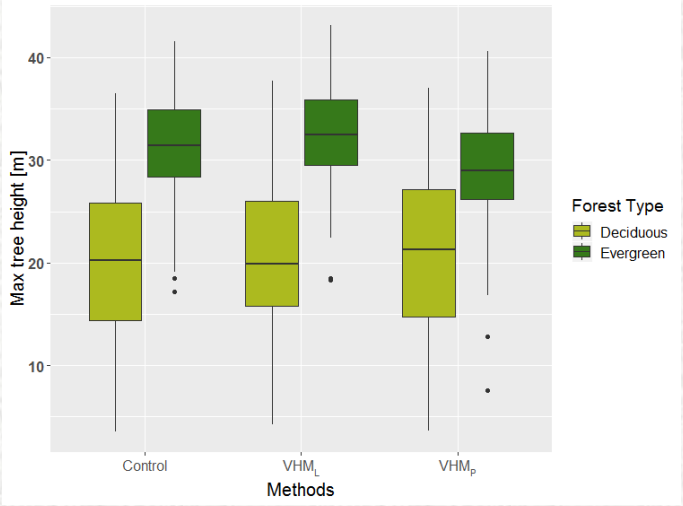
- Forest is **cost-efficient**, **effective** and **ecological** measure against avalanches (release/stopping)
- Remote sensing as a tool for large-scale **assessment of forest parameters**

OBJECTIVES

i) to test the applicability of remote sensing data for assessment of the forest parameters for avalanche modelling

ii) to account for changes in forest structure and its effect on avalanche runout

Tree height

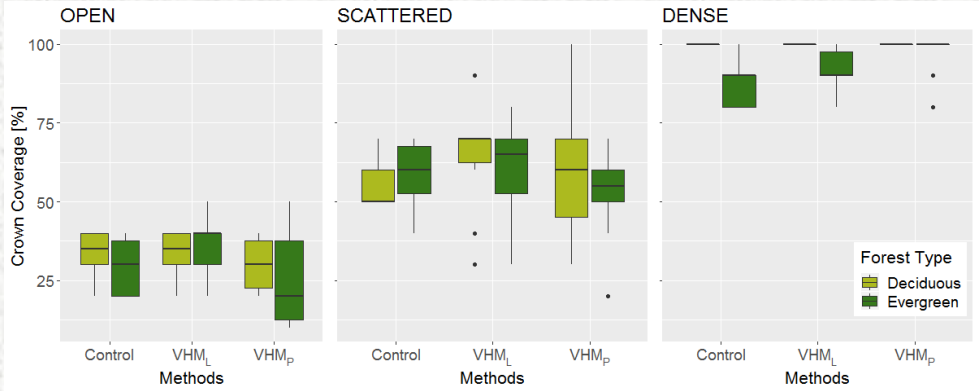


RESULTS AND CONCLUSIONS

Remote sensing data (VHM$_P$ and VHM$_L$) generally suitable to determine relevant forest parameters

- **Tree height** well estimated
- **Crown coverage** best estimated by VHM$_L$ or orthophotos
- **Surface roughness** underestimated → test higher-resolution DTM

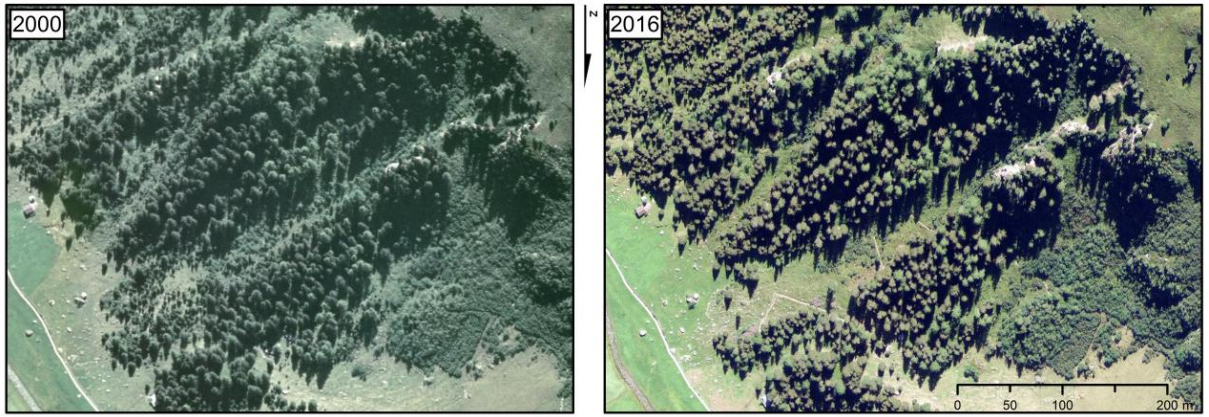
Crown coverage



Simulation outputs sufficiently accurate

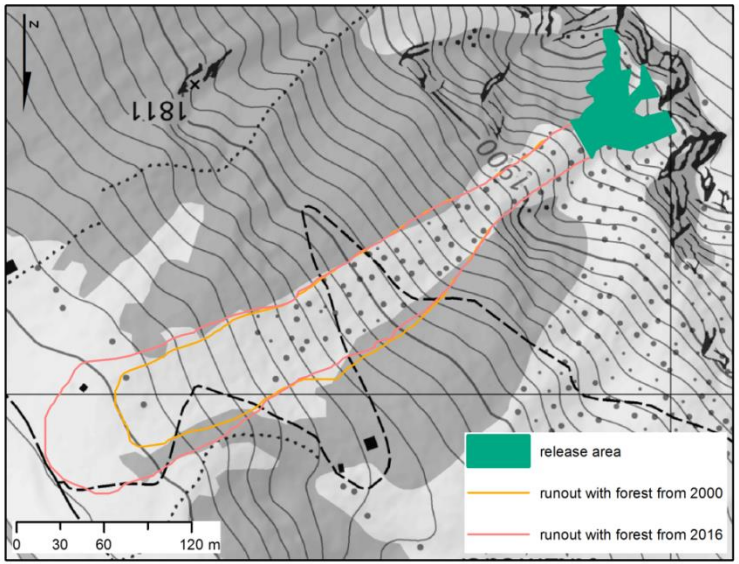
Underestimation of forest cover leads to **overestimation of runout distance** → precise estimation of release areas in forest!

RESULTS AND CONCLUSIONS



Avalanches in 2008 and 2009 destroyed forest in the avalanche track

Longer simulated runout distance (60 m longer)



Spatial variations and **temporal changes** in **forest cover** and **structure** influence the runout distance

→ Use of remote sensing data

THANK YOU

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