

Fig. 1. Sweden was divided to north and south to be able better take account the geographical differences in modelling. Red dots indicate the damage NFI plots and grey dots the not damaged plots.

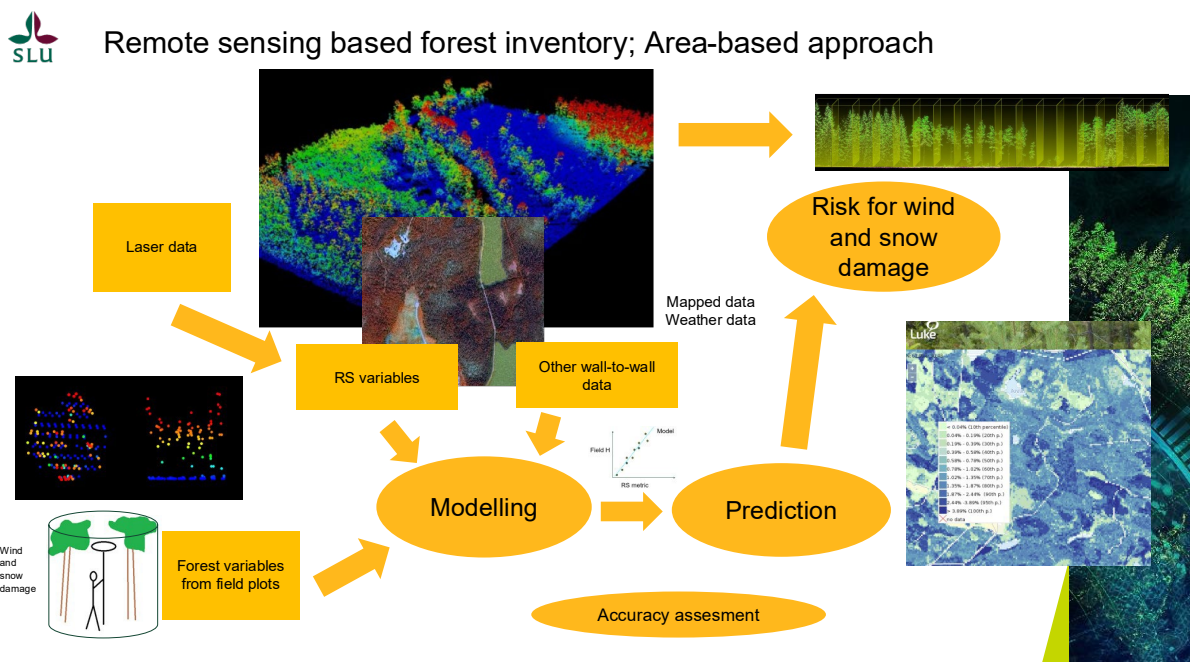
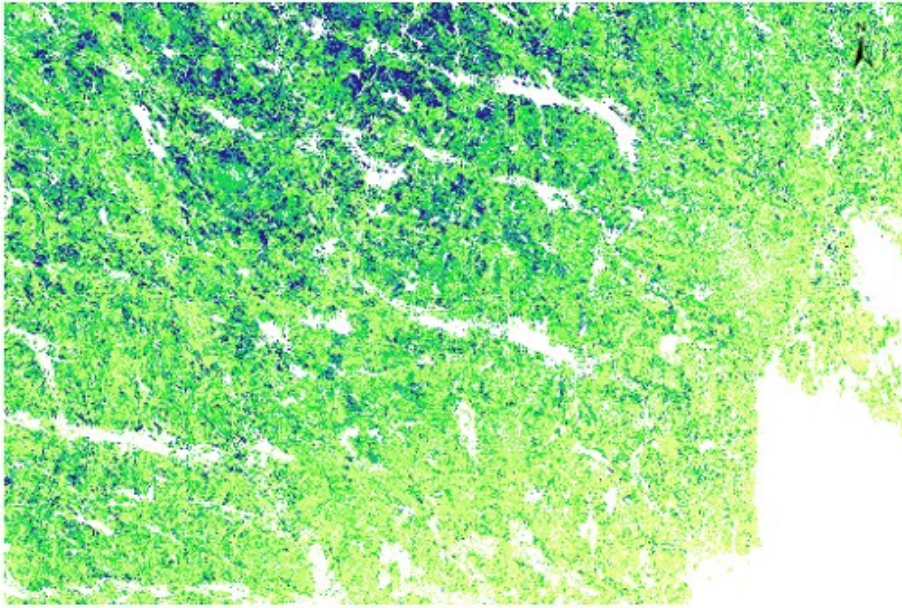


Fig. 2. Illustration of the process of creating remote sensing based models and maps.

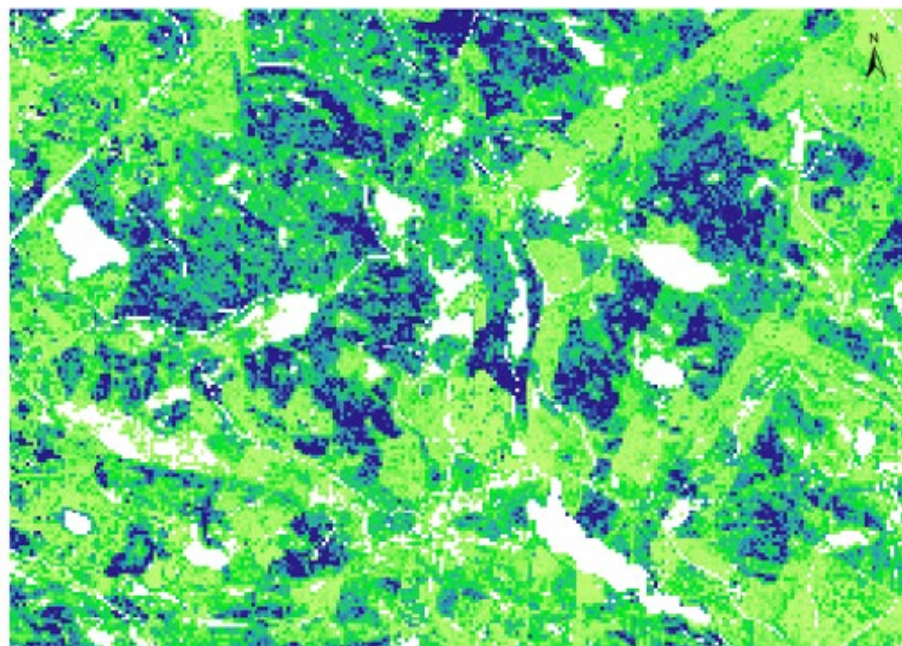
Table 1. The AUC values (modelling accuracy) and best variables in the NFI (upper) and models to remote sensing (below) models. Number of stars indicates the importance of variables \*. + indicated the positive effect to damage vulnerability and – negative.

<p><b>NORTH NFI: AUC: 0.8</b></p> <ul style="list-style-type: none"> <li>• Mean height +***</li> <li>• Proportion of contorta +***</li> <li>• Proportion of other species -**</li> <li>• Snowload +***</li> <li>• Max wind from west -**</li> <li>• Time from thinning longer than 10 years -***</li> </ul>	<p><b>SOUTH NFI: AUC: 0.73</b></p> <ul style="list-style-type: none"> <li>• Mean height +***</li> <li>• Proportion of contorta +***</li> <li>• Proportion of Spruce +***</li> <li>• Height difference to neighbouring stand +***</li> <li>• Max wind North +***</li> <li>• Mean elevation +***</li> <li>• Time from thinning longer than 10 years -***</li> </ul>
<p><b>NORTH remote sensing : AUC: 0.77</b></p> <ul style="list-style-type: none"> <li>• Zpcum6 ***-</li> <li>• volume of contorta +***</li> <li>• volume of spruce +**</li> <li>• snowdepth +***</li> <li>• max wind from west -***</li> <li>• Mean elevation +***</li> <li>• Leaf-on/off +***</li> </ul>	<p><b>SOUTH remote sensing: AUC: 0.68</b></p> <ul style="list-style-type: none"> <li>• Zq15 +**</li> <li>• Zq30 -**</li> <li>• Pz_5.10 +*** Z_10th percentile - Z_5th percentile</li> <li>• Zpcum4 -***</li> <li>• Diffp95_50m +*** MaxP95-minP95 inside 50m circle</li> <li>• Volume pine +***</li> <li>• Volume contorta +*</li> <li>• Volume spruce +***</li> <li>• Max wind North +***</li> <li>• Mean elevation inside 1km +***</li> </ul>

A



B



Damage probability

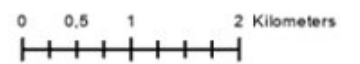
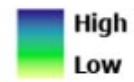


Fig. 3. Example of vulnerability map for wind and snow damage in test area North (A) and zoomed in landscape level (B). Darker color indicated higher damage vulnerability and lighter lower.

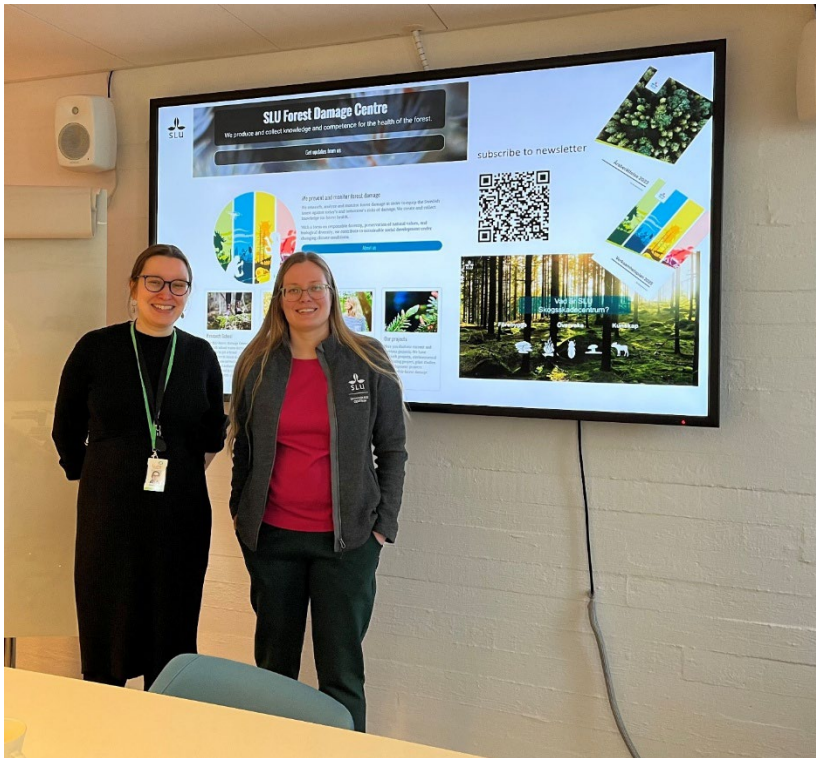


Fig. 4. Inka (right) is visiting Luke in Helsinki and Susanne Suvanto (left) April 2025.



Fig. 5. Final workshop where project results were presented and discussed was hold 7<sup>th</sup> of May 2025.