



ALBEDO EFFECT IN THE SCANDINAVIAN MOUTAINS

End seminar – ForestPotential 24th November 2022

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MAIN VEGETATION CHANGES WITH EFFECT ON ALBEDO

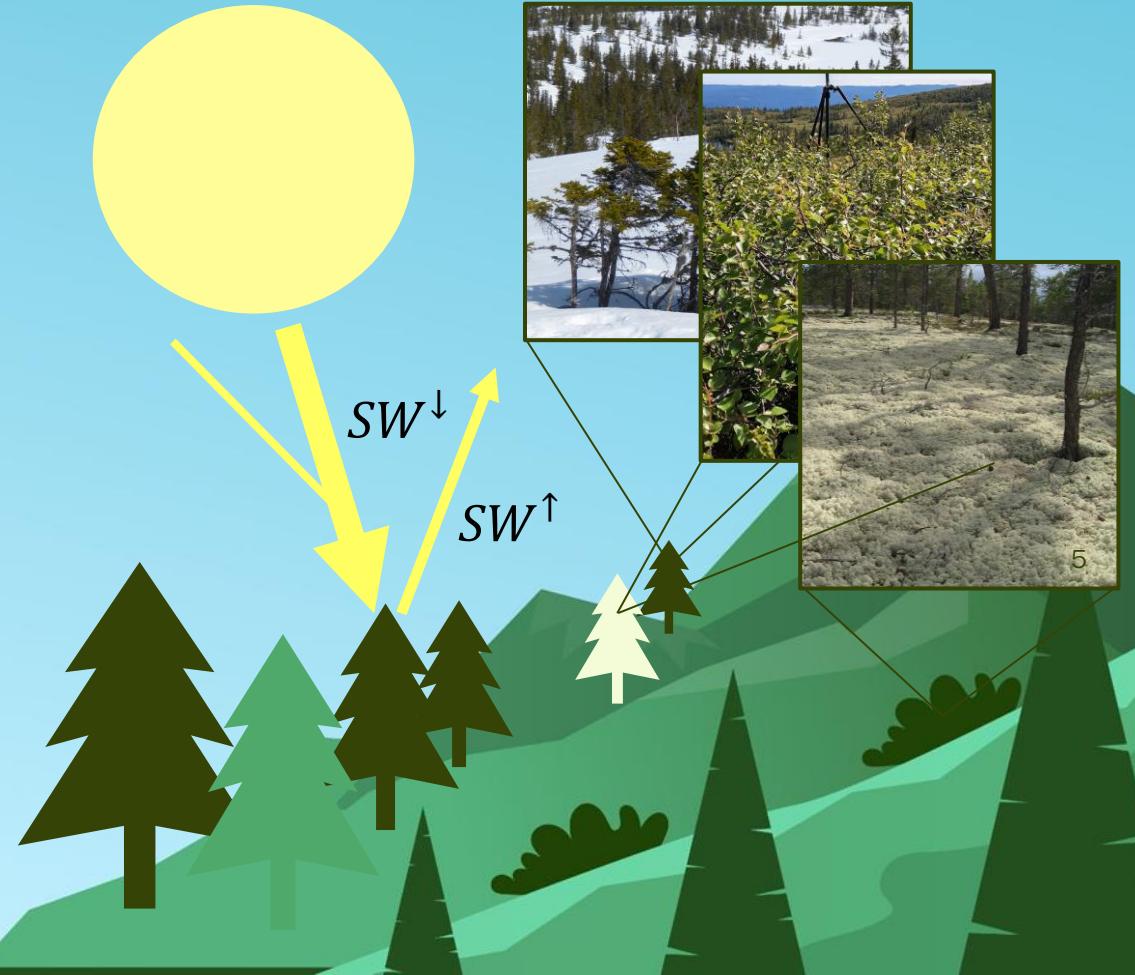
1. Rising treelines
2. Expansion of shrubs



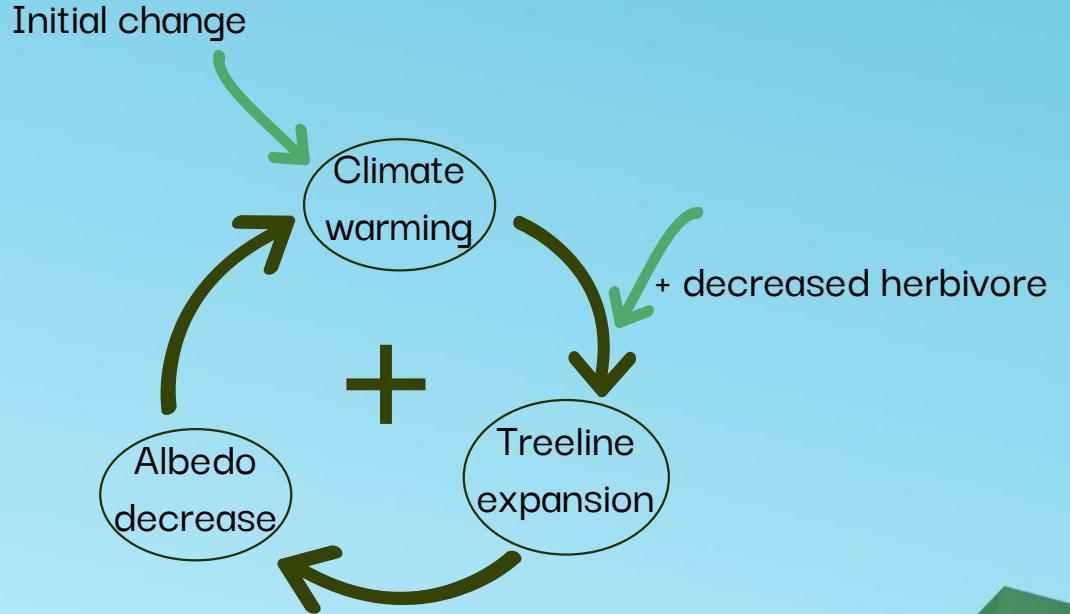
ALBEDO

Albedo observation sites:
Site 1052800 nm
Spectral Reflectance
 SW^{\downarrow}

- Surface Complexity
- Mountain height ~0.17
- Solar zenith angle
- Season

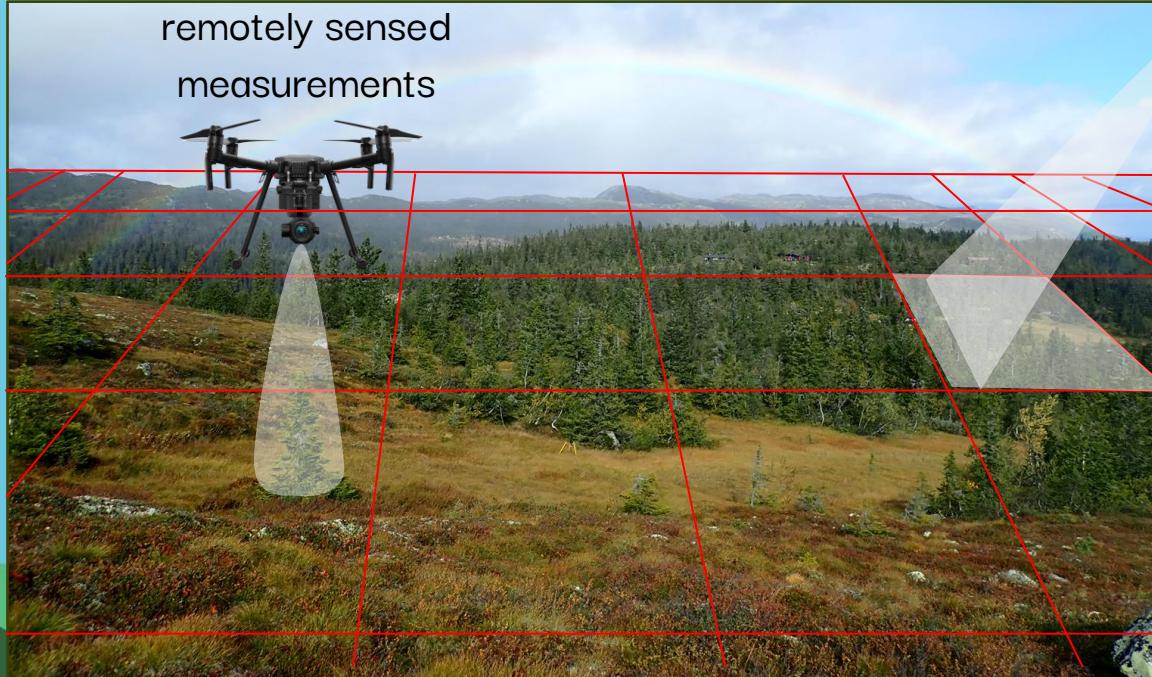


THE ALBEDO FEEDBACK EFFECT



FINE-SPATIAL ALBEDO MEASUREMENTS

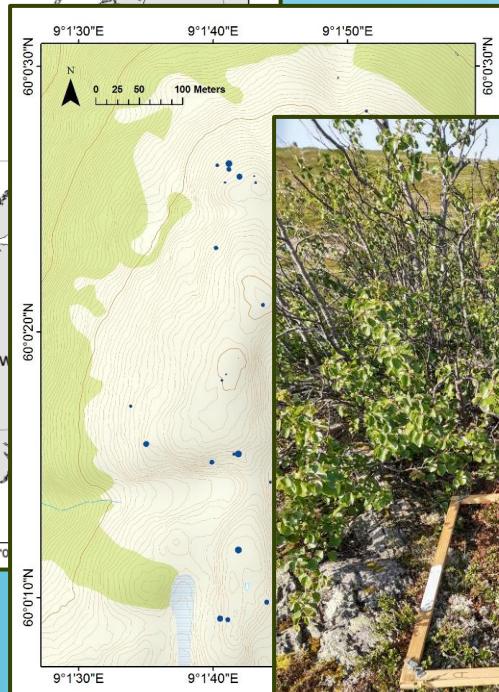
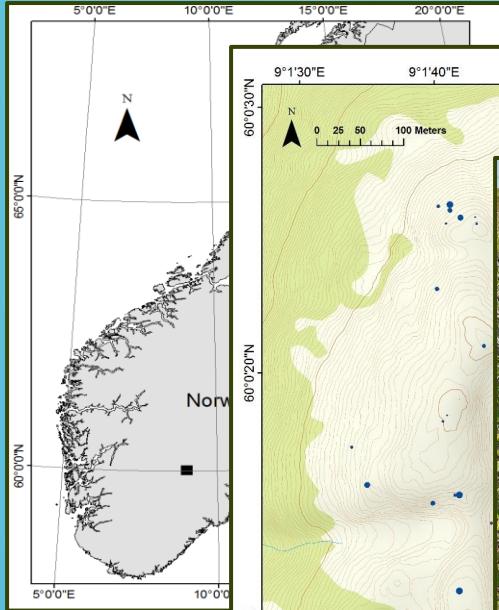
Fine-spatial proximal
remotely sensed
measurements



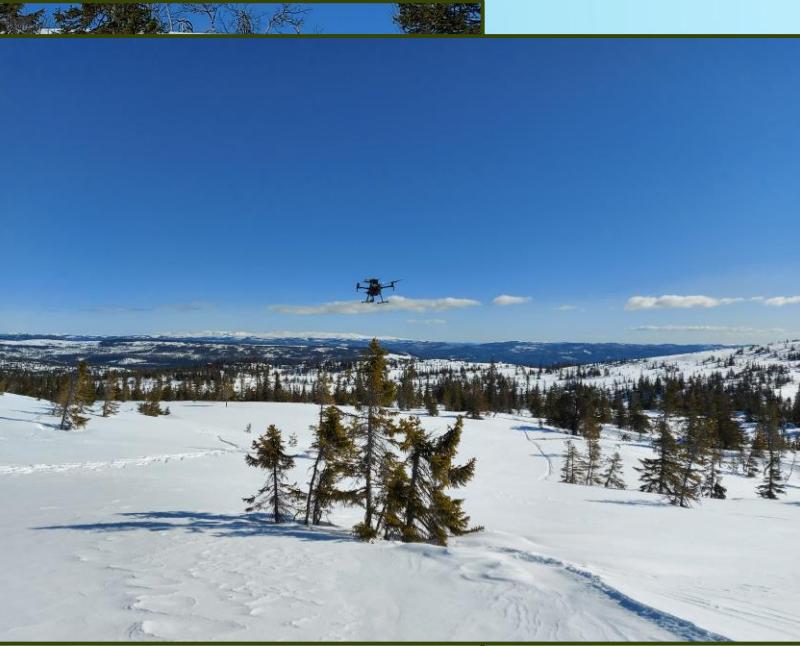
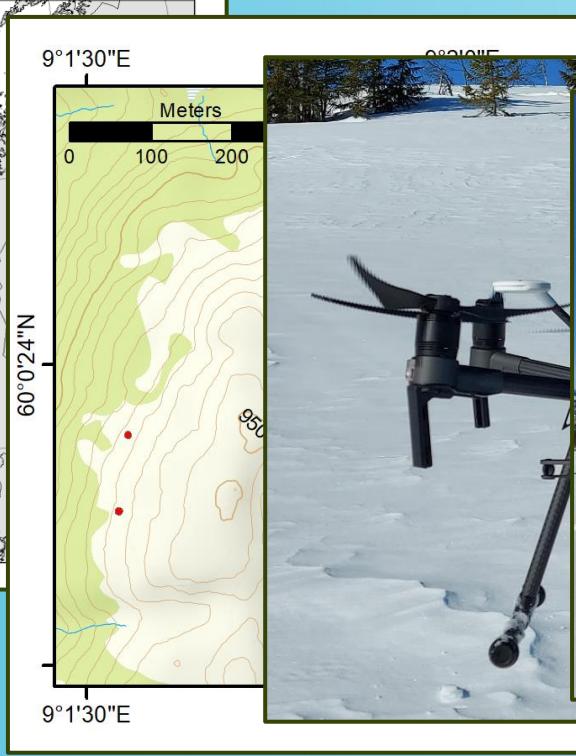
Coarse-scaled satellite
observations



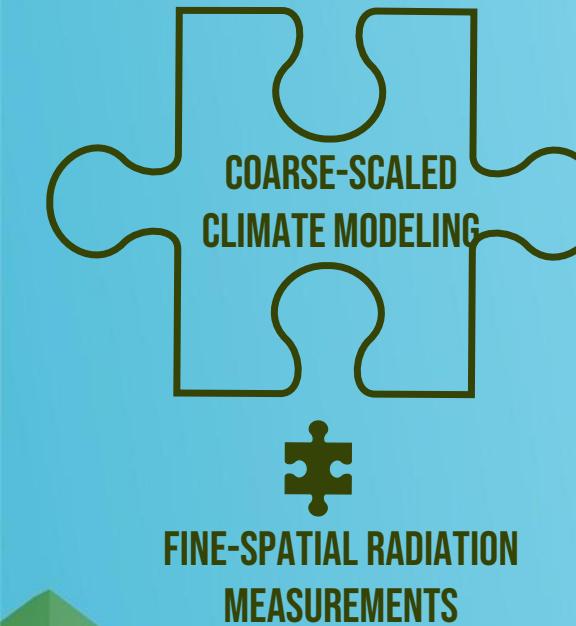
SUMMERTIME ALBEDO OF MOUNTAIN BIRCH



UAV-MEASURED WINTERTIME NORWAY SPRUCE ALBEDO



ALBEDO FEEDBACK EFFECTS FOR FUTURE RESEARCH

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- Proximal remotely sensed platforms have the opportunity of flexible data collection in remotely and heterogeneous environments
 - Develop effective measurement strategies for radiation data at spatial resolution matching the resolution of the vegetation data
 - Improve the precision and validity of land surface climate models by applying fine-spatial radiation data
 - Establish detailed stand-level and tree-level relationships between boreal-alpine vegetation and albedo



REFERENCES

1. Photo: Axel Lindahl 1886, Norsk Folkemuseum
2. Photo: Oscar Puschmann 2017, NIBIO
3. Photo: Axel Lindahl 1885, Norsk Folkemuseum
4. Photo: Oscar Puschmann 2012, NIBIO
5. https://commons.wikimedia.org/wiki/File:Kvitkrull,_cladonia_stellaris.jpg



THANK YOU FOR THE ATTENTION!

