Workshop on large-scale mapping and estimating of forest resources

### Joint workshop of the CARISMA and EFINORD-SNS LiDAR networks

### Johannes Breidenbach

26-28 Sept 2016

NIBIO, Ås, Norway



## CARISMA

- Center for advanced research for the innovative use of 3D remote sensing in mapping of forest and landscape attributes based on national forest inventories
- SNS funded (Nordic Forest Research), 1.75 mill SEK, 5 years, networking funds
- Annika Kangas (FIN), Mats Nilsson (SWE), Vivian Kvist-Johannson (DK), Johannes Breidenbach (NO)



# EFINORD-SNS LiDAR network

- Large scale 3D LiDAR data for wall-to-wall assessment of forest structures and resources
- Overlapping goals and participants as CARISMA but focus on LiDAR technique
- 1 year
- Thomas Nord-Larsen
- Third day

<b>26 September: Mapping of forest resources – towards a harmonized Nordic solution</b> Chair: Johannes Breidenbach				
Time	Speaker	Topic		
8.00-9.00		Registration and coffee		
9.00-9.15	Rasmus Astrup	Welcome		
9.15-9.30	Johannes Breidenbach	Introduction		
9.30-10.00	Svein Solberg	The use of 3D SAR data for mapping forest resources		
10.00-11.00		Coffee break		
11.00-11.30	Johannes Rahlf	Large scale forest parameter prediction with digital aerial photogrammetry and NFI data		
11.30-12.00	Susann Klatt	New approaches for tree or plot-level measurements		
12.00-13.00		Lunch		
13.00-13.30	Knut Bjørkelo	Mapping of forest resources in Norway – Technical solutions		
13:30-14:00	Mats Nilsson	Mapping of forest resources in Sweden – Technical solutions		
14:00-14:30	Kai Mäkisara	Mapping of forest resources in Finland – Technical solutions		
14:30-15:00	Thomas Nord-Larson	Mapping of forest resources in Denmark		
15.00-16.00		Panel discussion: Is a harmonized Nordic solution for		
		mapping of forest resources possible? What can we learn		
		from other examples?		
16:30		Wrap up and coffee		

#### 27 September: Estimators – how maps and auxiliary data can improve the precision of National Forest Inventories

Chair: Annika Kangas

Time	Speaker	Topic
8.00-8.30		Registration and coffee
8.30-9.30	Steen Magnussen	Key-note: Area-level SAE models
9.30-10.00	Andreas Hill	Design-based approach of small area estimations for the state of Rhineland-Palatinate (Germany) based on national forest inventory data
10.00-10.30		Coffee break
10.30-11.00	Liviu Ene	Hybrid estimation of aboveground biomass in Interior Alsaka using airborne laser scannig auxiliaries
11.00-11.30	Johannes Breidenbach	The small area estimation system in the Norwegian NFI
11.30-12.00	Svetlana Saarela	Statistical inference using mobile laser scanning data as auxiliary information – Kriging prediction
12.00-13.00		Lunch
13.00-1400	Steen Magnussen	Key-note: Sampling design considerations when faced with dual objectives of population level and domain level estimation
14.00-14.30	Annika Kangas	Comparing the efficiency of post-stratification and model- assisted estimation
14:30-15:00		Coffee break
15:00-15:30	Helena Haakana	Precision of forest statistics of the Finnish NFI using post- stratification based on satellite imagery
15:30-16:00	Matti Katila	Combining multitemporal small-area estimates from Finnish multi-source NFI
16:00		Wrap up

#### 28 September: Large scale 3D LiDAR data for wall-to-wall assessment of forest structures and resources

Chair: Thomas Nord-Larsen

Time	Speaker	Торіс
8.00-8.30		Registration and coffee
8:30-9.30	Erik Næsset	Introduction to the network
		Findings of the first network meeting in Nødebo
		Themes for a common research platform
9:30-10:00		Coffee
10:00-11:00	Thomas Nord-Larsen	Possible development of a common research platform
		1. Project ideas for a common research
		platform
		2. Data available in individual countries for
		partaking in such network
11:00-12:00	Ole Martin Bollandsås	Campus tour
12.00-13.00		Lunch
13.00-14.00	Erik Næsset and Thomas	Possibilities for a joint publication on the development of
	Nord-Larsen	LiDAR methodologies in a Nordic-Baltic perspective
14:00-15:00	Thomas Nord-Larsen	Future for the network on Large scale 3D LiDAR data for
		wall-to-wall assessment of forest structures and resources
		1. Possible sources of research funding
		(ERANET, EU, COST, ENFIN, Diabolo)
		2. Creation of "ENFIN Nordic" or SNS
		Remote Sensing sub group
15:00-16:00	Thomas Nord-Larsen	Round up