

ArcticBiomass Final Workshop, 20-23 October 2015 Longyearbyen

Venues: Longyearbyen: Spitsbergen Hotel and Raddisson Blu Polar Hotel

Background: ArcticBiomass is a Norway-USA network project funded by the Research Council of Norway. The objectives of this project are to:

- *Establish a joint American-Norwegian research team dealing with research on the combination of field and satellite remote sensing based above-ground plant biomass, vegetation productivity and growing season mapping in northern Alaska and in Svalbard, as well as on a circumpolar scale.*
- *Compile existing plant biomass and productivity data from the North Slope of Alaska and from Svalbard, and to evaluate existing remote sensing data and remote sensing based biomass products throughout the Arctic.*

The project partners of ArcticBiomass project will meet in Longyearbyen, and in connection with this meeting, we will arrange an open workshop on 20-33 October 2015

Workshop themes: The focus will be on phenology, climate and productivity, biomass estimation and monitoring from plot scale to satellite.

www.nina.no

- Cooperation and expertise for a sustainable future

NINA head office

Postal address:
P.O.Box 5685 Sluppen,
NO-7485 Trondheim, Norway
Visiting address:
Høgskoleringen 9,
NO-7034 Trondheim
Phone: +47 73 80 14 00
Telefax: +47 73 80 14 01

NINA Oslo

Gaustadalléen 21
NO-0349 Oslo
Norway
Phone: +47 73 80 14 00
Telefax: +47 73 80 14 01

NINA Tromsø

Postal address:
Framsenderet,
NO-9296 Tromsø, Norway
Visiting address: Framsenderet,
Hjalmar Johansens gate 14,
NO-9007 Tromsø, Norway
Phone: +47 77 75 04 00
Telefax: +47 77 75 04 01

NINA Lillehammer

Fakkeltgården,
NO-2624 Lillehammer,
Norway
Phone: +47 73 80 14 00
Telefax: +47 73 80 14 01

NINA Research Station, lms,

NO-4308 Sandnes
Norway
Phone: +47 73 80 14 00
Telefax: +47 73 80 14 01

Org.nr: NO 950 037 687 MVA

Program Schedule:

Tuesday 20 October

2.30 PM – 4.00 PM Lunch - Spitsbergen Hotel

4.00 PM – 6.00 PM Internal meeting – working program – progress – budget - Spitsbergen Hotel

7.00 PM – 10.00 PM Arctic Wildernes evening and dinner - Camp Barents – Adventdalen (transport from Spitsbergen Hotel to Camp Barents: 6.50 PM)

Wednesday 21 October

9 AM – 1 PM: Workshop - Raddisson Blue Polar Hotel

0 PM – 1.30 PM: Lunch

1.30 PM – 6 PM: Workshop - Raddisson Blue Polar Hotel

7.30 PM: Dinner Spitsbergen Hotel

Thursday 22 October

9 AM – 1 PM: Workshop - Raddisson Blue Polar Hotel

0 PM – 1.30 PM: Lunch

1.30 PM – 6 PM: Workshop - Raddisson Blue Polar Hotel

7:30 PM: Dinner Spitsbergen Hotel

Friday 23 October

9 AM – 11 AM: Internal and final meeting - Spitsbergen Hotel

11.30 AM – 0.30 PM Lunch

Program Workshop

Wednesday 21 October - Raddisson Blue Polar Hotel

09:00 – 09:15 Welcome and presentation of the ArcticBiomass project Hans Tømmervik

Greening of the Earth – Chair: Dr. Scott Goetz

09:15 – 10:00 Professor Ranga Myneni, Boston University - The Greening Earth

Vegetation mapping and biomass change – Chair: Dr. Scott Goetz

10:00 – 10:30 Dr. Lennart Nilsen, UiT - Delineation and characterizing of bioclimatic zones on Svalbard

Coffee 10:30 – 11:00

Vegetation mapping and biomass change – Chair: Dr. Scott Goetz

11:00 – 11:30 Dr. Rune Storvold, Norut - Vegetation mapping and monitoring using UAS-systems

11:30 – 12:00 Dr. Timo Kumpula, University of Eastern Finland and Professor Bruce Forbes, University of Lapland - Arctic tundra land cover and biomass change on the Central Yamal peninsula

12:00 – 13:30 Lunch Raddisson Blue Polar Hotel

Vegetation mapping and biomass change – Chair: Dr. Kjell-Arild Høgda

13:30 – 14:00 Dr. Hans Tømmervik, NINA - Forest and tundra biomass change in the low and sub-Arctic zone of the northern Fennoscandia during the last century (1914-2012)

14:00 – 15:00 Dr. Sangram Ganguly, NASA: Biomass estimation using remote sensing

Climate change effects and ecosystem productivity – Chair: Professor Ranga Myneni

15:00 – 15:30 Associate Professor Eugenie Euskirchen, University of Alaska-Fairbanks - Long-term changes in carbon fluxes and pools in arctic tundra ecosystems in northern Alaska

15:30 – 16:00 Professor Howard Epstein, Virginia University - The circumpolar heterogeneity of arctic tundra vegetation responses to recent temperature dynamics

16:00 – 16:30 Coffee

Disturbances and vulnerability – Chair: Professor Ranga Myneni

16:30 – 17:00 Dr. Scott Goetz, Woods Hole Research Centre - An update on the Arctic Boreal Vulnerability Experiment

17:00 – 17:30 Dr. Jarle Bjerke, NINA - Increasing climatic and biotic disturbance severity – can we influence the direction of Arctic vegetation change, and if so, which direction should we promote?

17:30 – 18:00 Discussion – Chair: Professor Ranga Myneni

Thursday 22 October - Raddisson Blue Polar Hotel

Climate change effects and ecosystem productivity – Chair: Dr. Jarle Bjerke

09:00 – 09:30 Dr. Gregory Taff, Norwegian Institute of Bioeconomy Research - Using remote sensing to study climate change effects on cultivated grasslands: newly funded research.

Phenology and productivity – Chair: Dr. Jarle Bjerke

09:30 – 10:00. Dr. S.R. Karlsen, Norut - Growing season and primary production mapped by MODIS and Landsat 8 data on Svalbard

10:00 – 10:30 PhD student Taejin Park, Boston University - Contribution of Phenological and physiological Variations on Northern Vegetation Productivity Changes over the last three decades

10:30 – 11:00 Coffee

Cryosphere – snow – vegetation Chair: Dr. Rune Storvold

11:00 – 11:30 Associate Professor Marc Macias Fauria, Oxford University - Sea ice dynamics and terrestrial productivity in Svalbard

11.30 – 12.00 Professor Elisabeth Cooper - About SnoEco: Snow cover effects on High Arctic plants and soils-a study at the plot and landscape scale

12:00 – 13:30 Lunch Raddisson Blue Polar Hotel

Phenology – Chair: Professor Howard Epstein

13:30 – 14:00 Kjell-Arild Høgda, Norut - A NOAA AVHRR growing season max NDVI time series 1986-2014 for Svalbard

Monitoring of vegetation – Chair: Professor Howard Epstein

14:00 – 14:30 Dr. Virve Ravolainen, Norwegian Polar Institute - Arctic vegetation as a component of ecosystem-based monitoring

14:30 – 15:00 Professor Ingibjörg Svala Jónsdóttir, UNIS-Svalbard – About ITEX

15:00 – 15:30 Coffee

Monitoring of vegetation – Chair: Dr. Scott Goetz

15:30 – 16:00 Dr. Hans Tømmervik, NINA - Two studies using GIMMS3g data in preparation: 1. *Catchment vegetation development and reduced S-deposition promote lake organic carbon load on decadal time scales*, and 2. *Large-scale interactions between migratory tundra caribou, hunting and vegetation in arctic North America*

Scaling of data – Chair: Dr. Scott Goetz

16:00 – 16:30 Dr. Pieter Beck, EU- JRC, Italy - From observations of tundra shrub expansion to Arctic greening seen by satellites: how wide is the scale gap?

16:30 – 17:00 Professor D.A. Walker, University of Alaska-Fairbanks - A hierarchic review of circumpolar Arctic vegetation patterns, productivity, and biodiversity with a focus on the linkage between remote-sensing and plot-based studies (on skype from Alaska)

Biomass and disturbances – Chair: Dr. Scott Goetz

17:00 – 17:30 Dr. Martha Reynolds, University of Alaska-Fairbanks – Landsat analysis of vegetation change on the Alaska North Slope, using NDVI and tasseled-cap indices (on skype from Alaska)

17:30 – 18:15 Final discussion – Chair: Dr. Scott Goetz and Dr. Hans Tømmervik

List of participants

Norway (13 participants):

Jarle W. Bjerke, Norwegian Institute for Nature Research, Fram Centre, NO-9296 Tromsø, Norway; jarle.werner.bjerke.nina.no

Bernt Johansen, Northern Research Institute Tromsø, P.O.Box 6434, NO-9294 Tromsø, Norway; bernt.johansen@norut.no

Elisabeth Cooper, University of Tromsø, Tromsø, Norway, elisabeth.cooper@uit.no

Virve Ravolainen, Norwegian Polar Institute, Tromsø: Virve.Ravolainen@npolar.no

Ehrich Dorothee, University of Tromsø, Tromsø; dorothee.ehrich@uit.no

Ingibjörg Svala Jónsdóttir, UNIS-Svalbard, Norway; ingibjoerg.svala.jonsdottir@unis.no

Stein Rune Karlsen, Northern Research Institute Tromsø, P.O.Box 6434, NO-9294 Tromsø, Norway; stein.rune.karlsen@norut.no

Lennart Nilsen, UiT, The Arctic University of Norway, Tromsø, Norway; lennart.nilsen@uit.no

Rune Storvold, Northern Research Institute Tromsø, P.O.Box 6434, NO-9294 Tromsø, Norway; rune.storvold@norut.no

Kjell-Arild Høgda, Northern Research Institute Tromsø, P.O.Box 6434, NO-9294 Tromsø, Norway; Kjell-Arild.Hogda@norut.no

Gregory Taff, Norwegian Institute of Bioeconomy Research, Holtveien 66, P.O. Box 2270, NO-9269 Tromsø, Norway; gregory.taff@skogoglandskap.no

Matteo Petit Bon, UNIS-Svalbard, Norway, matteo.bon@unis.no

Hans Tømmervik, Norwegian Institute for Nature Research - NINA, Fram Centre, NO-9296 Tromsø, Norway; hans.tommervik@nina.no

USA (6 participants – 2 on skype):

Ranga B. Myneni, Boston University, Department of Earth & Environment, Boston, MA USA; ranga.myneni@gmail.com

Taejin Park, Boston University, Department of Earth & Environment, Boston, MA USA. taejin1392@gmail.com

Scott Goetz, Woods Hole Research Centre, Woods Hole, Falmouth, MA USA; sgoetz@whrc.org

Eugenie Euskirchen, Institute of Arctic Biology, Department of Biology and Wildlife, University of Alaska Fairbanks, Fairbanks, AK 99775; seeuskirchen@alaska.edu

Howard Epstein, Department of Environmental Sciences, University of Virginia, Clark Hall. 291 McCormick Road, P.O. Box 400123, Charlottesville, VA 22904-4123; hee2b@eservices.virginia.edu

Sangram Ganguly, NASA Ames Research Center & Bay Area Environmental Research Institute Mail Stop 242-4 Moffett Field, CA 94035, USA. email: sangram.ganguly@nasa.gov

On skype: Martha Reynolds Alaska Geobotany Center, Institute of Arctic Biology, University of Alaska Fairbanks Alaska Geobotany Center PO Box 757000, Fairbanks, AK 99775-7000; mkraynolds@alaska.edu

On skype: Donald (Skip) Walker: Alaska Geobotany Center, Institute of Arctic Biology, University of Alaska Fairbanks Alaska Geobotany Center PO Box 757000, Fairbanks, AK 99775-7000; dawalker@alaska.edu.

Finland (3 participants):

Timo Kumpula, Department of Geographical and Historical Studies, University of Eastern Finland, Joensuu, Finland; timo.kumpula@uef.fi.

Mariana Verdonen, Department of Geographical and Historical Studies, University of Eastern Finland, Joensuu, Finland + UNIS-Svalbard, Norway.

Bruce Forbes, Arctic Centre, University of Lapland, Rovaniemi, Finland; bforbes@ulapland.fi

JRC Europe – Italy (1 participant):

Pieter S. A. Beck, European Commission, Joint Research Centre, Ispra, Italy; psabeck@gmail.com

United Kingdom (1 participant):

Marc Macias-Fauria, Biodiversity Institute, Department of Zoology, University of Oxford, Oxford OX1 3PS, UK; marc.maciasfauria@zoo.ox.ac.uk