

Day 3 Session 1: Partner Presentations

Question	Answer
<p>@Shawn Serbin: Where are you doing the albedo work? Is it regional or at a more local landscape scale? I would like to learn more especially with respect to fire disturbance (N French).</p>	
<p>@Donald McLennan: Are basic data sets, such as a fine scale DEM < 30m and something akin to US Climate divisions, available for the Canadian Arctic that might allow homogenization across borders? If so, how can we access them?</p>	<ul style="list-style-type: none"> ● We use the ArcticDEM product for our regional ecosystem modeling and mapping and this is an international circum-arctic product. ● Regarding climate zonation we take a biogeoclimatic approach that lines up nicely with international, circum-arctic map products developed by CAVM Team (2005, 2019) – our regional mapping activities seek to refine the CAVM mapped bioclimatic boundaries (Zones A to E) at regional scales that allow for topography effects and are based on extensive ground visitation – so a good platform for international coordination ● Finally we are proposing a standard nomenclature for Arctic plant communities/ecosystems (CASBEC - McLennan et al 2018) that relies on the vegetation classification approaches used by both the Canadian (CNVC) and US vegetation (USNVC) classifications, so there is opportunity here for future coordination across countries. <p>McLennan, D.S., W. M. Mackenzie and D. Meidinger. 2018. A Standardized Ecosystem Classification for the Coordination and Design of Long-term Monitoring in the Arctic-Subarctic Biome. Arctic. Vol 71, SUPPL 1, pp. 1-15.</p>

<p>@Donald McLennan: Can you comment on the accuracies of the map products you showed?</p>	<ul style="list-style-type: none"> ● We have completed a formal accuracy assessment for the hi resolution (50cm) ecosystem map shown in the slide presentation (see Ponomarenko et al 2019 for details) using 315 geo-referenced ground photos ; on a pixel basis this process resulted in 76% overall accuracy (72% kappa) but given geo-referencing issues with the imagery and the camera we fell this underestimates map accuracy. ● To better evaluate the accuracy with tolerance to geo-location error, we computed the overall accuracy for different distances from the target location and accepted the reference sample as correct if it matched a pixel in the map at the given distance. Based on this analysis - If a geo-location error tolerance of 0.71m is acceptable, then the overall accuracy of the map improves to 87% at 0.71 m and to 91% at 1.41 m. <p>Ponomarenko, Serguei, Donald McLennan, Darren Pouliot & Johann Wagner (2019): High Resolution Mapping of Tundra Ecosystems on Victoria Island, Nunavut – Application of a Standardized Terrestrial Ecosystem Classification, Canadian Journal of Remote Sensing, DOI:10.1080/07038992.2019.1682980</p>
<p>@Donald McLennan: Does CHARS have eDNA sampling protocols This would be very interesting to link with the vegetation maps and methane hot spots.</p>	<p>CHARS does not have an active eDNA program at this time. Dr Ian Hogg at CHARS is heading up an aggressive DNA sampling program in the CHARS ERA targeting all local biota, in partnership with the Centre for Biodiversity Genomics and Guelph University. Our DNA sampling protocols are determined by experts in this partner organization.</p>
<p>@Jason Edwards: If there is no Mackenzie Valley forest assessment in 2020, what is the impact of the loss of time series info?</p>	<p>The Government of NWT will be conducting a limited forest health survey this summer, exact dates still TBD. They will likely target the Dehcho and South Slave regions. The issue with any time series gaps is attribution of a causal mechanism leading to forest</p>

	<p>change. A live/dead assessment can be made post-hoc but it can be a challenge to attribute a cause of mortality in some cases, though some inferences can be made if the time gap is only one year.</p>
<p>@Jason Edwards: Will there be a Mackenzie Valley forest vulnerability assessment survey 15-31 July in 2020?</p>	<p>The CFS will not be contributing to the survey this summer due to COVID travel restrictions.</p> <p>The main contact for the surveys is Jakub Olesinski (Jakub_Olesinski@gov.nt.ca) with the GNWT. Here is what he wrote in response to me forwarding these questions:</p> <p>“The Forest Health surveys (I guess that is what is meant here) are planned to proceed but they may be limited to the South Slave and Dehcho regions only this year. The lack of time series info is unfortunate but we still plan to have pheromone trapping in place in the Beaufort Delta region. There has been an extremely slow spring up here so there is a big chance many populations of pests such as SBW will decline this year as it was observed in 2019.”</p>
<p>@Aynslie Ogden: Where do you see the clearest most direct links with all the research initiatives you outlined and the ongoing ABoVE research?</p>	<p>This is a great question. I would hope that ABoVE researchers who see possible links to the work they are doing through ABoVE would reach out to explore links with the initiatives I presented where there appears to be some alignment and potential for links to be made. I do hope that there is interest to collaborate and develop a new project around the Kluane area to take advantage of the flightlines that NASA flew there.</p>
<p>@ John Musinsky: How is NEON dealing with the challenges of solar zenith angle on data acquisitions in the Arctic?</p>	<p>AOP surveys while solar angles are as high as possible, typically > 40 degrees above the horizon. In Alaska, we’re forced to use solar elevations of 35 degrees, and we’ve sometimes lowered this threshold to 30 degrees in order to ensure cloud-free data collection. However, we’re still in the process of understanding how these lower solar elevations impact the retrievals from different</p>

	<p>vegetation types at the different NEON sites so have not operationally flown at solar angles less than this. Hopefully, atmospheric correction algorithms will improve in the future and be able to properly model this so that lower solar elevations are not as much of an issue.</p>
<p>@John Musinsky: Have you explored/quantified how much the solar zenith angle impacts resulting spectral vegetation index maps?</p>	<p>Because they are ratios the spectral indices may mathematically be a little bit resistant to different solar angles. But this probably depends to a large extent on which bands are used. We have not performed a sensitivity analysis to understand how different indices will be effected by different solar elevation angles. However, we may try to evaluate how vegetation indices from our test flights at Table Mountain in Boulder, CO change with different solar elevation angles to see whether vegetation indices are more robust/less sensitive to their influence.</p>
<p>@John Musinsky: Will ALL of the NEON AOP data be reprocessed with the new algorithms, or will it only apply to new data?</p>	<p>We want to ensure completely consistent datasets from the beginning of operations to the present (or end of operations), so assuming cost is not an overriding factor, our plan is to reprocess all science data L0-L4 using the new algorithms. However, it is still TBD whether data collected pre-2016/17 will be included as they are considered engineering-grade data by the Observatory.</p>

Comment: The Alaska Fire Science Consortium still plans to convene a user focused workshop in association with the ASTM in Fairbanks in 2021. We will be encouraging user awareness of ABoVE through the online resources of this meeting and others in the interim period.

Comment: Plug for the great data access analysis tutorials NEON has on their website.