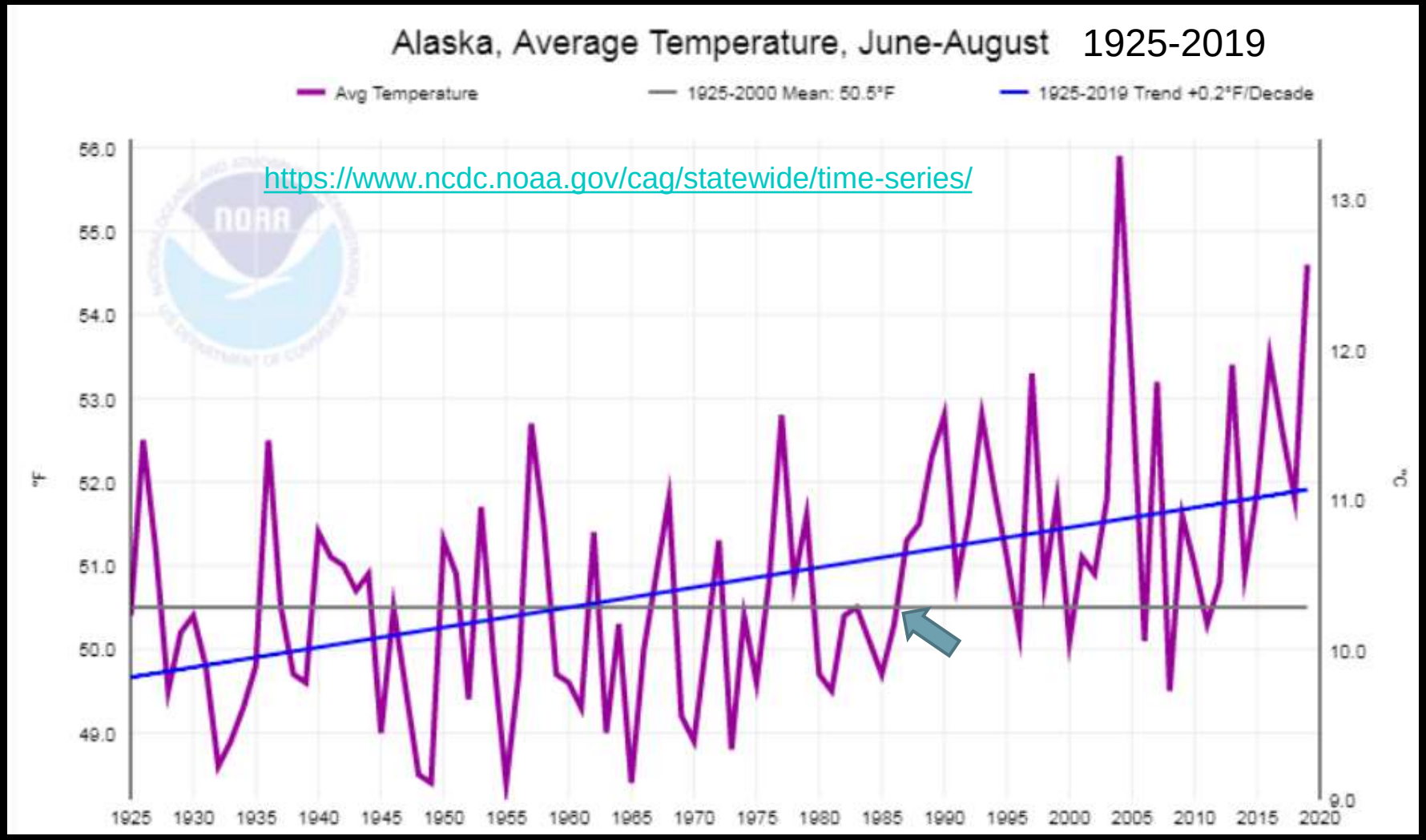
This Just In: a few Fire Science highlights

Firewhirl –Photo by D. Jandt

http://akfireconsortium.uaf.edu

Randi Jandt, Fire Ecologist
Sarah Trainor, PI
Scott Rupp, Co-PI
Alison York, Coordinator
Robert Ziel, Fire Behavior
Zav Grabinski, Outreach

Boreal fire regime sensitive to T°--



Especially **summer T°**, and the forest floor is one big reason.

11 KTVA

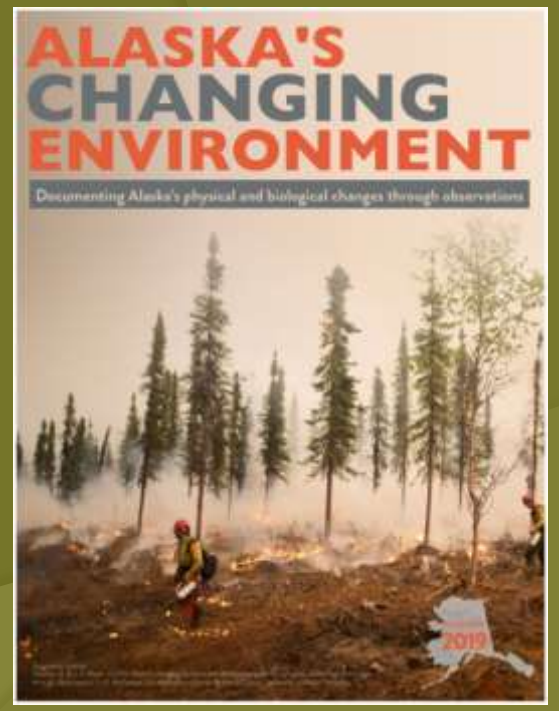
NOTABLE RECORDS

ANCHORAGE 2019

- Warmest Year on Record*
- 5* Months Warmest On Record
- 32 New Record Highs
- Warmest High Ever (90°)
- First Ever Extreme Drought
- Warmest Summer & Fall

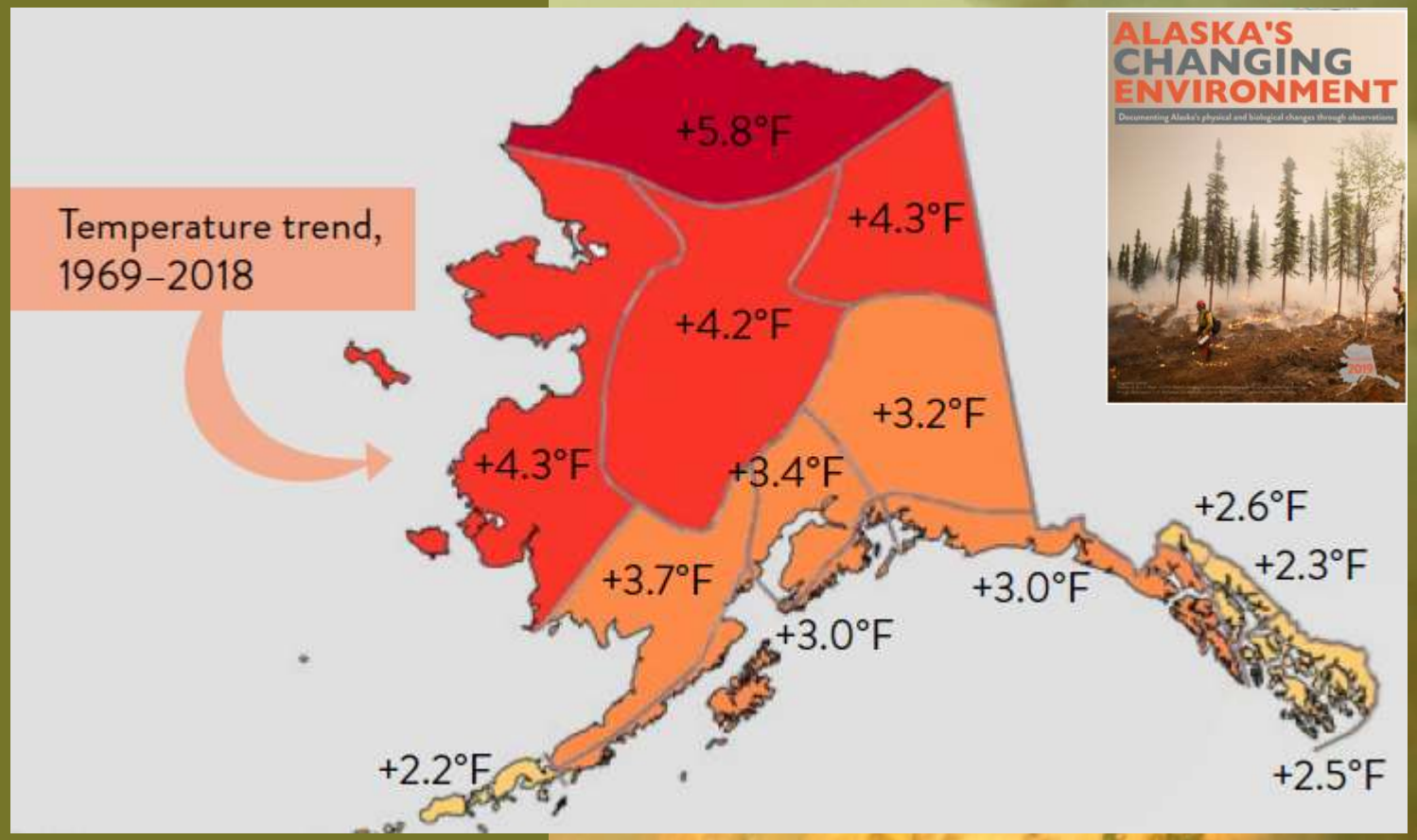
* While December is yet to be over, it would take a significant cool down to affect averages. That doesn't look likely

Now read this:



https://uaf-iarc.org/2019/08/23/alaskas-changing-environment/

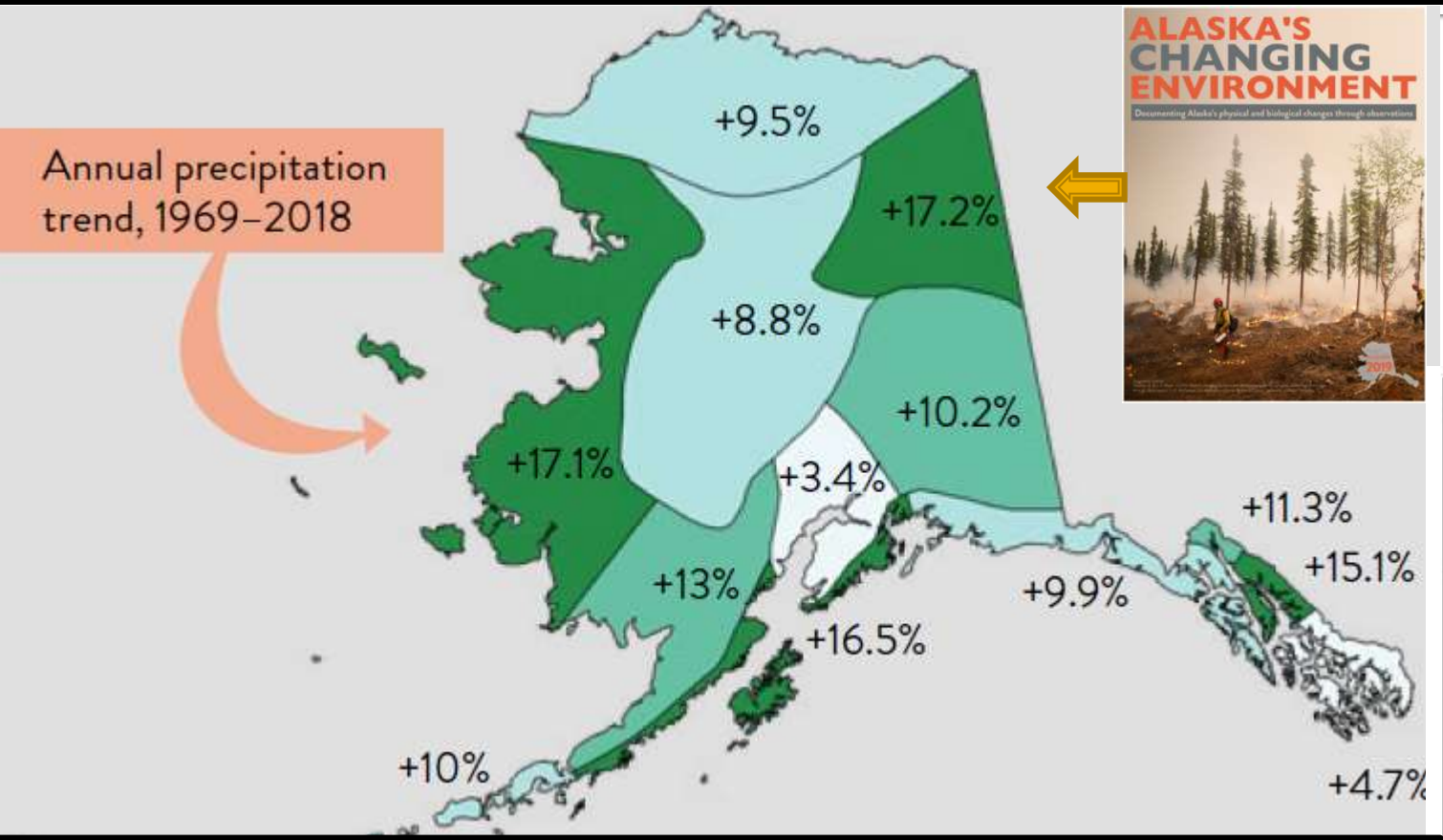
More heat = drier fuels = more combustion



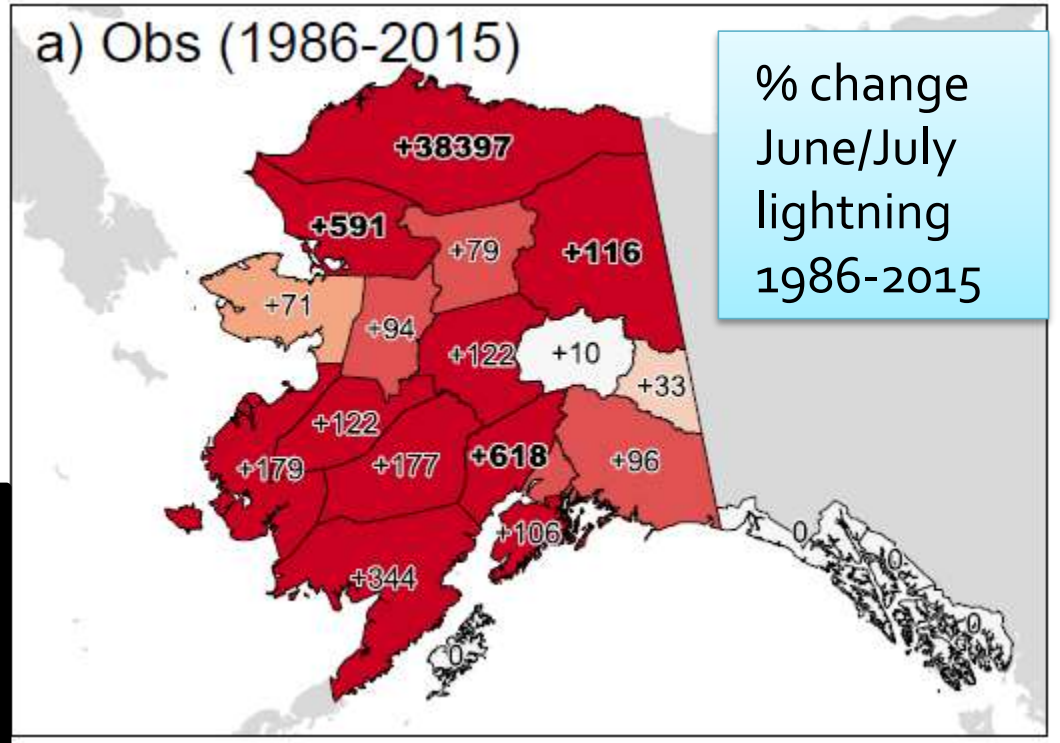
May 2016 Ft. McMurray Fire
Photo by Jonathen Hayward, The Canadian Press

Temperature
Season Length
Ignitions
Rainfall
Permafrost

Rainfall increasing in Interior: is it enough?



Bieniek et al. 2019. *(In Review)* Lightning variability in dynamically downscaled simulations of Alaska's present and future summer climate. *Journal of Applied Meteorology and Climatology*



But, so is lightning:

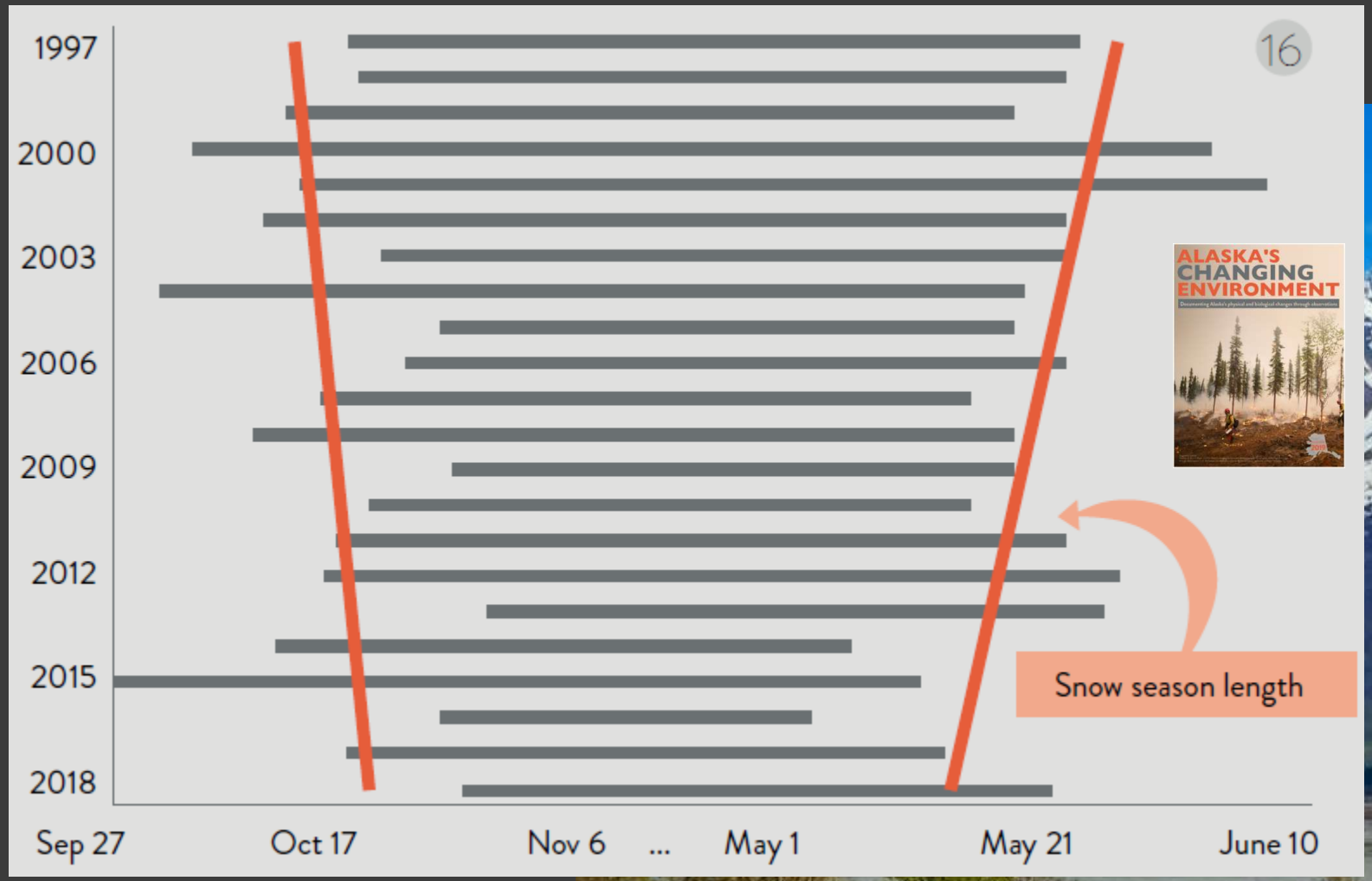
Annual burn area would increase ~50% by 2050-2074

Lightning up 59%

Veraverbeke et al., 2017 Nature Climate Change

Burn Area up by 55% (or 46% with Fuels feedback)

Longer Fire Season: Shrinking Snow Season

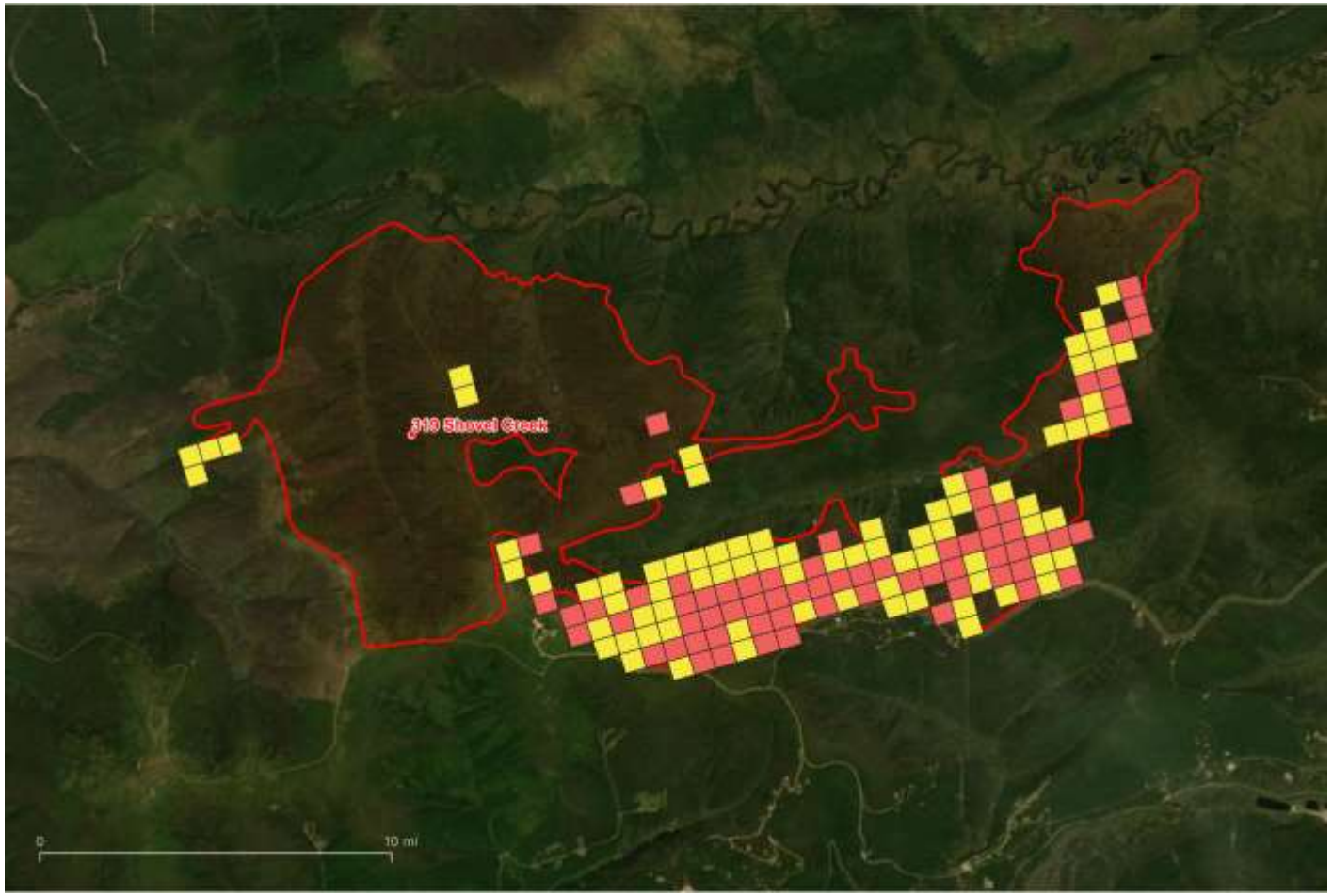


April 17th 2016—Fire jumped on Knik R near Palmer.

Photo Amy Breen, UAF

Statewide snowpack is 1 week later in the autumn and melts 2 weeks earlier in the spring SINCE THE 1990's.

Fire Management from Space



Courtesy of Robert Ziel & Chris Waigl, UAF

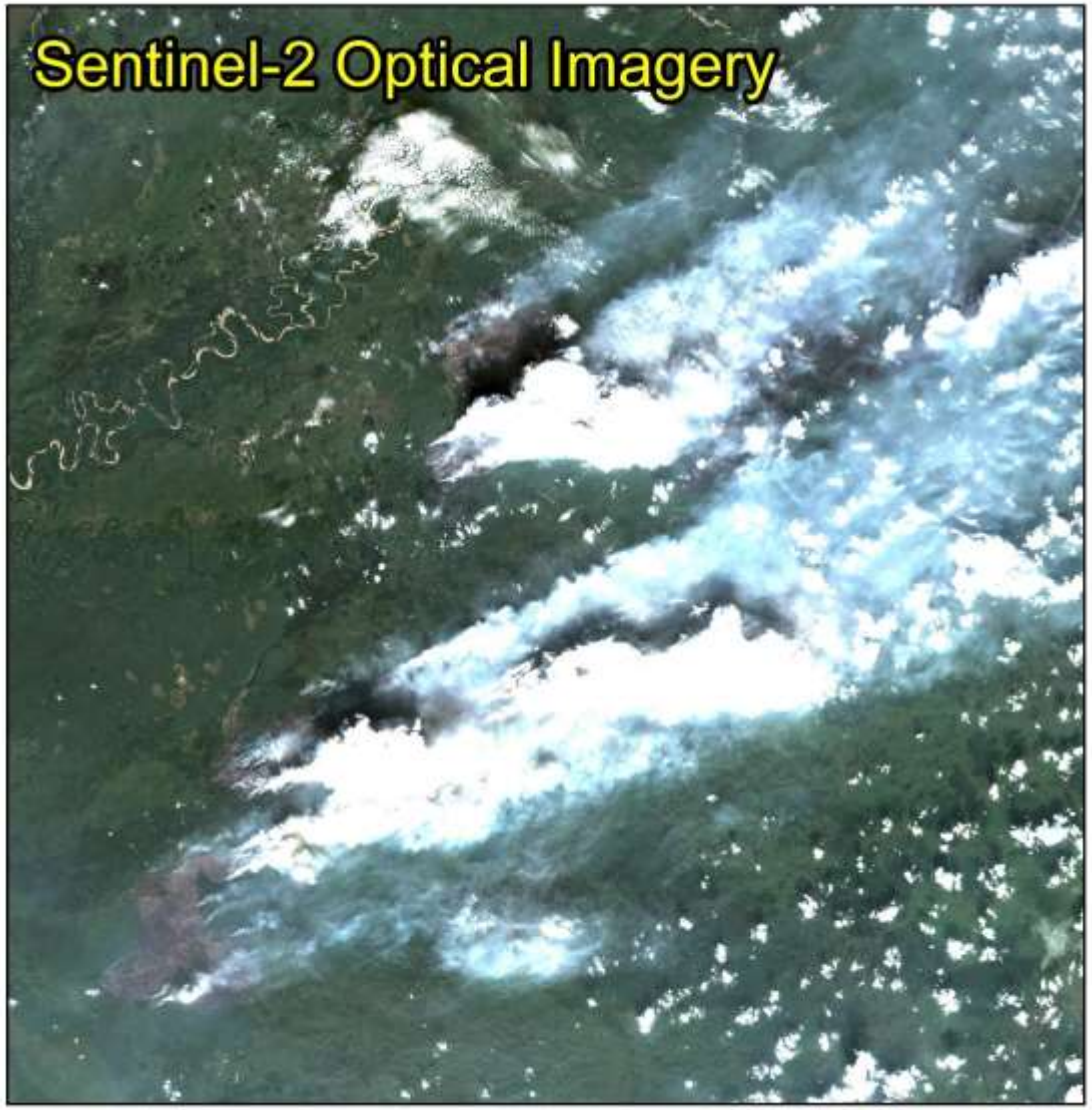
Shovel Creek fire,
2019-07-09, 16:16 and 17:59.
yellow: high intensity,
red: low intensity
The smaller pixel size reflects the position of the pixel in the swath center.

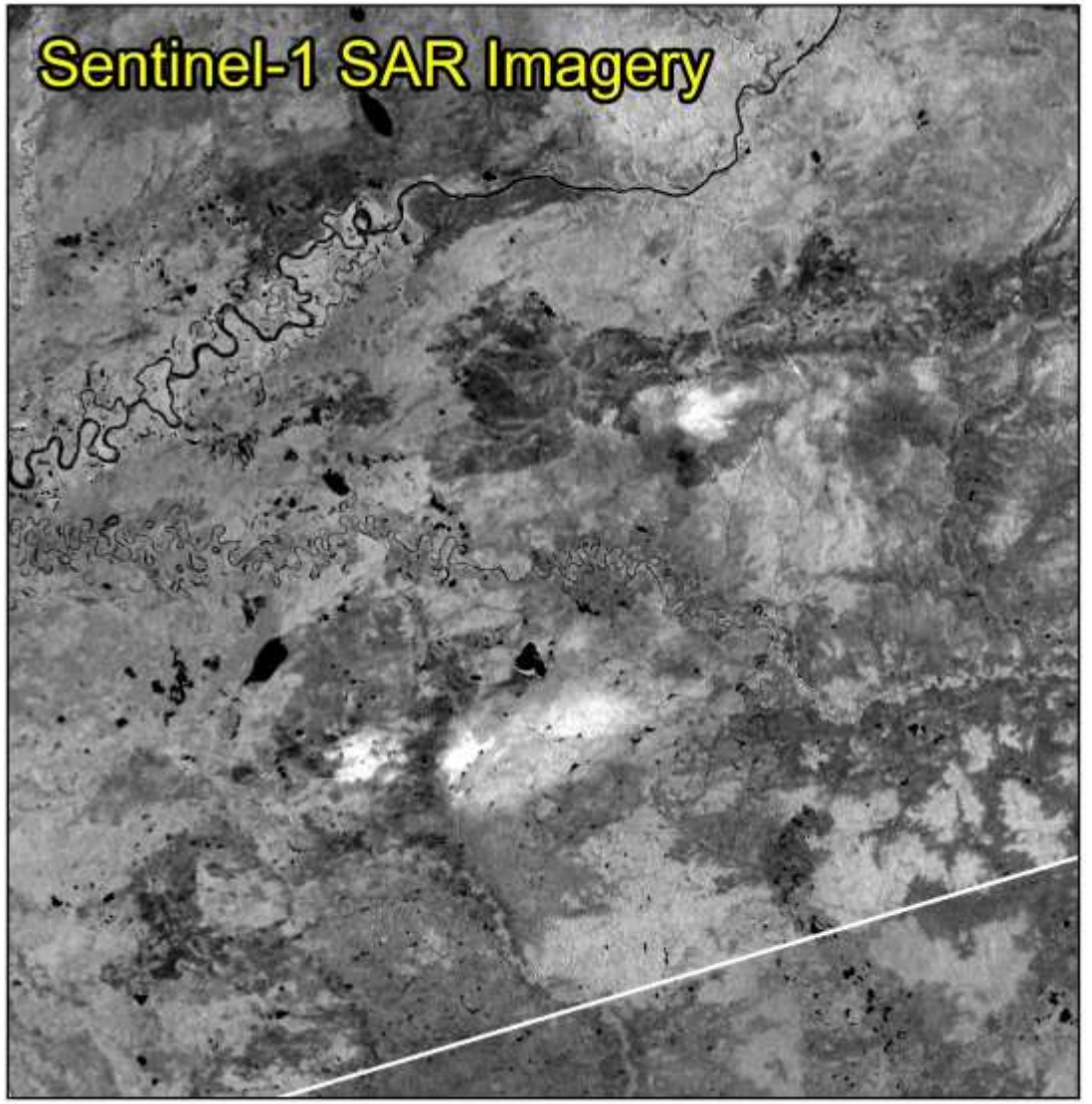
Photo: Shovel Ck Fire, June 27, 2019 by LR Swenson, NW Fire Blog.

VIFDAHL: VIIRS fire detection algorithm for high latitudes
Can it help with tactical decisions?
Historic analysis?
Residual heat detection?

Fire Management from Space

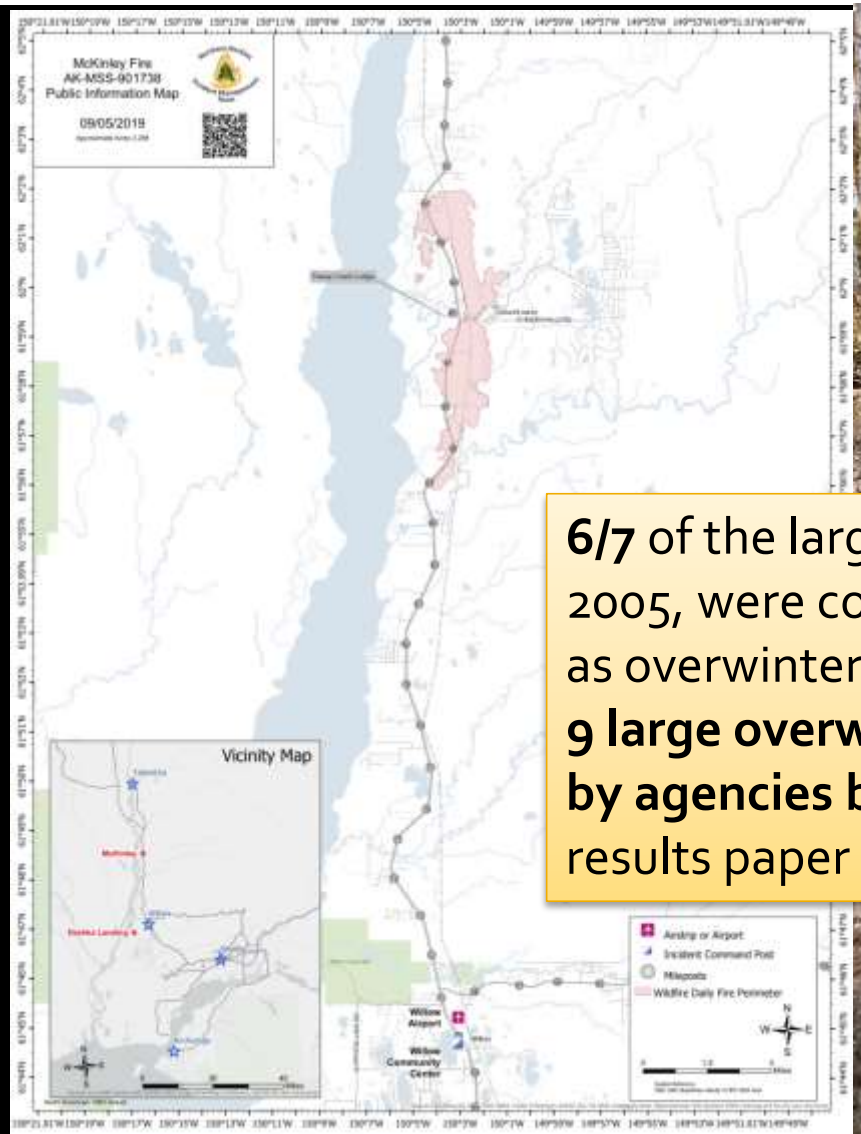
*Imagery from the European Space Agency's Sentinel Missions over the **Chalkyitsik Fire Complex** in Eastern Interior Alaska July 14, 2019. Heavy smoke from the fires obscures the ground in the optical imagery (left), but has little impact on the SAR image (right).*

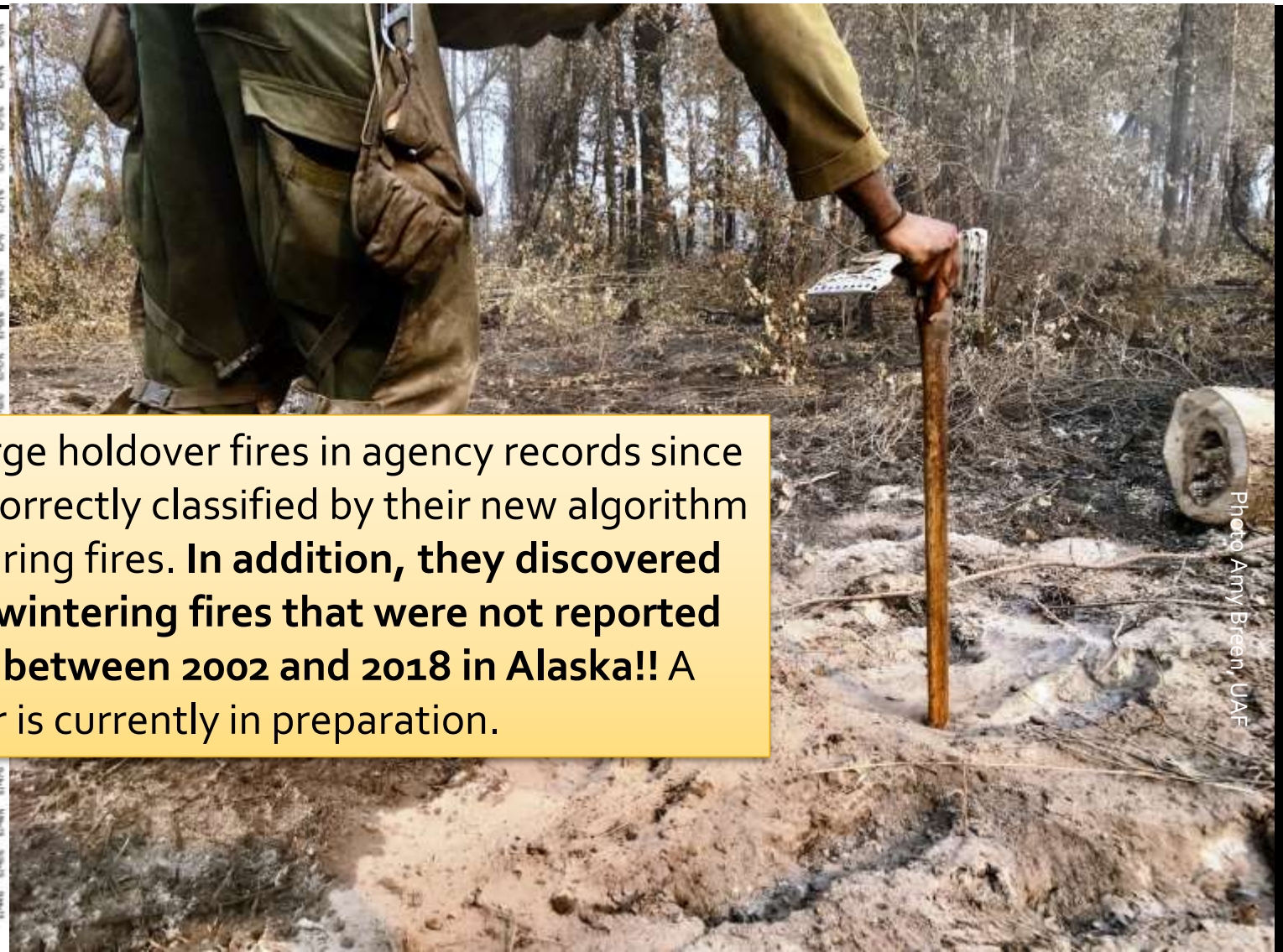




Detecting and predicting holdover fires from space:

Rebecca Scholten and Sander Veraverbeke, Vrije Universiteit Amsterdam





6/7 of the large holdover fires in agency records since 2005, were correctly classified by their new algorithm as overwintering fires. **In addition, they discovered 9 large overwintering fires that were not reported by agencies between 2002 and 2018 in Alaska!!** A results paper is currently in preparation.

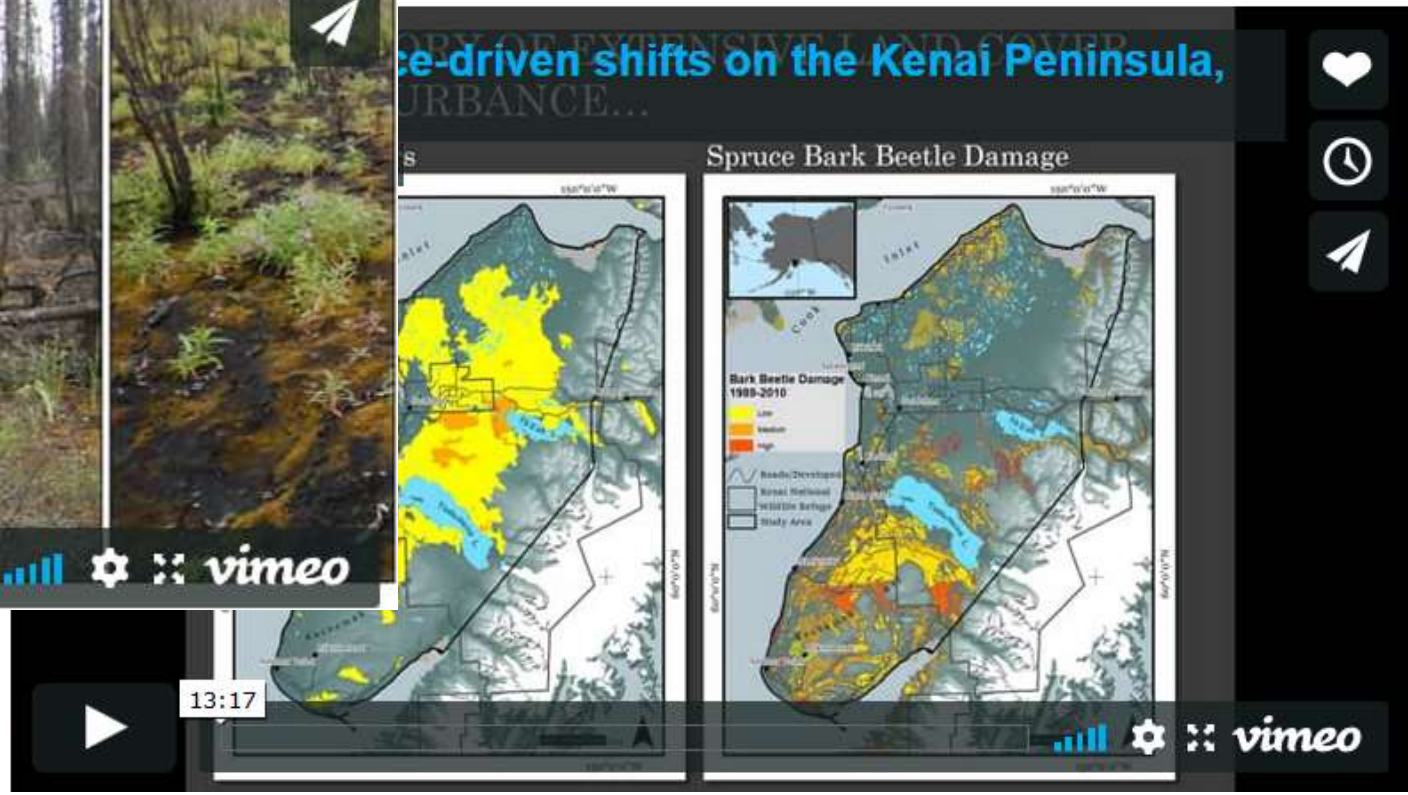
2019 McKinley Fire ashpits:
Photo: Renette Saba/Alaska IMT

Photo Amy Breen, UAF

AFE: Fire in the Last Frontier (Dec. 2019)

Rachel Loehman, USGS, Alaska Science Center

Excellent recorded presentations from the meeting on our Vimeo site!



Carson Baughman, USGS, Alaska Science Center

https://vimeo.com/channels/alaskafirescience

Upcoming Webinars & More:

Apr 1, 2020 11:00 am Jen Schmidt, UAA	Webinar - Arctic Urban Risks and Adaptations (AURA)
Apr 7, 2020 11:00 am Ben Gaglioti, UAF	Webinar - The environmental legacies of tundra fires in the Noatak River Valley of Alaska
Apr 16, 2020 10:00 am Brian Buma and Katherine Hayes, University of Colorado	Webinar - Evaluating Flammability of Reburns in the Boreal Forests of Interior Alaska

March 30th SMAP Drought Code Webinar-Discussion, with Laura Bourgeau-Chavez and team

Remote Sensing Research to Operations Workshop in May- *POSTPONED until 2021, with NASA ABoVE Science Meeting in Fairbanks.*

THANK YOU FOR JOINING THE AFSC FIRE SCIENCE WORKSHOP TODAY!

Help us do better by filling out the survey which will come to your inbox.