Alaska Localization of EPA Generic Emissions Data

Presented by:

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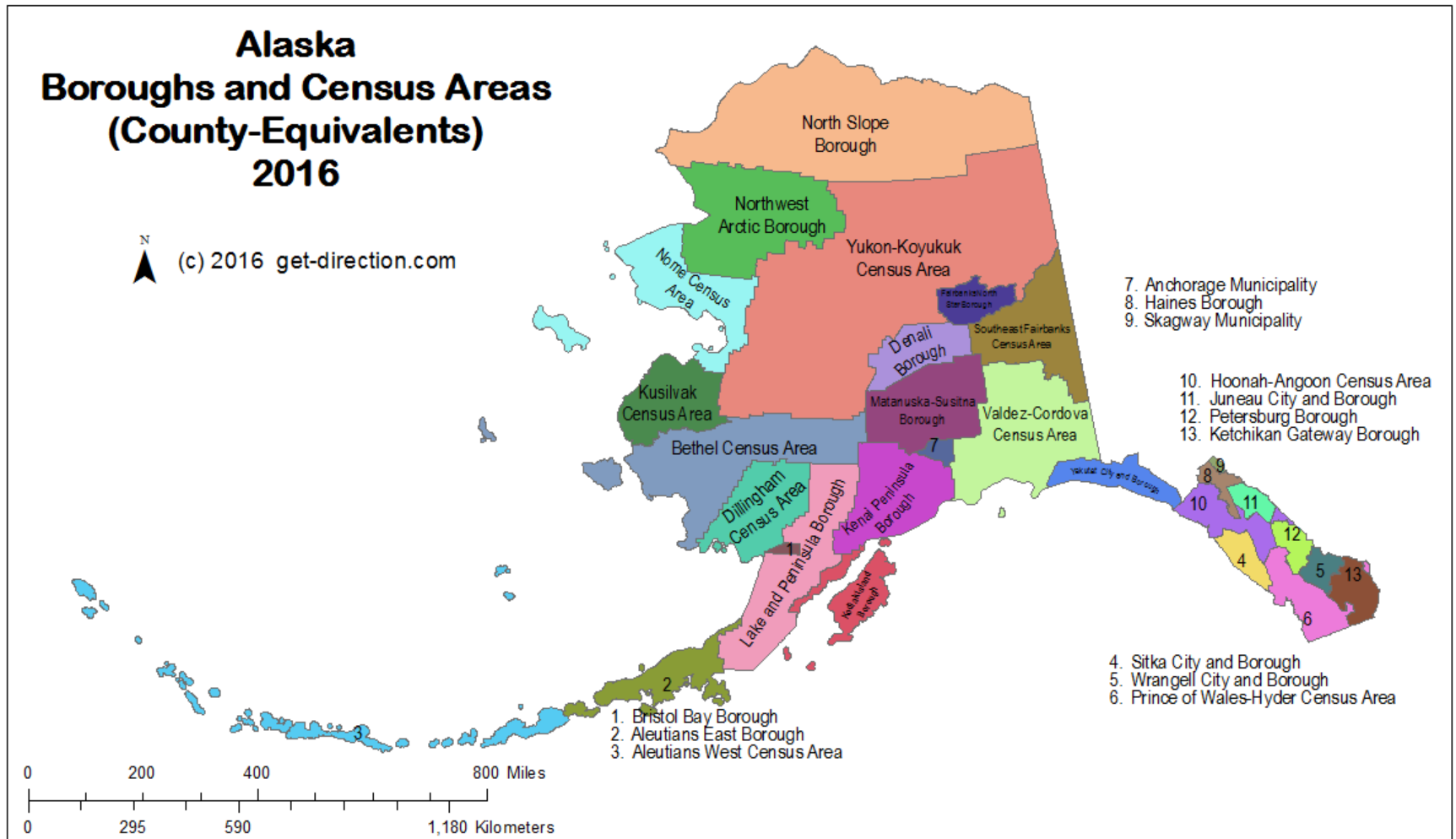
July 30, 2019

Size of the State of Alaska

Photo Courtesy of National Parks Service. Photo available at: https://www.nps.gov/locations/alaska/what-we-do.htm

Alaska Boroughs and Census Areas

Alaska
Boroughs and Census Areas
(County-Equivalents)
2016

(c) 2016 get-direction.com

North Slope Borough
Northwest Arctic Borough
Nome Census Area
Yukon-Koyukuk Census Area
Kusilvak Census Area
Bethel Census Area
Denali Borough
Southeast Fairbanks Census Area
Fairbanks North Star Borough
Matanuska-Susitna Borough
Valdez-Cordova Census Area
Dillingham Census Area
Lake and Peninsula Borough
Kenai Peninsula Borough
Kodiak Island Borough
Yakutat City and Borough

7. Anchorage Municipality
8. Haines Borough
9. Skagway Municipality

10. Hoonah-Angoon Census Area
11. Juneau City and Borough
12. Petersburg Borough
13. Ketchikan Gateway Borough

1. Bristol Bay Borough
2. Aleutians East Borough
3. Aleutians West Census Area

4. Sitka City and Borough
5. Wrangell City and Borough
6. Prince of Wales-Hyder Census Area

Photo courtesy of get directions. Available at: http://www.get-direction.com/static-maps.html?id=alaska-county-equivalents-2016&cat=usa-counties

3

Introduction

- The EPA nonpoint generic datasets (modelled values divided among census areas based on population) provide activity data for the following categories of emissions in the Nonpoint MOVES Off-Road dataset, including:
  - Long-Haul Hoteling/Parking Spaces
  - Agricultural Nonroad Emissions
  - Railway Nonroad Emissions
  - Logging Nonroad Emissions.
- MOVES data adjustments for Native Communities
- Alaska Department of Environmental Conservation identified several shortcomings built into EPA's generic data and corrected them for this year's Emissions Inventory (EI).
- ADEC personnel assisted EPA in providing accurate emissions data, as well as to better assist in Regional Haze planning.

Road Map of the State of Alaska

MOVES On-Road Emissions

- Many vehicles in rural and tribal communities are unregistered.
- For the NEI we can't rely solely on registered vehicles and make adjustments in the MOVES inputs.
- Rural/native communities vehicle type use patterns differ – adjust for population and remote locations.
- ATVs more common. More limited use of larger vehicles.
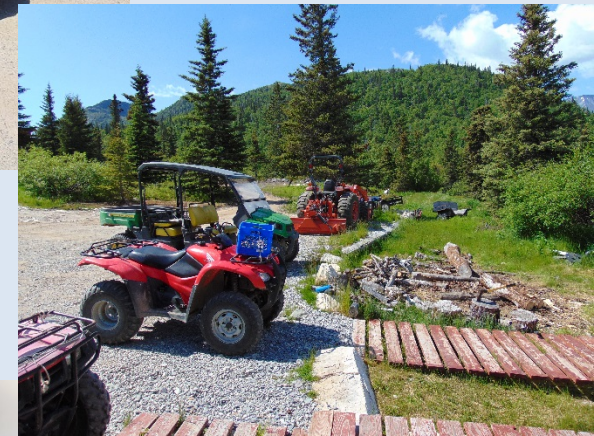
Semi-Truck Hoteling

- For semi-truck hoteling, Alaska had to do a more detailed QA/QC check of the generic EPA data to verify where emissions were being generated.

- Hoteling emissions were applied to census areas with no road access

Sitka Cross Trail
Phase IV | Sitka Cross Trail Overview

Photos courtesy of KTOO. Available at: https://www.ktoo.org/2016/11/29/sitka-trail-works-get-1-8m-grant-cross-trail-completion/

Semi-Truck Hoteling

Future research and improvements:

- Hoteling parking spots- suspicious! One island community had over 350 parking spots for long-haul trucks and no highway access.

- Hours of Use – more research to be done on hotel hours of use. Too many hours are allocated.

- Seasonality – many areas are not used in the winter.

- Idling may need to be adjusted.

Truck stop at Coldfoot, Alaska. Picture courtesy of Scott McMurren, entitled, "World's Northernmost truck stop." Picture available at: https://en.wikipedia.org/wiki/Coldfoot,_Alaska#/media/File:World's_northernmost_truck_stop.jpg

Semi-Truck Hoteling

- Alaska's QA/QC check of semi-truck hoteling was to ensure that generic EPA data lined up with the state's infrastructure realities.
- MARAMA suggested a similar QA/QC check of their member state datasets in 2018 after reviewing the EPA's generic MOVES data.
- For Alaska in particular, these types of quality checks are vital.
- Significant differences between Alaska's infrastructure and that of the Continental United States.
- AK has large tracts of land unconnected via a reliable surface transportation network.
- MOVES data on hoteling needs to match up to be reflective of local conditions.

Nonroad – Railroad

- The Railbelt is limited to the area between Seward and Fairbanks and from Anchorage to Whittier
- Small narrow-gauge railway (White Pass-Yukon RR) located between Skagway and Carcross in Yukon Territory, mainly a tourist/sightseeing railway.
- EPA Nonroad inventory allocated nonroad emissions to all borough and census areas.

Photos courtesy of Wikimedia Commons

10

Nonroad – Railroad

- New Railroad emissions: Class III Railroad (WPYRR)
- Historical RR - narrow-gauge railways, operated during 20th Century and now used for tourism and recreation.
- Contacted both AKRR and WPYRR to verify their fleet mix and fuel use, submitted this data to modeling group.
- Used above to assist in nonpoint railroad edits.

Photo courtesy of Project Jukebox (UA-F Oral History Program), and Alaska.org. Photo available at: https://jukebox.uaf.edu/site7/file/akmapjpg, and http://www.alaska.org/advice/alaska-railroad-map

11

Nonroad – Railroad

- Previous emissions inventories did *not* do this type of check.
- Eliminated boroughs we knew to be without any historical or current railway activity.
- Google search for other boroughs to verify no railroad activity.
- Once search complete, ADEC deleted RR references in the necessary boroughs.

Photo courtesy of the Anchorage Daily News. Photo available at:
https://www.adn.com/business-economy/2019/03/31/governor-asks-trump-for-permit-needed-to-connect-alaska-railroad-to-canada-lower-48/

# Nonpoint – Oil and Gas

Nonroad – Logging

- EPA generic data used population to assign logging activity where the ecoregion does not support forests.
- Researched logging companies in the borough/census area
- Based on local ecological regions - eliminated logging outright in some boroughs.

Photos courtesy of the New York Times and The Guardian. Photo available at: https://www.nytimes.com/2014/09/28/us/a-battle-to-keep-trees-or-an-industry-standing.html, and https://www.theguardian.com/us-news/2018/mar/22/alaska-tongass-forest-at-risk-logging-trump

Nonroad – Logging

- In areas with boreal forest growth, we conducted research to identify logging companies and operations.
- If a logging company was in a borough, even a small company, we maintained it in the generic data.
- In some cases, we checked online to verify the equipment types present.
- Trees to the right – Alaska Black Spruce.
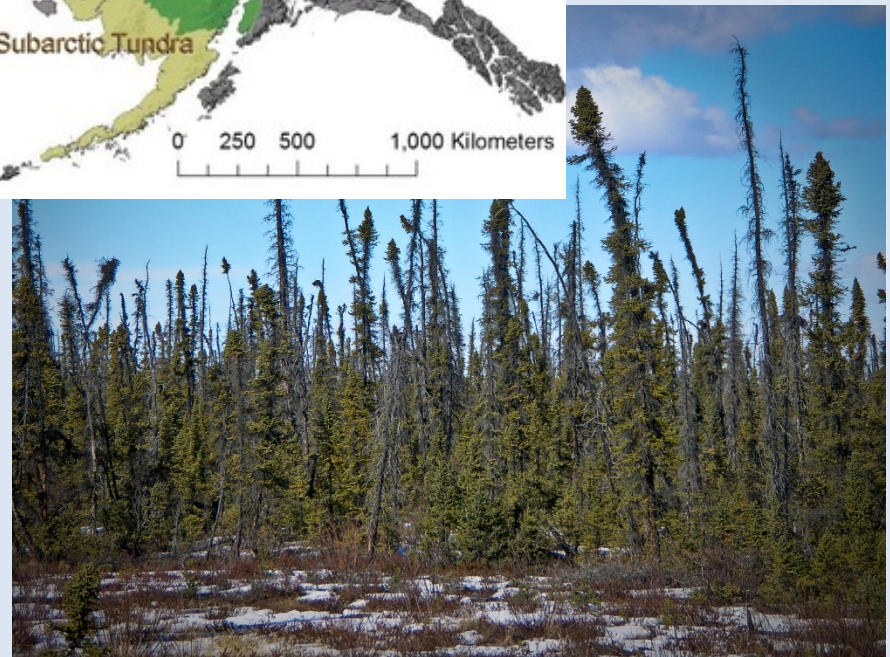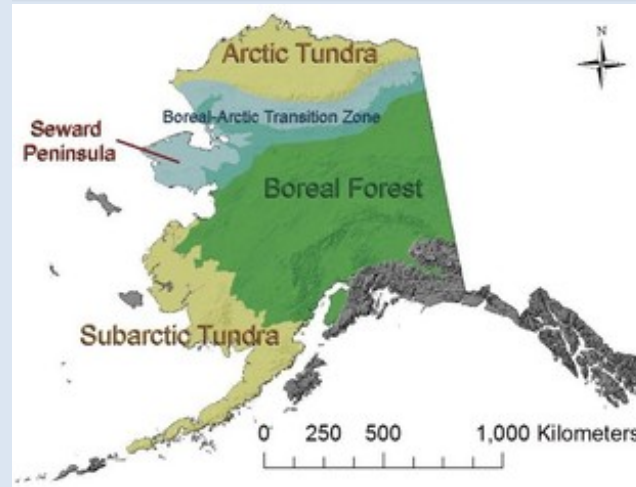
Photos courtesy of "Boreal Forest of Canada and Alaska" and picture of AK Black Spruc. Photos available at: https://borealforestsc10.weebly.com/meteorologist/meteorology-of-canada-and-alaska and https://www.mdpi.com/2072-4292/6/12/12409/htm.Spruce Alaska.org
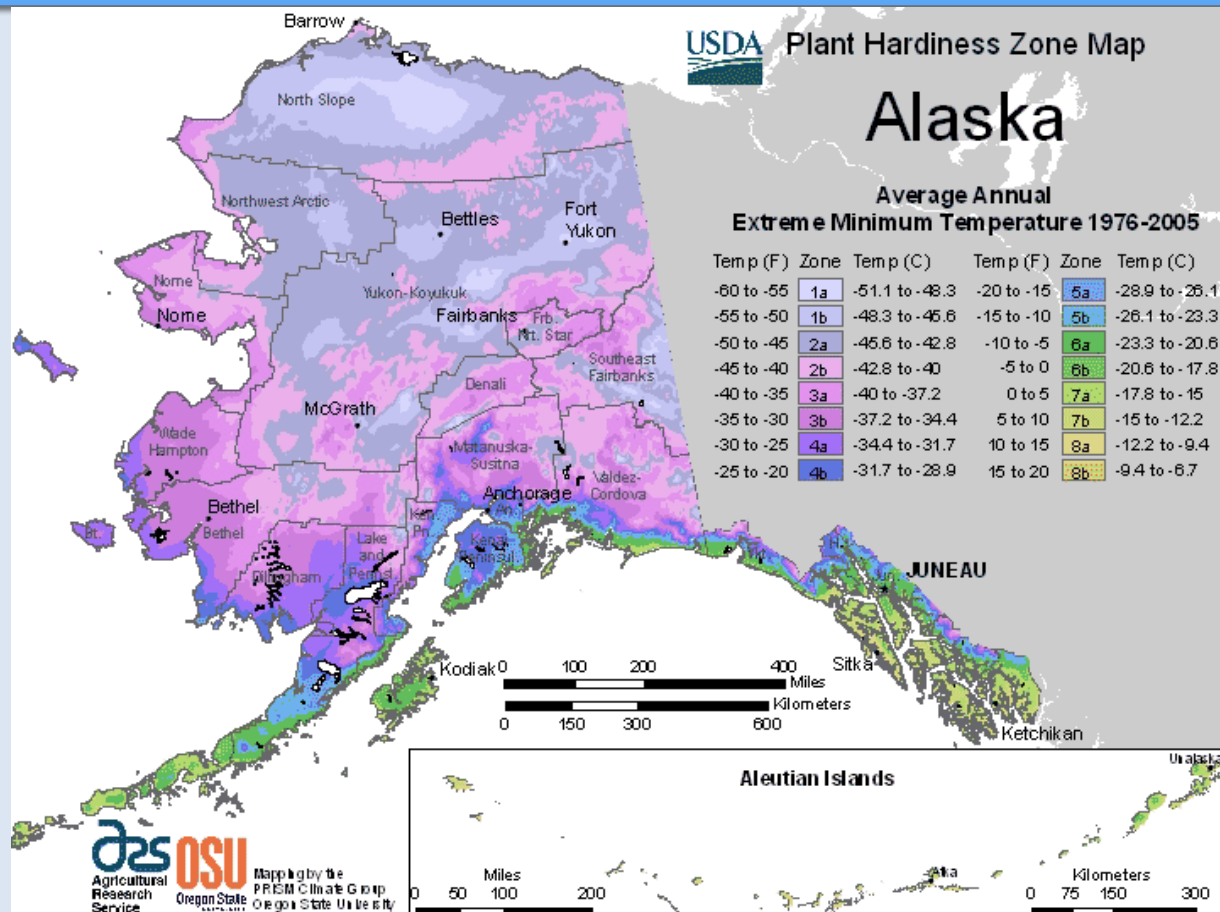
Alaska Plant Hardiness Zone Map

Photo courtesy of Oregon State University Agricultural Research Service. Map available at:
https://q7i2y6d5.stackpathcdn.com/wp-content/uploads/2004/08/alaska_map_lg.gif

Nonroad – Agriculture

- Relied on institutional knowledge and internet research to ID EPA generic data shortcomings.
- In the Arctic ecological regions and in some parts of Western Alaska, we eliminated agricultural operations outright.
- For other areas, we used the State Agriculture's registered farms list to verify activity in other areas (Bethel Census Area, etc.)

Picture courtesy of Sitka Local Foods Network and NPR. Available at: https://sitkalocalfoodsnetwork.org/tag/alaska-department-of-natural-resources/ and https://www.alaskapublic.org/2018/07/25/learning-about-alaska-farms-and-farmers/

Nonroad – Agriculture

- Verified ag presence with Google searches, Dept. of Agriculture database, and reviewed ag support vehicles.

- Other areas, such as Nome Census Area, should be monitored for Ag operations as climate warming continues.

- More research needed to verify types of vehicles and equipment, especially on small commercial ag operations.

Photos courtesy of NPR and Alaska Public Media. Photos available at: https://www.npr.org/sections/thesalt/2015/02/26/389011370/alaska-farmer-turns-icy-patch-of-tundra-into-a-breadbasket; and https://www.alaskapublic.org/2011/11/10/sustainable-agriculture-in-rural-alaska/

Lessons Learned - Next Steps

- Although EPA's data is useful elsewhere in the country, we found that it is not reflective of Alaska's unique infrastructure and ecological arrangements.
- Verification did not necessitate detailed review of all activities. A short phone call to confirm the use of equipment was enough for us to decide, as well as a review of equipment and activities.
- Small revisions provide more confidence in the value of the data.
- More research to quantity emissions.

Thank you!!

State of Alaska, Department of Environmental Conservation

Air Quality Division

Non-Point Mobile Sources

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Questions?