



Tigla

16  
15

























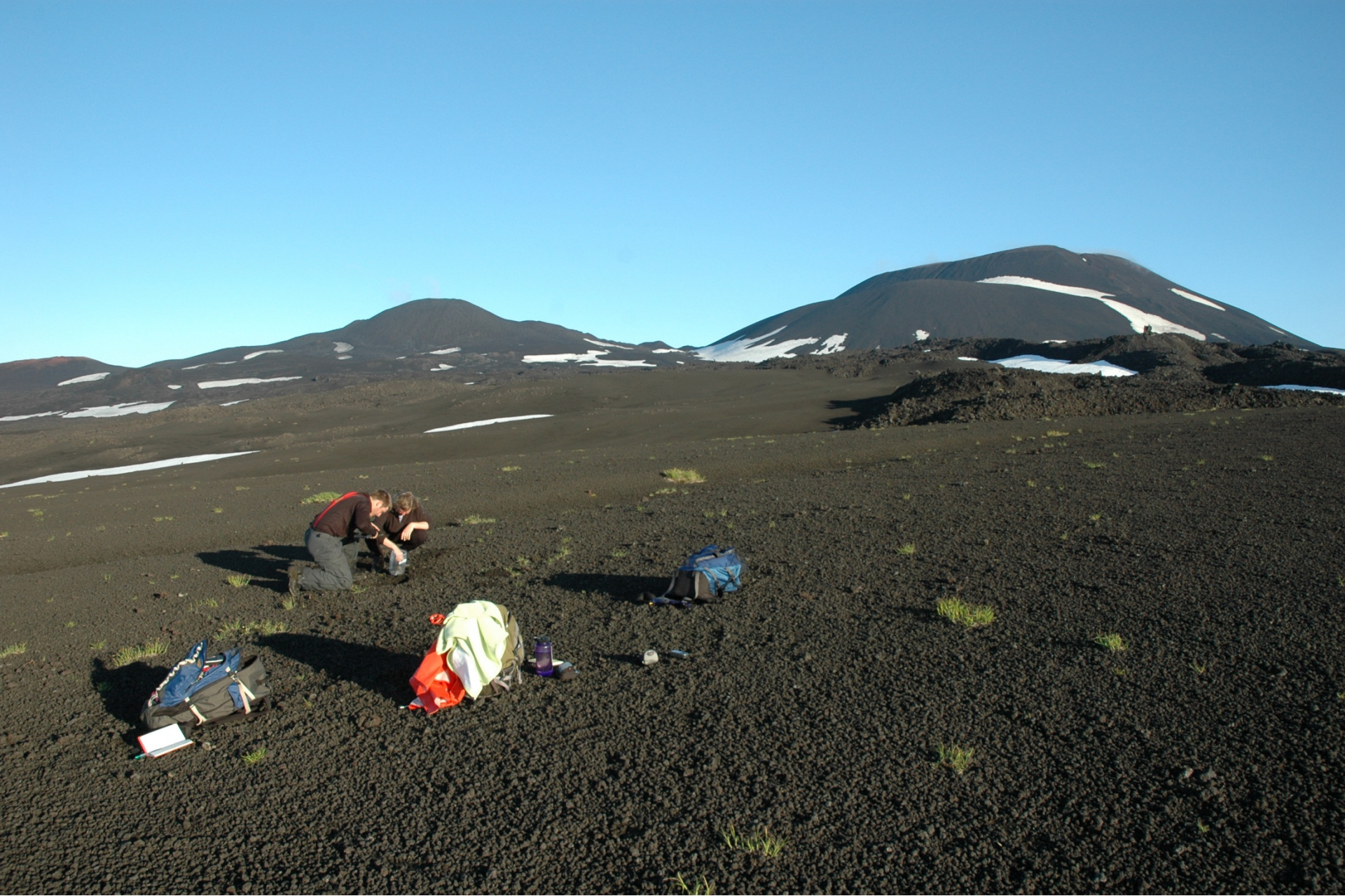


















# Seguam Island Volcanic Complex



Contour interval 200 feet

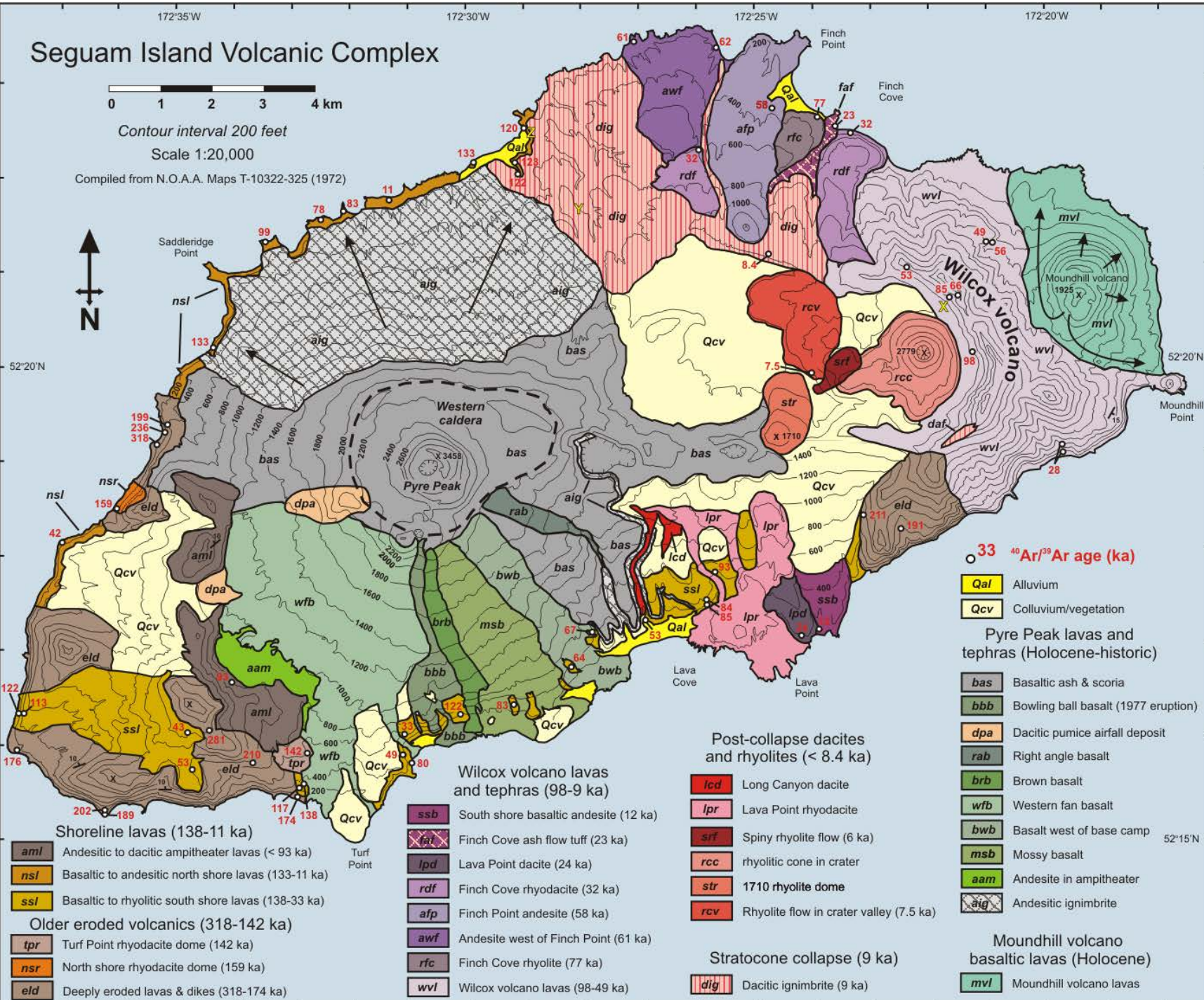
Scale 1:20,000

Compiled from N.O.A.A. Maps T-10322-325 (1972)



52°20'N

52°20'N



○ 33 <sup>40</sup>Ar/<sup>39</sup>Ar age (ka)

- Qal Alluvium
- Qcv Colluvium/vegetation

### Pyre Peak lavas and tephras (Holocene-historic)

- bas Basaltic ash & scoria
- bbb Bowling ball basalt (1977 eruption)
- dpa Dacitic pumice airfall deposit
- rab Right angle basalt
- brb Brown basalt
- wfb Western fan basalt
- bwb Basalt west of base camp
- msb Mossy basalt
- aam Andesite in amphitheater
- aig Andesitic ignimbrite

### Wilcox volcano lavas and tephras (98-9 ka)

- ssb South shore basaltic andesite (12 ka)
- faf Finch Cove ash flow tuff (23 ka)
- lpd Lava Point dacite (24 ka)
- rdf Finch Cove rhyodacite (32 ka)
- afp Finch Point andesite (58 ka)
- awf Andesite west of Finch Point (61 ka)
- rfc Finch Cove rhyolite (77 ka)
- wvl Wilcox volcano lavas (98-49 ka)

### Post-collapse dacites and rhyolites (< 8.4 ka)

- lcd Long Canyon dacite
- lpr Lava Point rhyodacite
- srl Spiny rhyolite flow (6 ka)
- rcc rhyolitic cone in crater
- str 1710 rhyolite dome
- rcv Rhyolite flow in crater valley (7.5 ka)

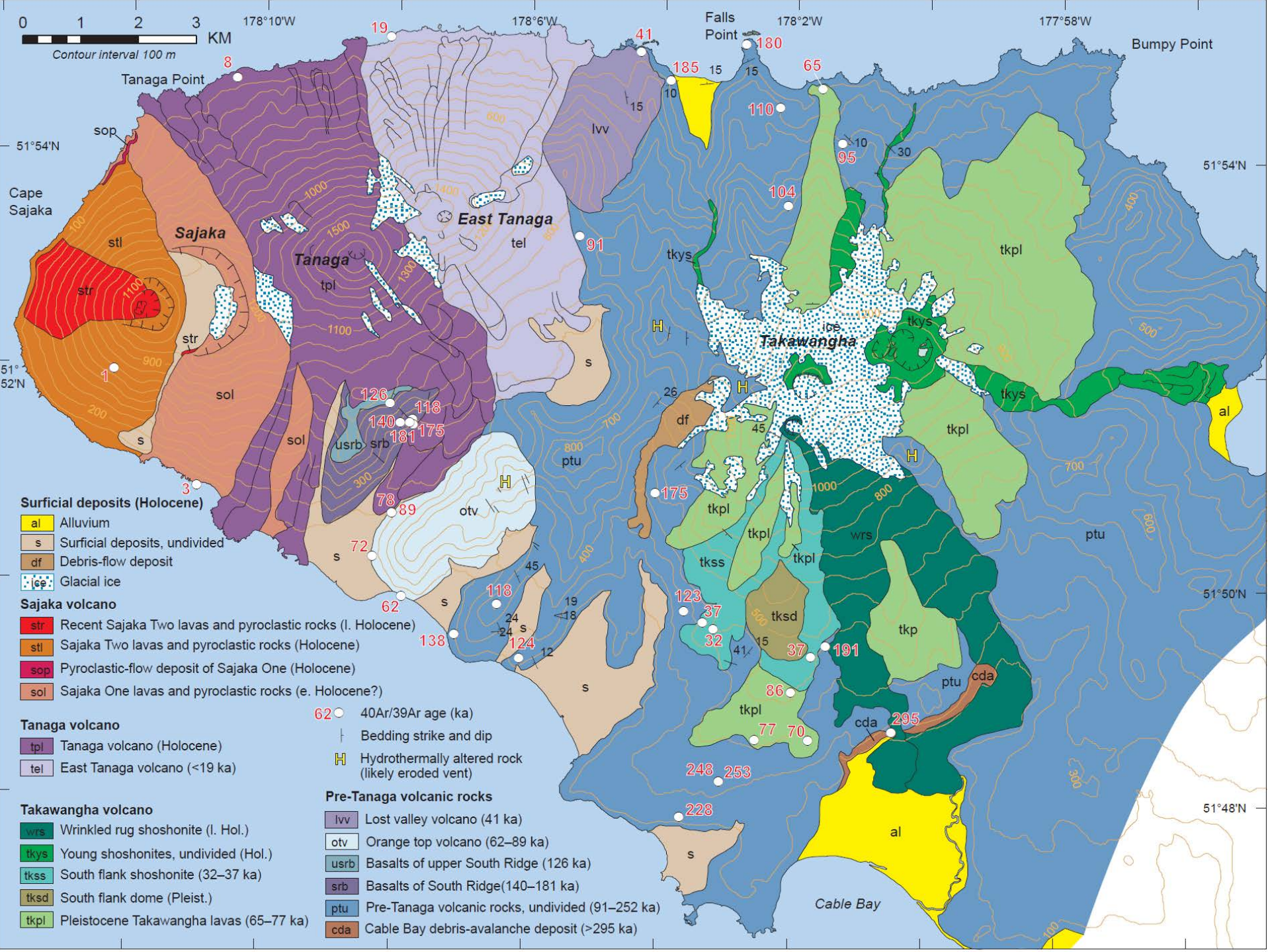
### Stratocone collapse (9 ka)

- dig Dacitic ignimbrite (9 ka)

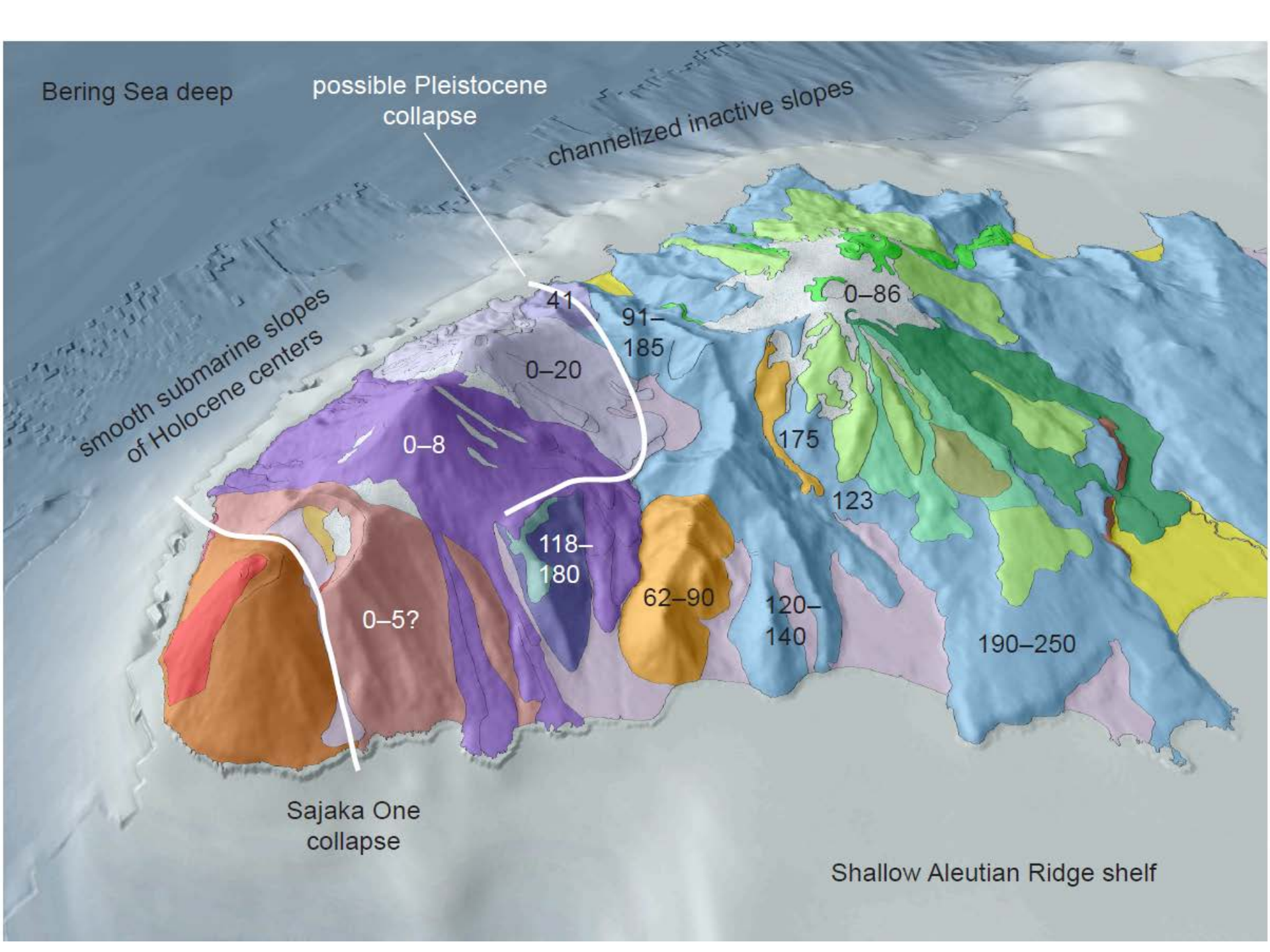
### Moundhill volcano basaltic lavas (Holocene)

- mvl Moundhill volcano lavas











# Geologic Fieldwork -- logistic issues

## Scale Issues

### Distances

Anchorage => Attu (along the curve of the arc) is about equal to...

Halifax => Havana

Portland OR => Cabo St Lucas

Portland OR => Chicago

Washington DC => Moab UT

Houston TX => James Bay

### Population (~infrastructure)

**Aleutian Islands.** 1700 km, 7 communities, <6,000 people

**Alaska Peninsula.** 700 km, 19 communities, <4,000 people

**Cook Inlet +,** 600 km, 100 communities, ~440,000 people

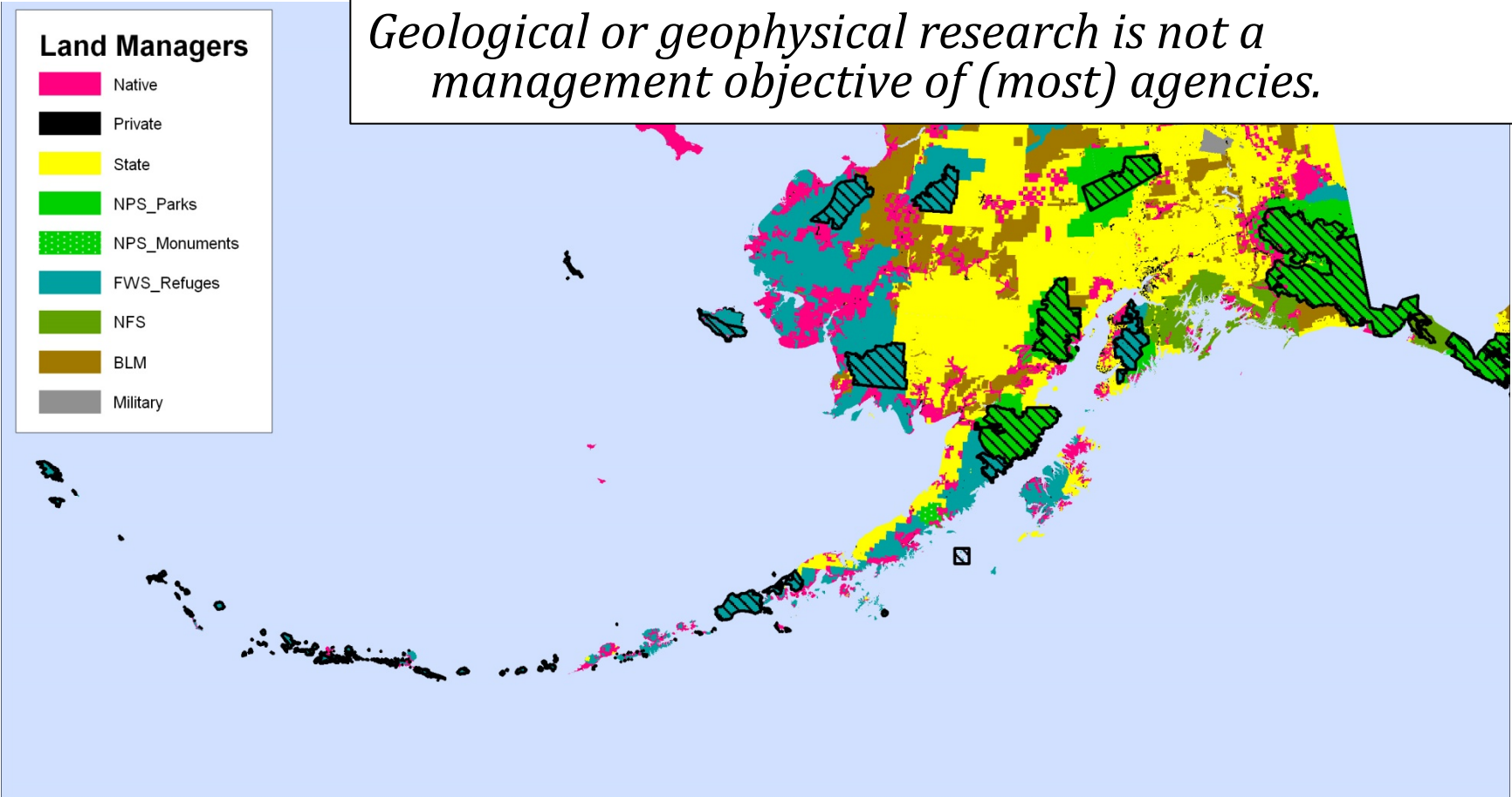


## Land management:

All land managers have management objectives set in law, statute, or corporate policy that shape their response to any request for use of, or access to, the lands they manage.

From our vantage these are non-negotiable.

*Geological or geophysical research is not a management objective of (most) agencies.*





# Geologic Fieldwork -- logistic issues

## Mode of Access

Boat => foot ( $\pm$  remote camp)

maximum field time; isolation

## Helicopter

most efficient access; limited by fuel availability;  
\$5k/day

## Boat + helicopter

best access; highest cost

Road => foot ( $\pm$  remote camp)

few roads – limited access

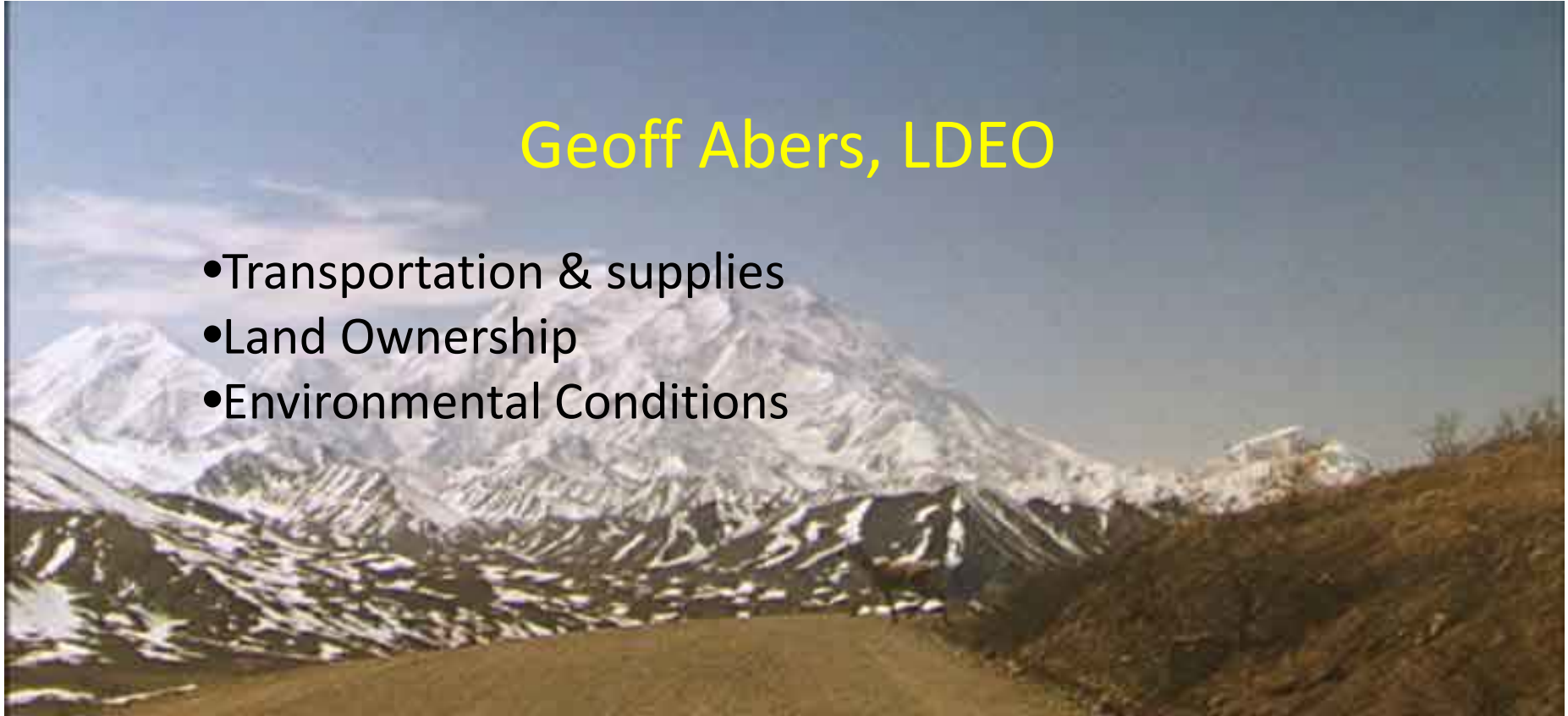


# Some comments about onshore logistics in Alaska

Geoff Abers, LDEO

- Transportation & supplies
- Land Ownership
- Environmental Conditions

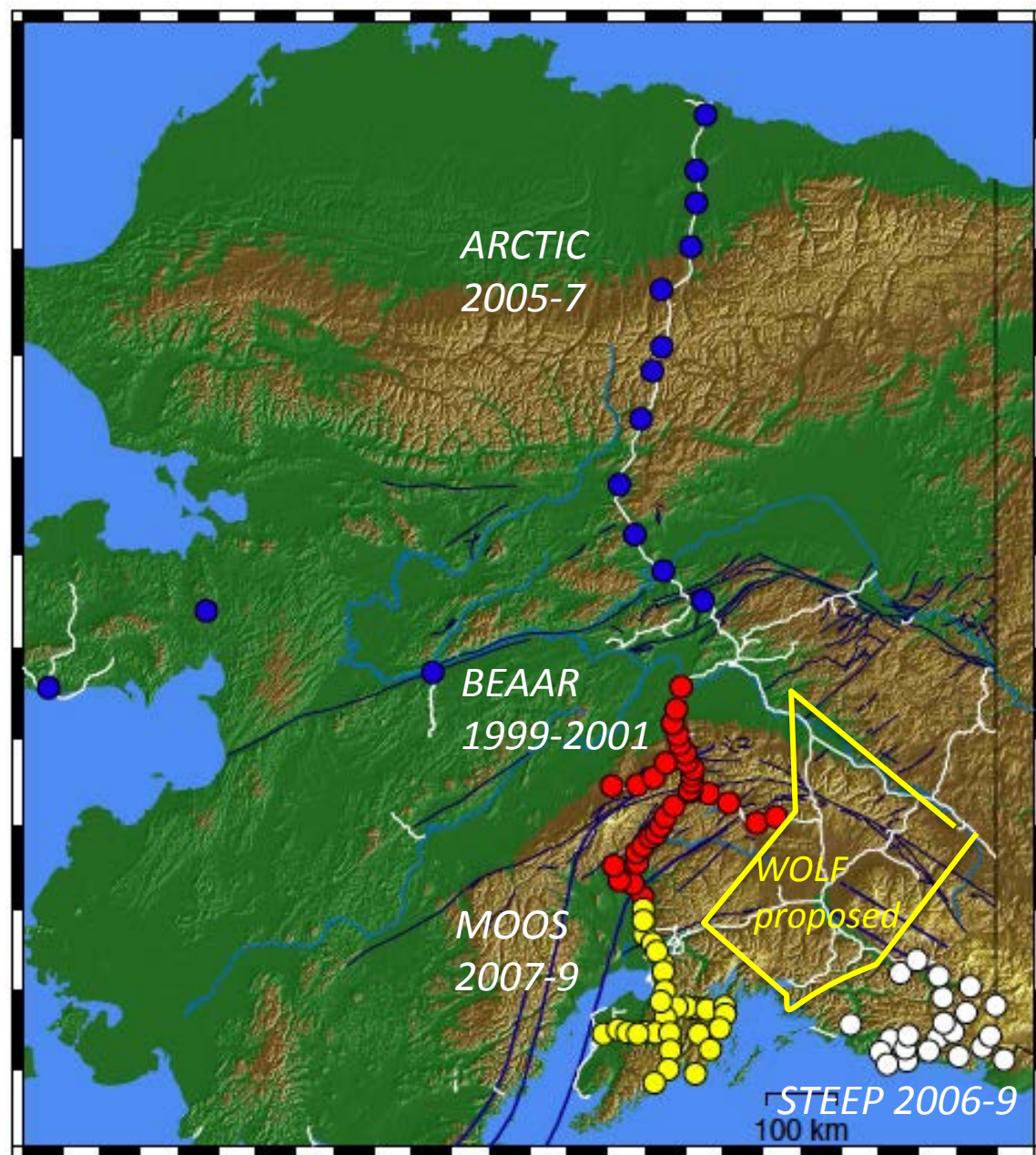
this is a major road





# Broadband seismic experiences 1999-2009

- BEAAR and MOOS: collaborations with D. Christensen, UAF
- *also: Shumagin Seismic net, (1973)1989-1993*
- *Advantages: speak English; “western” business model*
- *Disadvantages: cold, expensive, dark*



White Lines: All the roads!



# Field Transport

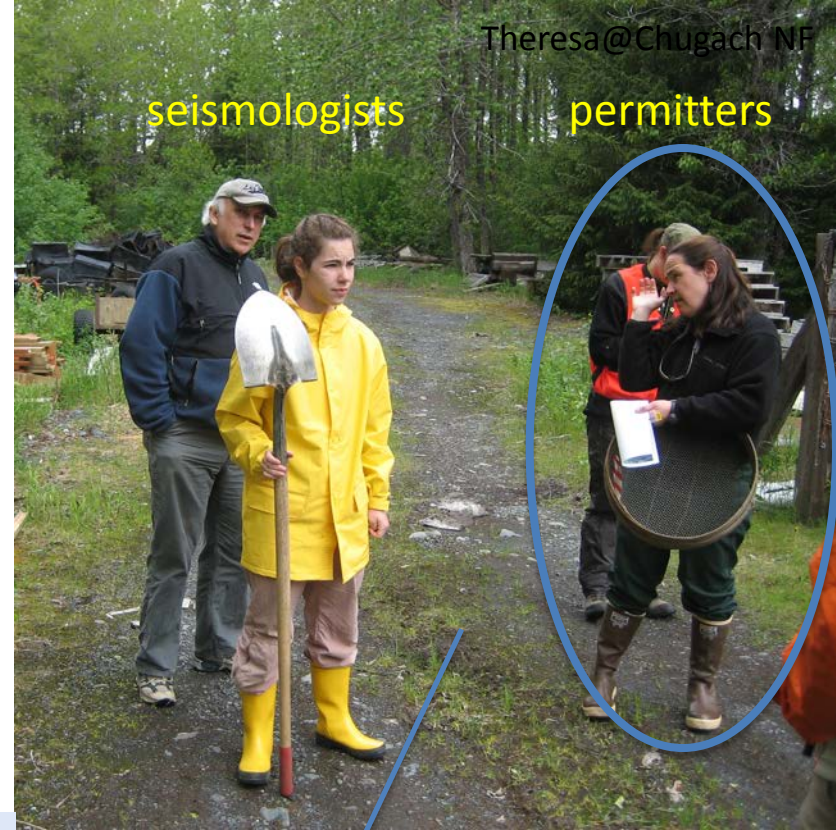
- many roads unpaved:  
bad for rentals
- mostly, no roads:





# Land Use/Ownership

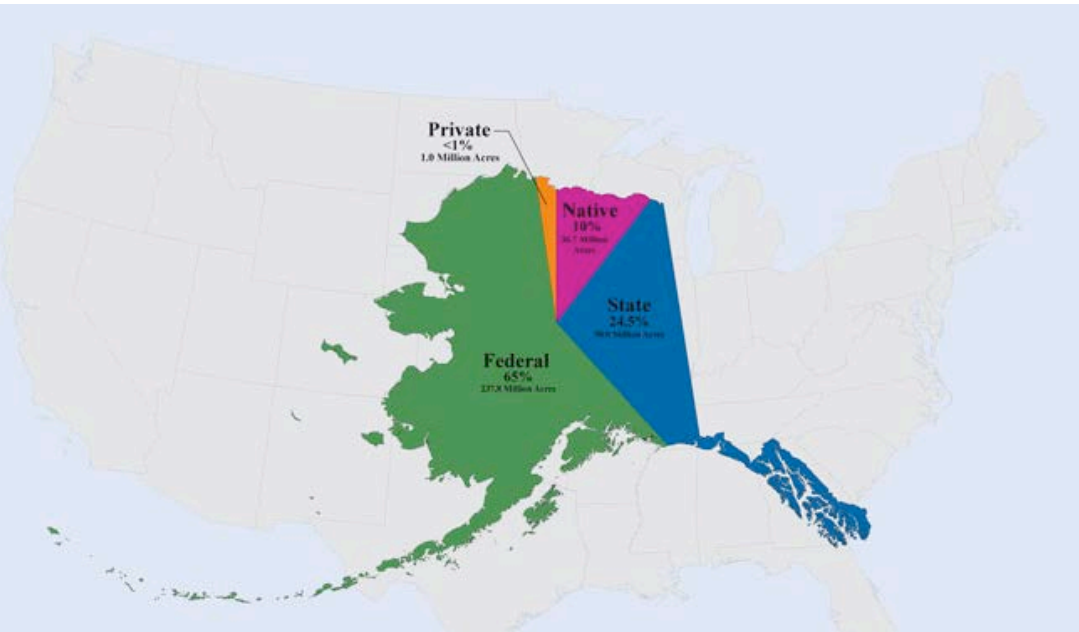
- Private land can be great, but rare
  - & well armed
- County, state, can be approachable
- Native Corporations: variable
- Fed. agcys have wide variety of processes: allow time
  - USFS, BLM, NPS, FWS, etc. etc.



seismologists

permitters

seismologically useless waste dump



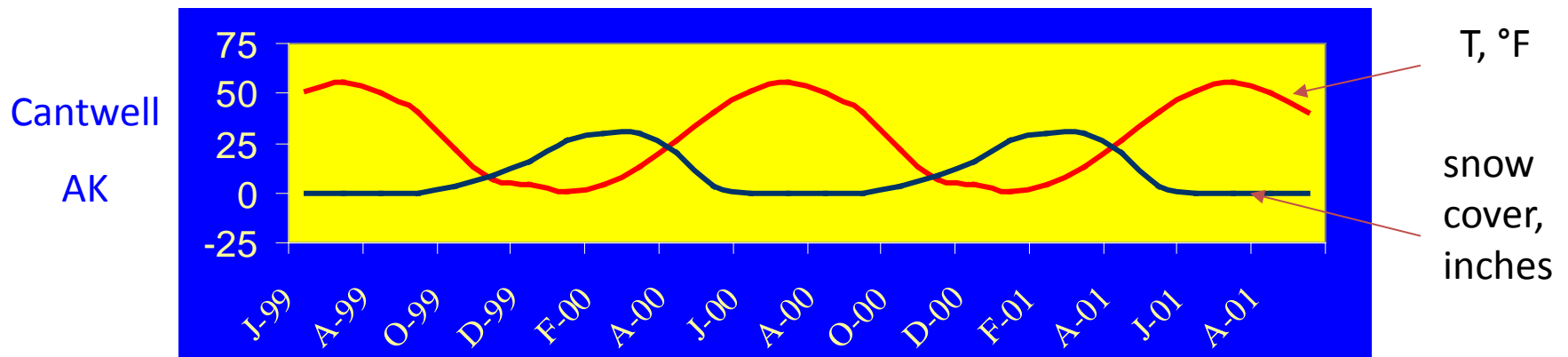


# Environment, sites

Solar Panels?! – Air Cells? wind?



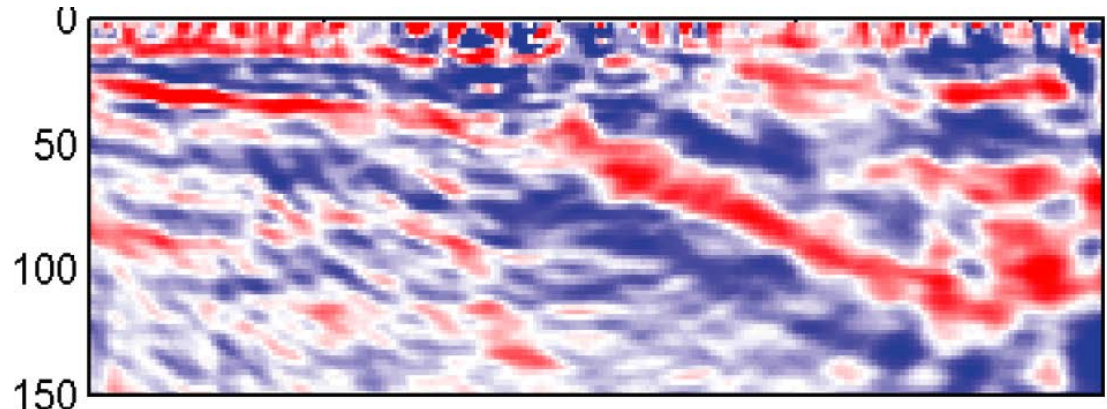
- BEAAR Base camp weather, 1999-2001





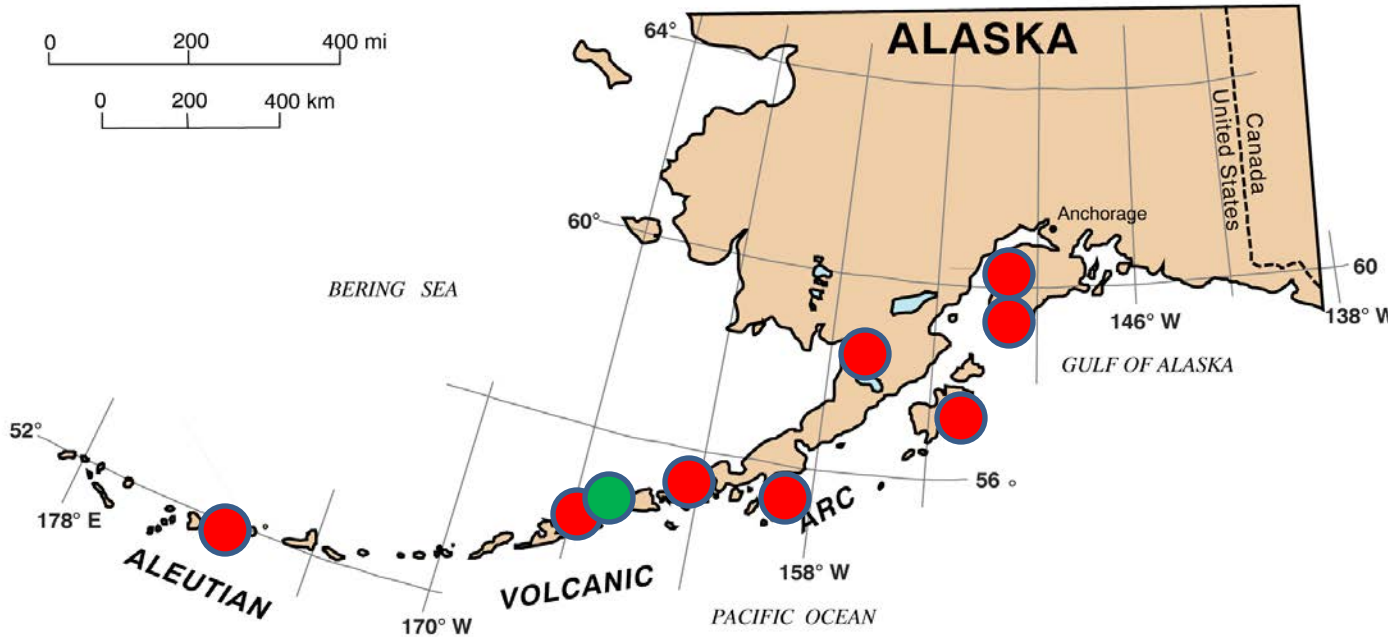
# Some Morals

- Plan ahead
  - permitting
  - making use of short field season
  - booking flights, transport, lodging
- Budgets are high
  - materials, supplies
  - transport (e.g. helicopter\$)
- On the other hand, data quality can be excellent





# Significant Communities



These cities generally have facilities capable of supporting large geophysical field operations (scheduled air service from Anchorage, fuel, food, communications etc).



Unalaska



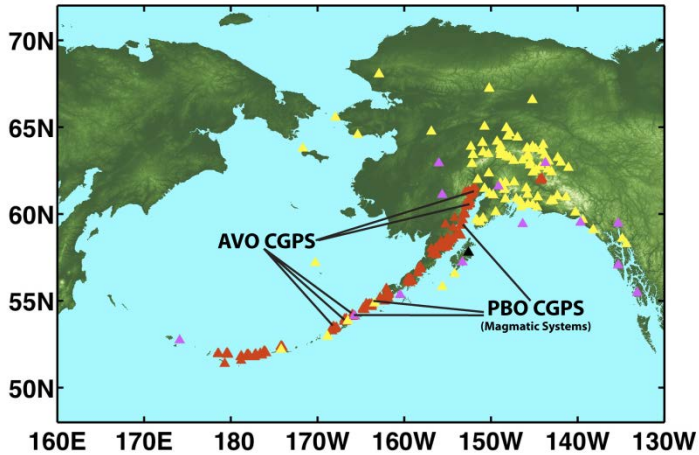
Sand Point





# Alaska Instrumentation

ALASKA SEISMIC STATIONS  
AVO = RED, AEIC = YELLOW, WCATWC = PURPLE, GSN = BLACK



Not shown: webcams, pressure sensors, PBO backbone.

Permanent sites use solar + primary cells, with lots of power storage!

Great Sitkin



Amchitka



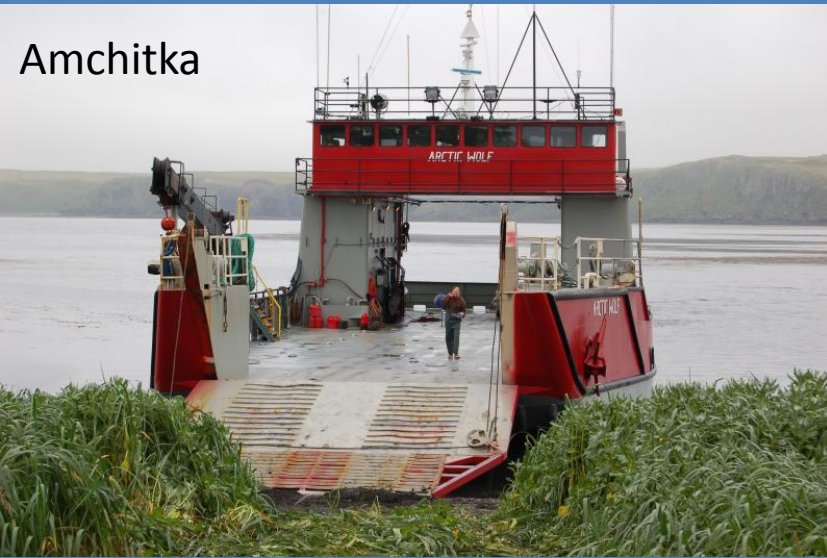
Amchitka





# Aircraft & Boat Logistics

Amchitka



Fish & Wildlife Service Ship, Tiglax, at Kasatochi



Umnak



Akutan





# Field Safety in Remote Areas

- Aircraft
- Communications
- Wilderness Survival
- Bears/Firearms
- GPS Tracking

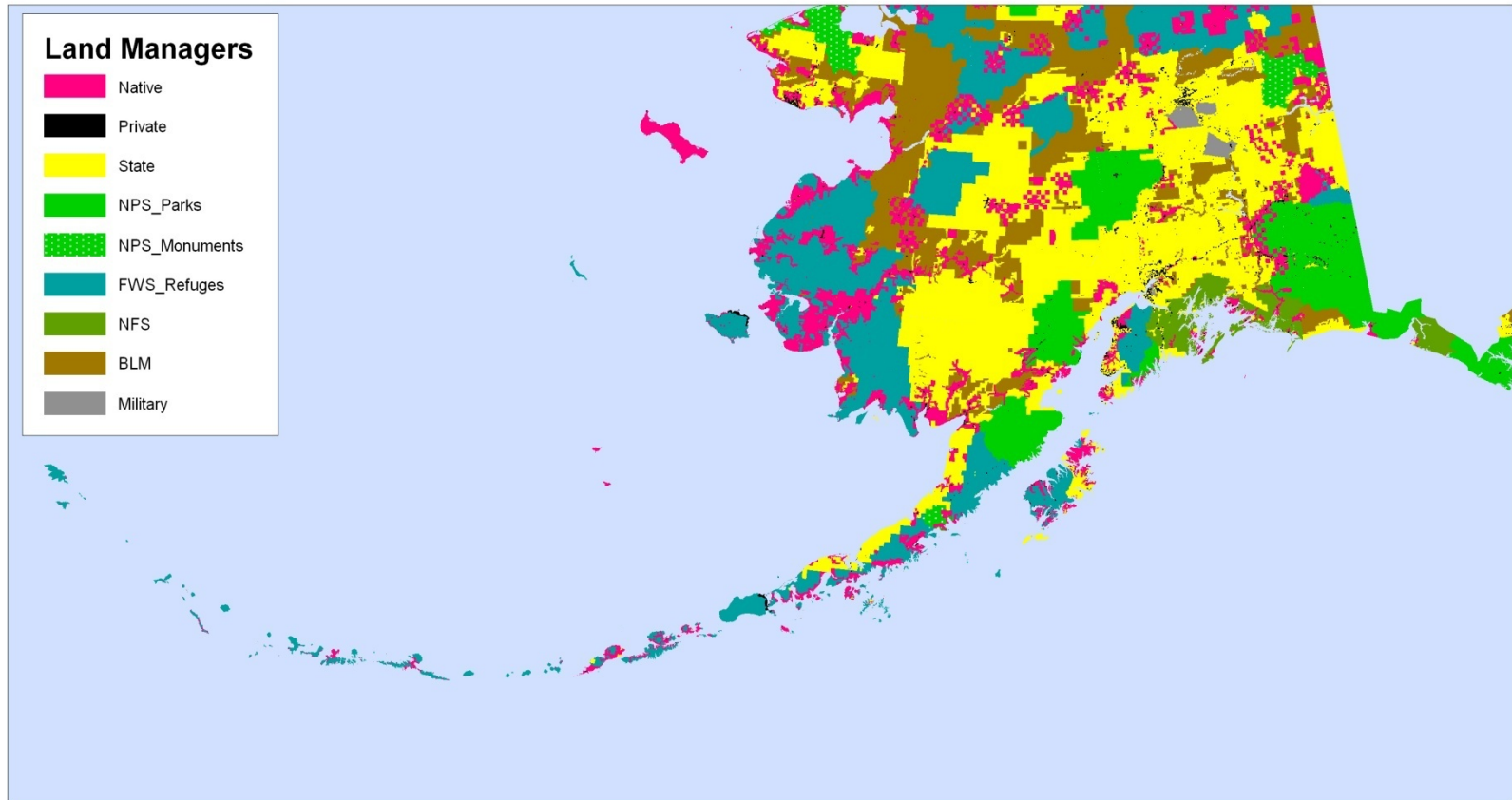


Redoubt Volcano, 2009

All things that should be considered!



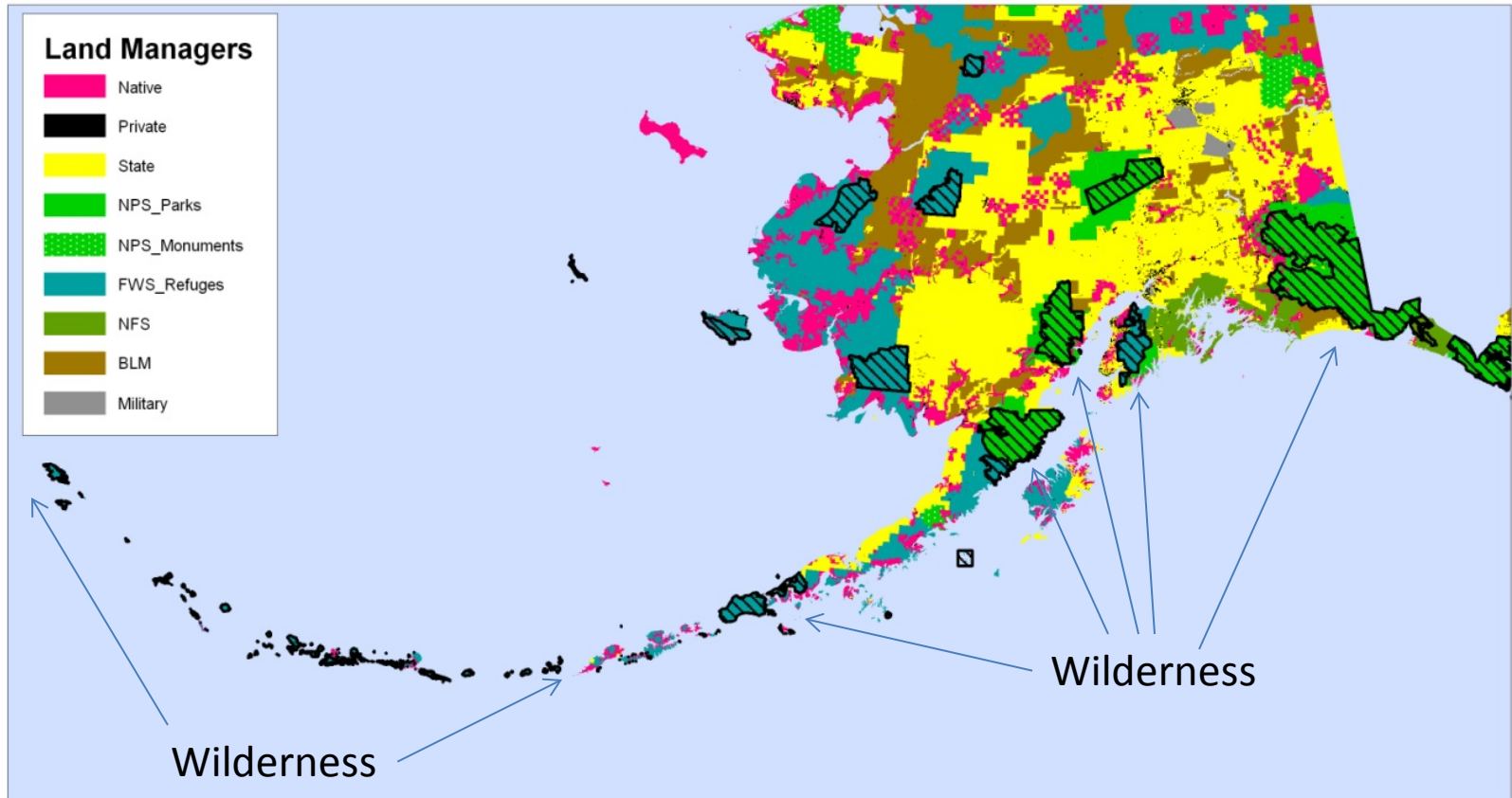
# Alaska Land Management/Ownership



Challenges exist with each land owner/manager and should be considered as far in advance of proposed work as possible.



# Alaska Wilderness



Wilderness lands typically have the greatest restrictions!