

# A Civic Perspective on Sound in Alaska




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To promote perception is the only true creative part of recreational engineering... Recreational development is a job not of building roads into the lovely country, but of building receptivity into the still unlovely human mind.

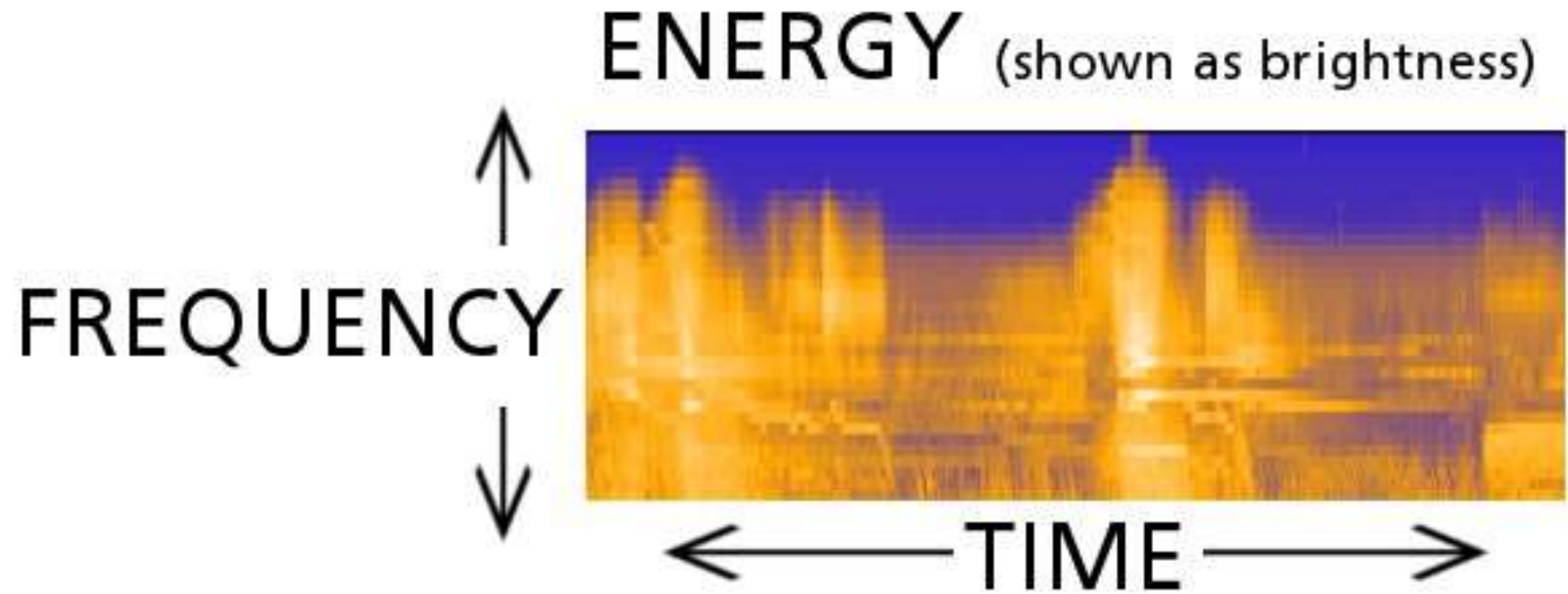
- **Aldo Leopold**, *A Sand County Almanac: Part IV: Conservation Esthetic*, 1948







# The Spectrogram:

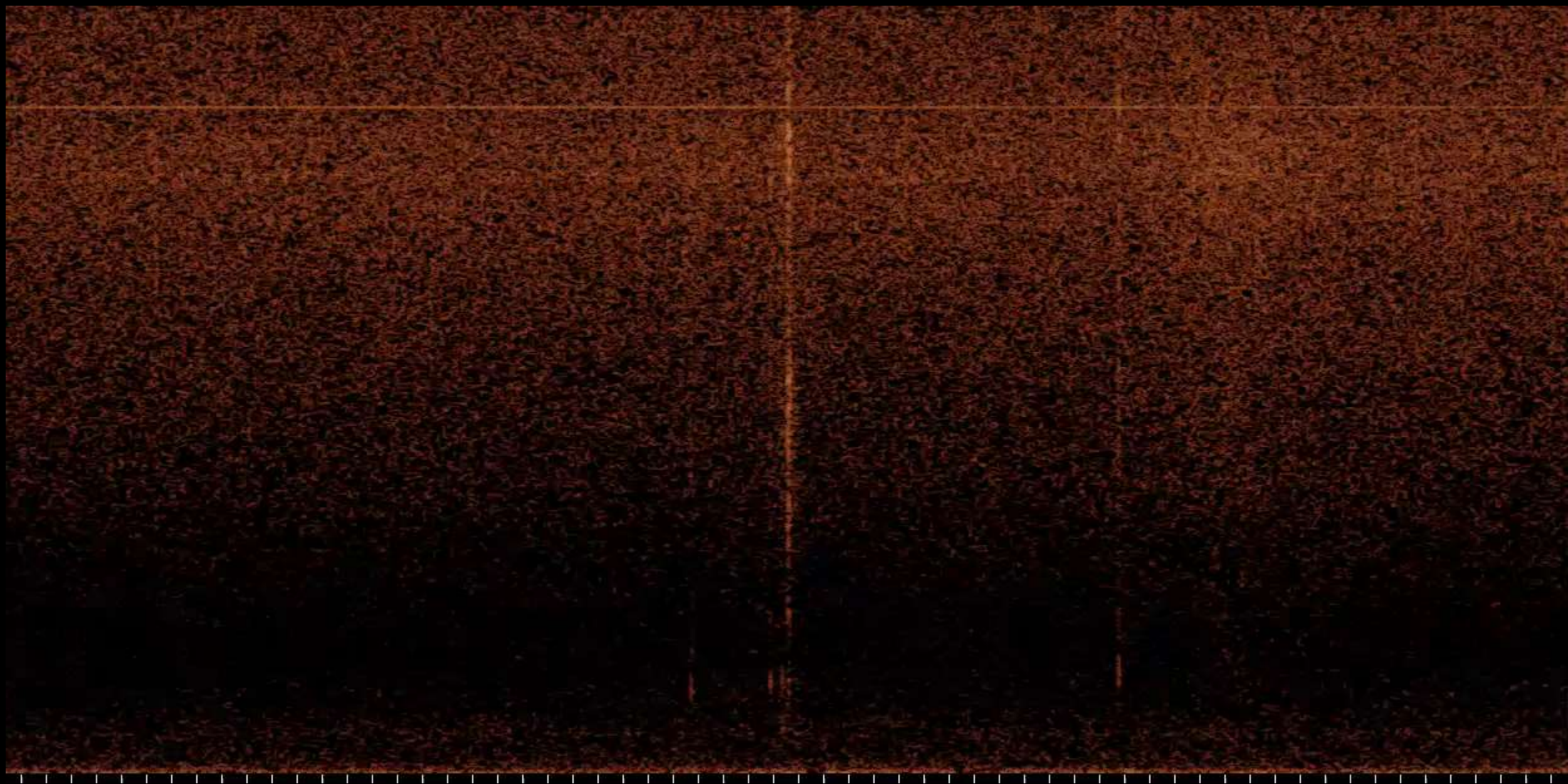










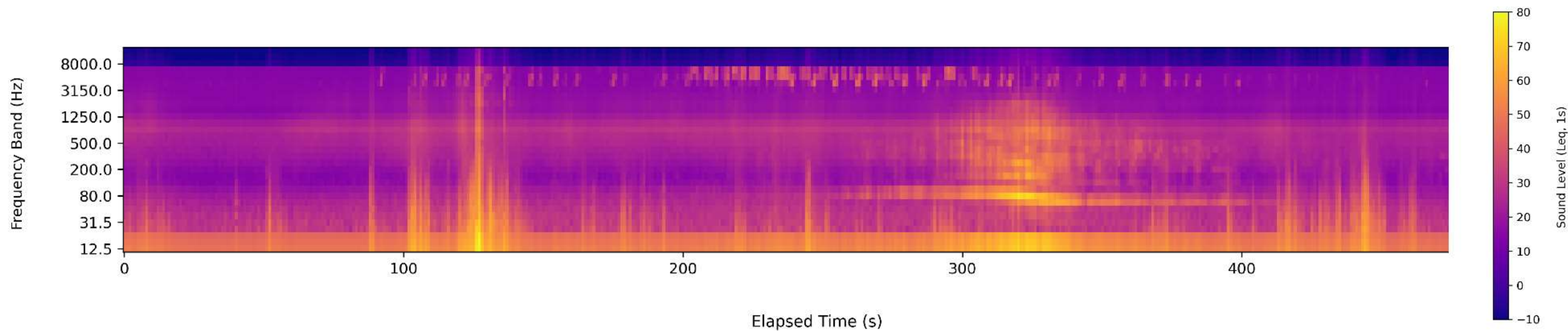






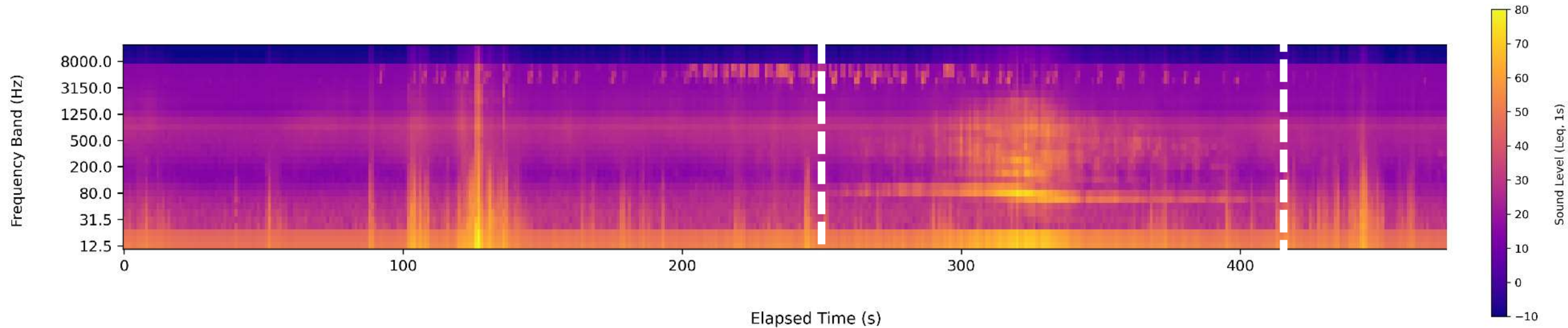


# The Spectrogram:





# The Spectrogram:

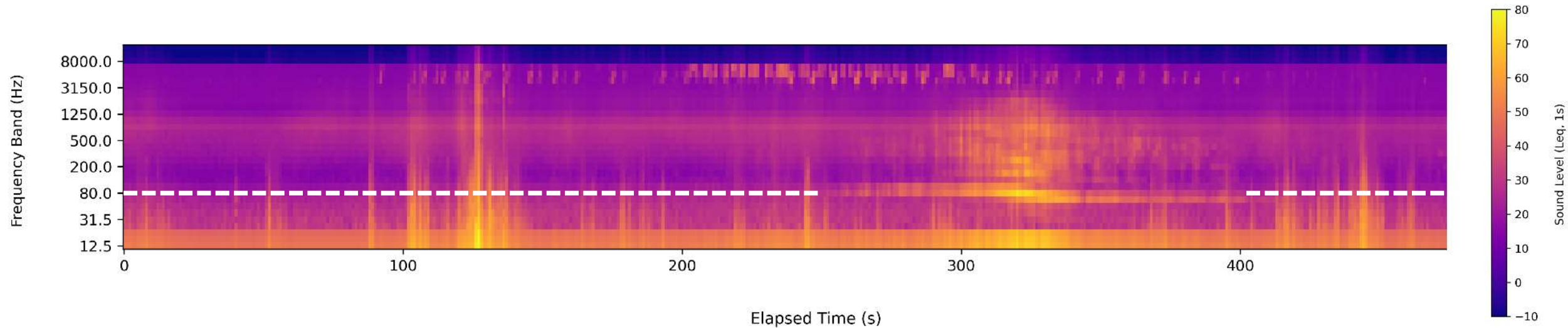


Audible Duration = 155 seconds

Dimensions: (TIME)



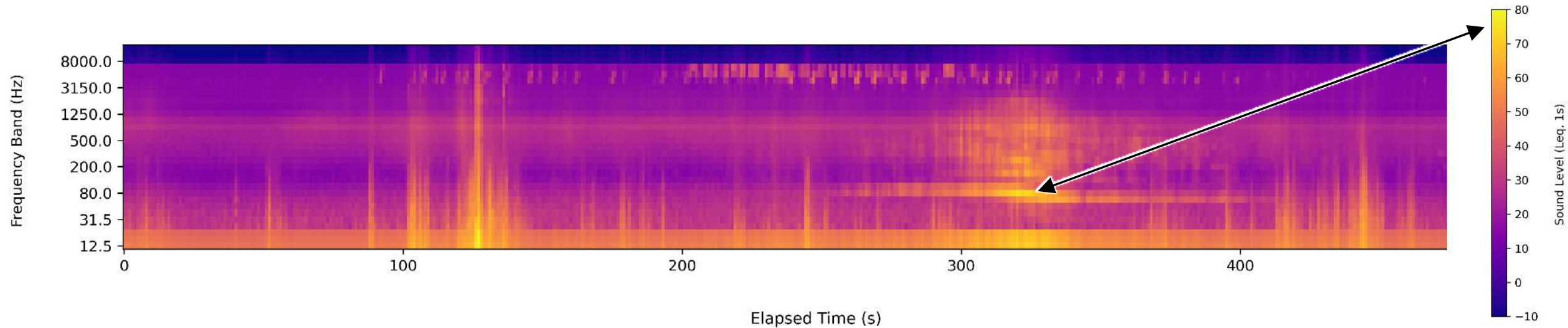
# The Spectrogram:



Propeller Blade Tone  $\approx$  80 Hertz (Hz)

Dimensions: (FREQUENCY)

# The Spectrogram:



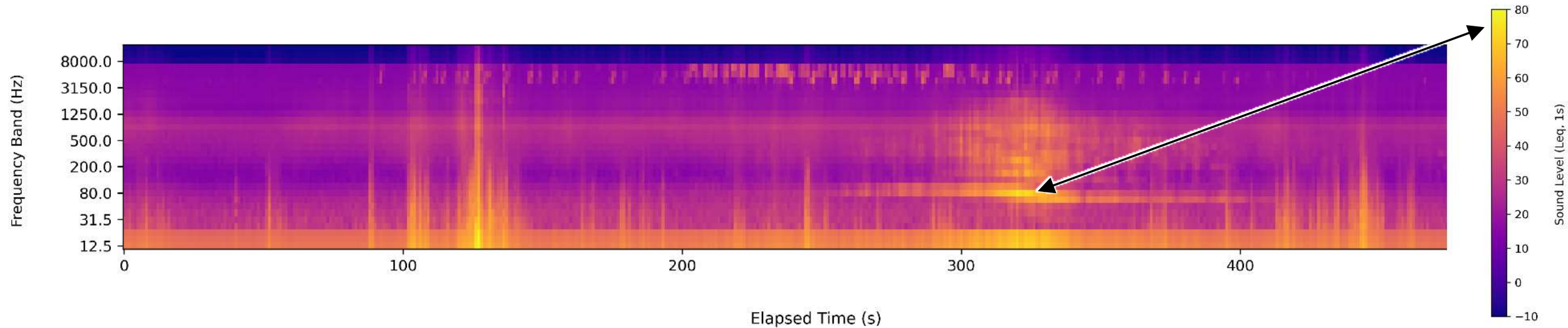
At *maximum*, how energetic was the propeller?

≈ 75 Decibels

Dimensions: (ENERGY)



# The Spectrogram:



TIME

*Over the course of 1 second*, the maximum amount of pressure energy at *80 Hz*  $\approx$  *75 Decibels*

FREQUENCY

Dimensions: (ENERGY)

“Equivalent Sound Level” - an acoustic time average

*$L_{eq}$*



“Equivalent Sound Level” - an acoustic time average

$L_{eq,1s}$

“Equivalent Sound Level” - an acoustic time average

$L_{eq,1s}$  [80 Hz]



“Equivalent Sound Level” - an acoustic time average

$L_{eq,1s}$  [12.5 Hz – 1250 Hz]



Contrast = context





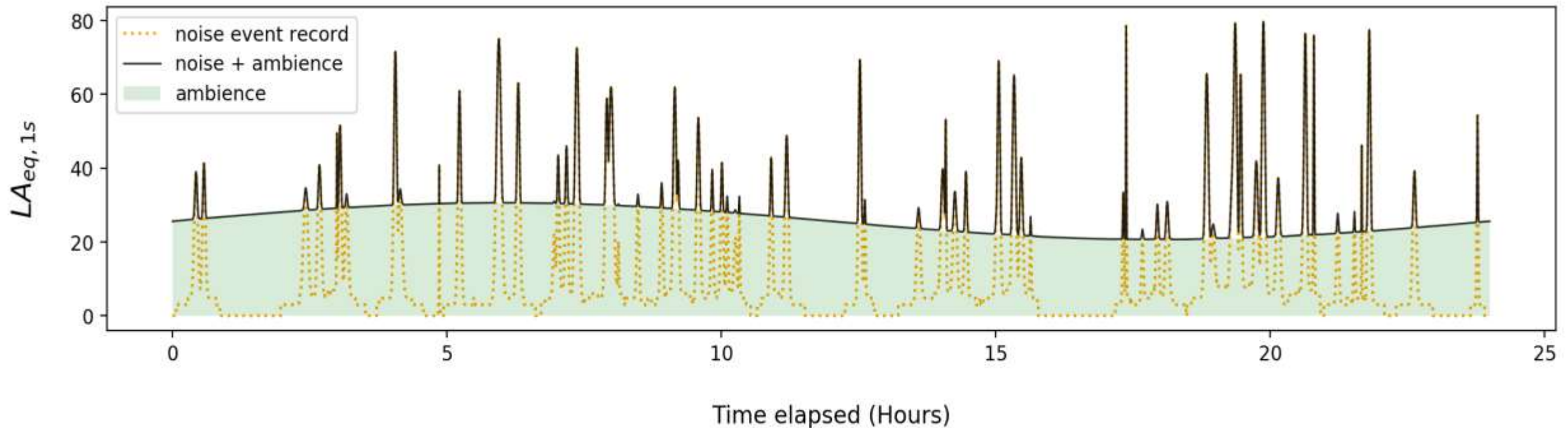
Contrast = context





# Contrast

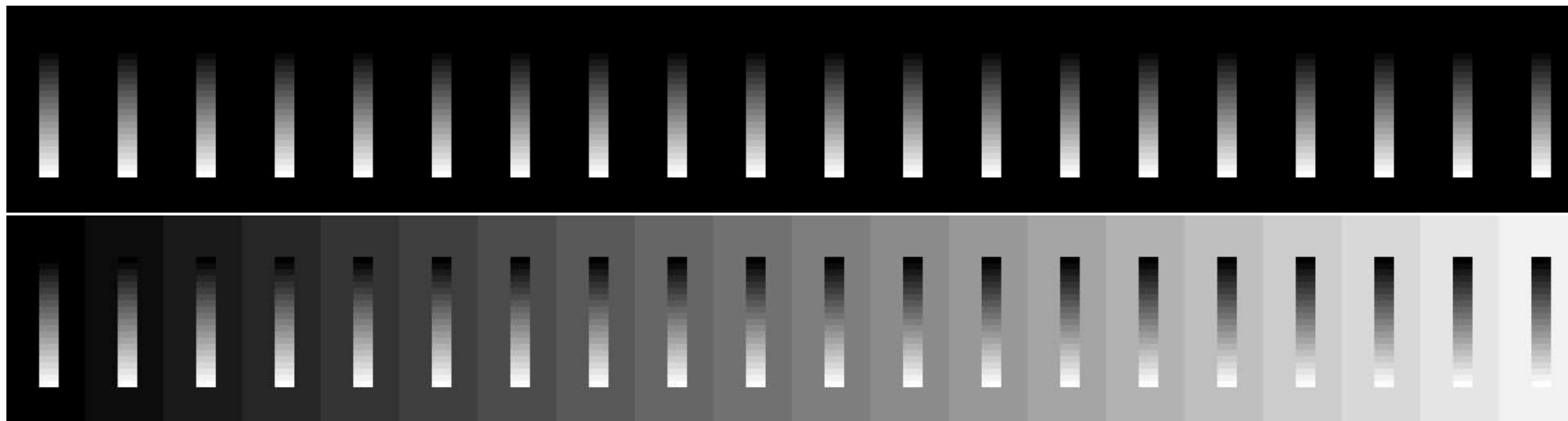
Animals experience sounds embedded **ambience**.





# Contrast

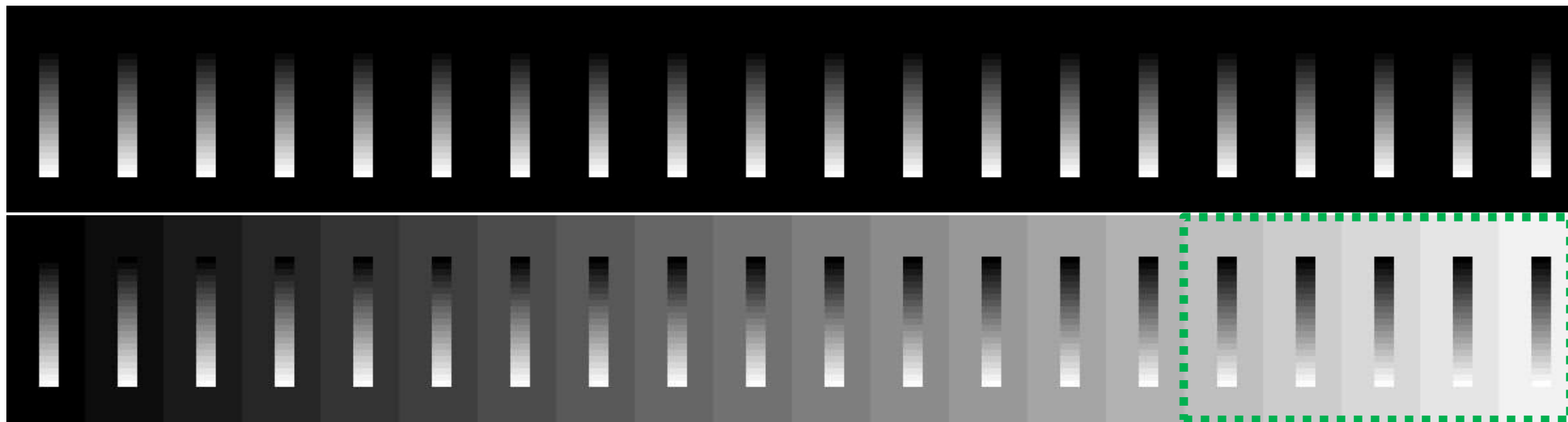
We are familiar with this in the visual realm:



The only difference between the two rows are the background rectangles.

# Contrast

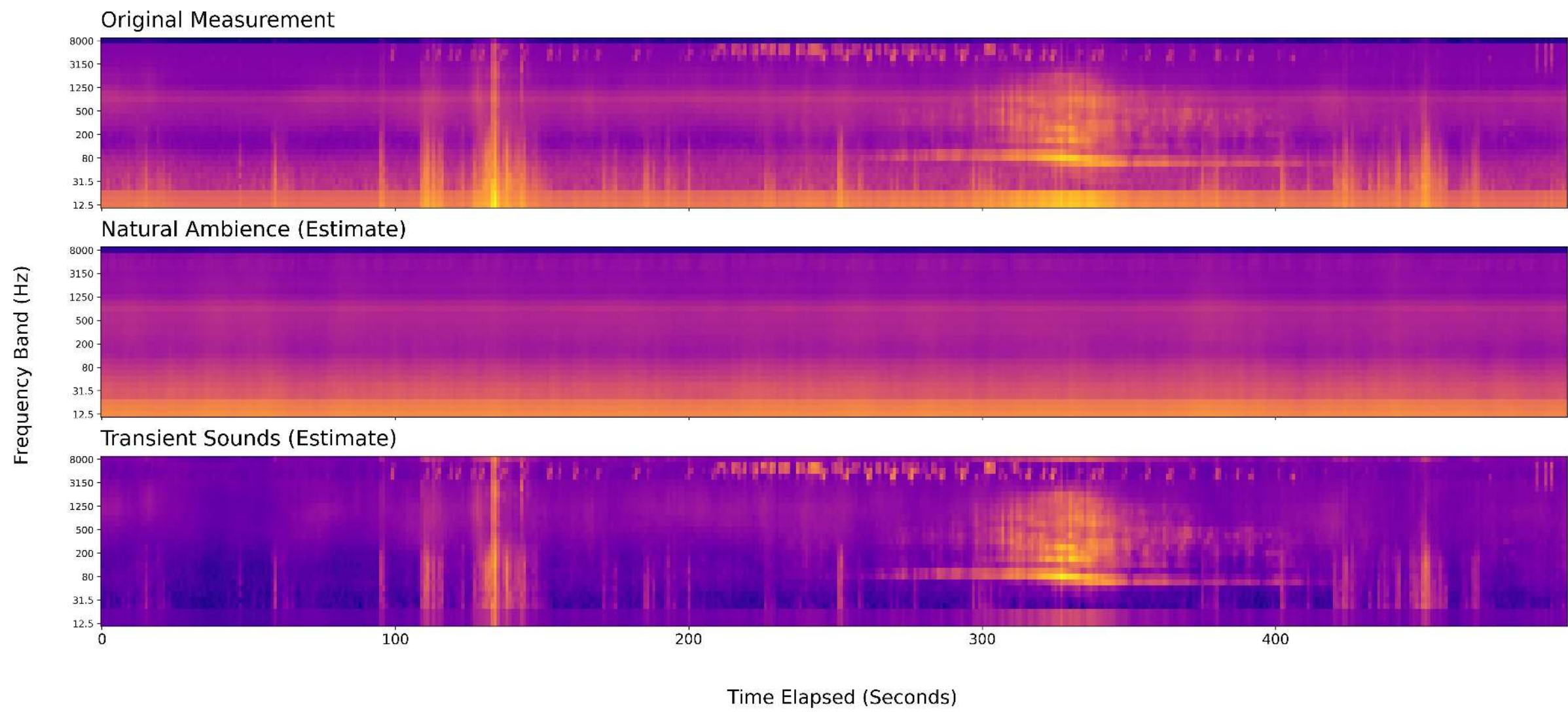
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# Contrast

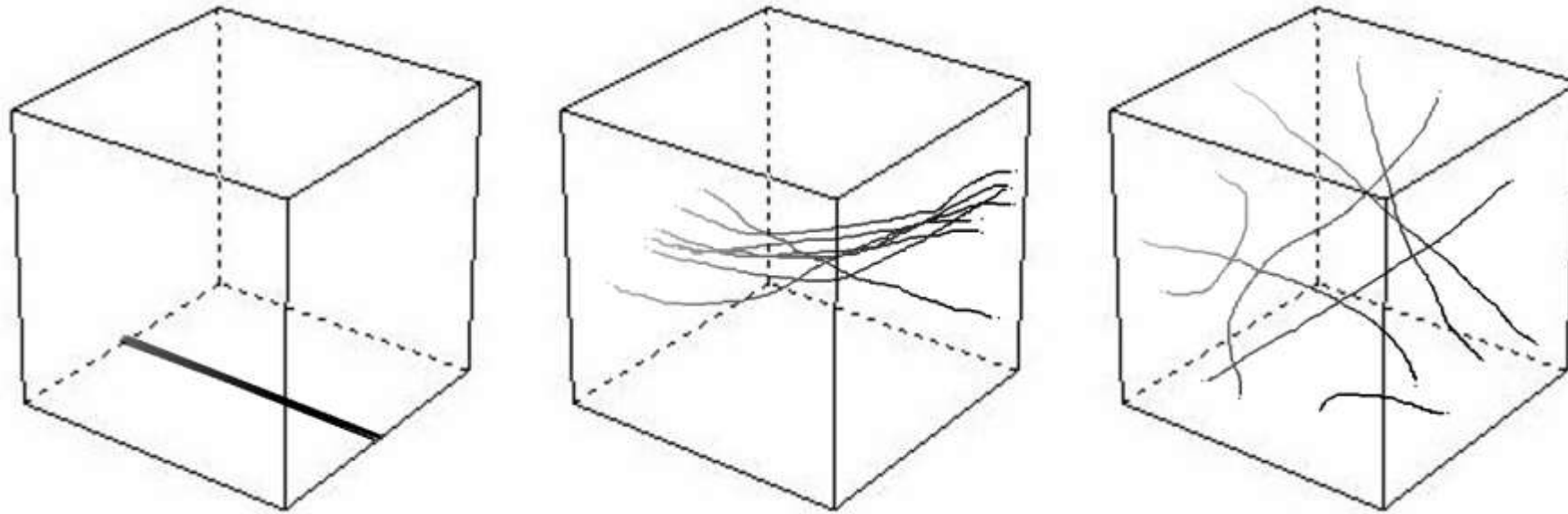




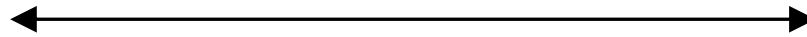




To mitigate noise, we first acknowledge our behavior.  
**Human movement through space has a persistent form.**



**Ordered**



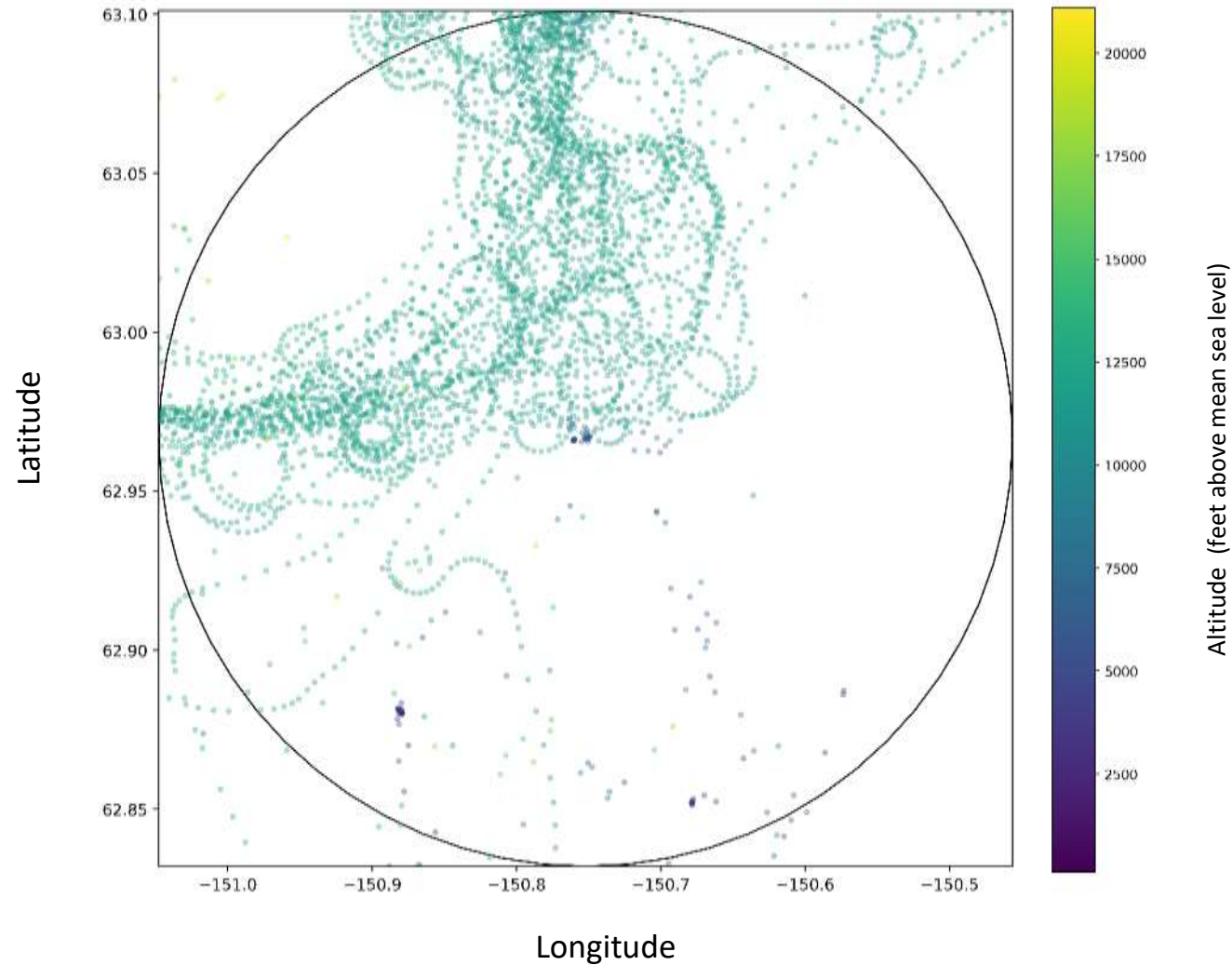
**Disordered**

invariable position  
invariable direction

variable position  
variable direction

highly variable position  
highly variable direction

To mitigate noise, we first acknowledge our behavior.  
Human movement through space has a persistent form.





# Katmai National Park and Preserve and Alagnak Wild River

## Flight Transportation Network

Alaska

National Park Service  
U.S. Department of the Interior



### Transportation Nodes

- Outside NPS boundary
- Within NPS boundary
- Connections (width proportional to traffic rate)
- ▭ Katmai National Park and Preserve and Alagnak Wild River Boundary

0 40 Kilometers  
0 40 Miles

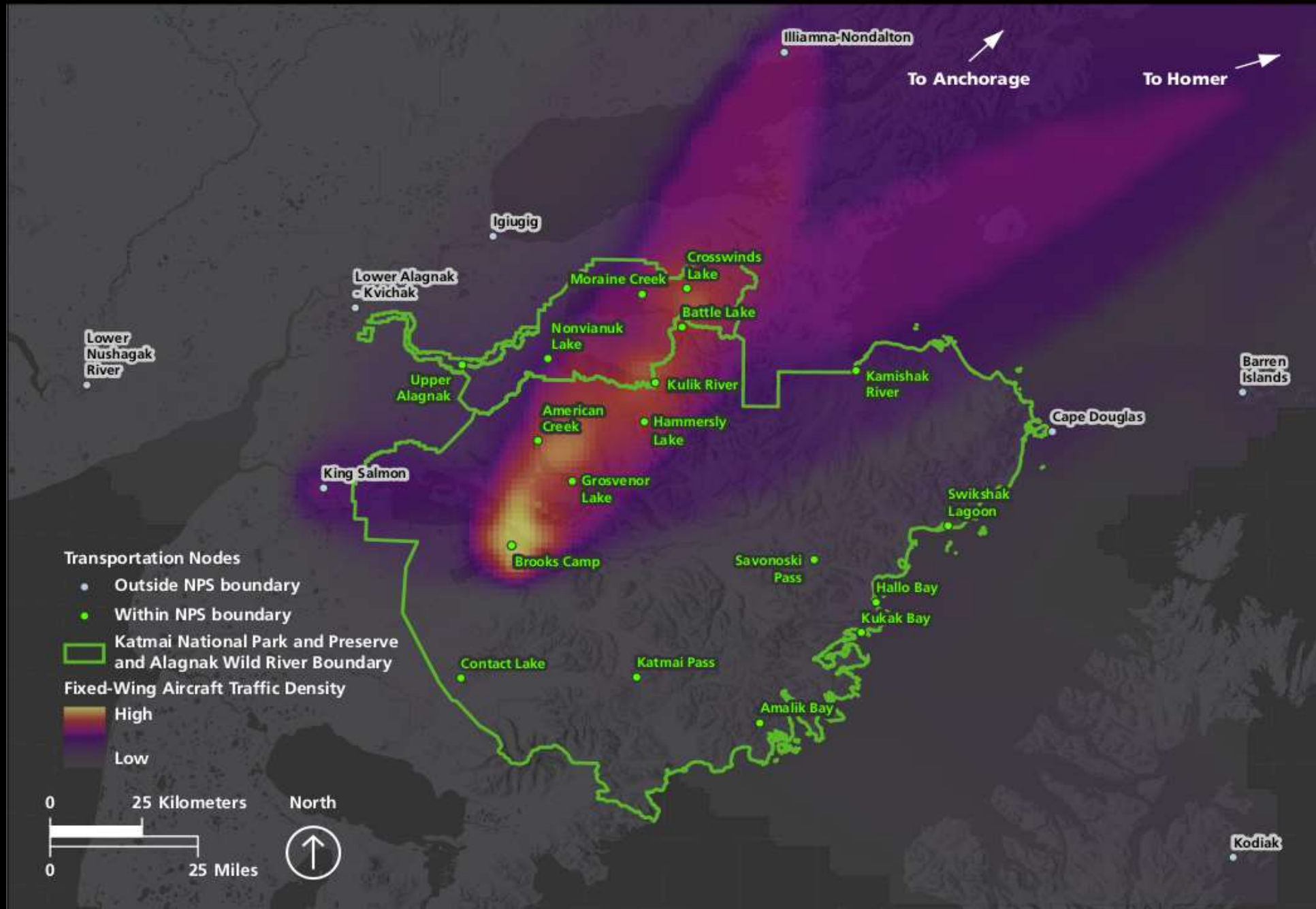


Label	Node Name
AB	Amalik Bay
AC	American Creek
AN	Anchorage
BC	Brooks Camp
BI	Barren Islands
BL	Battle Lake
CD	Cape Douglas
CL	Contact Lake
CR	Crosswinds Lake
GL	Grosvenor Lake
HB	Hallo Bay
HL	Hammersly Lake
HO	Homer
IG	Igiugig
IN	Illiamna-Nondalton
KB	Kukak Bay
KO	Kodiak
KP	Katmai Pass
KR	Kamishak River
KS	King Salmon
KU	Kulik River
LA	Lower Alagnak - Kvichak
LN	Lower Nushagak River
MC	Moraine Creek
NL	Nonvianuk Lake
SL	Swikshak Lagoon
SP	Savonoski Pass
UA	Upper Alagnak

# Fixed-Wing Aircraft Traffic Density

Katmai National Park and Preserve and Alagnak Wild River

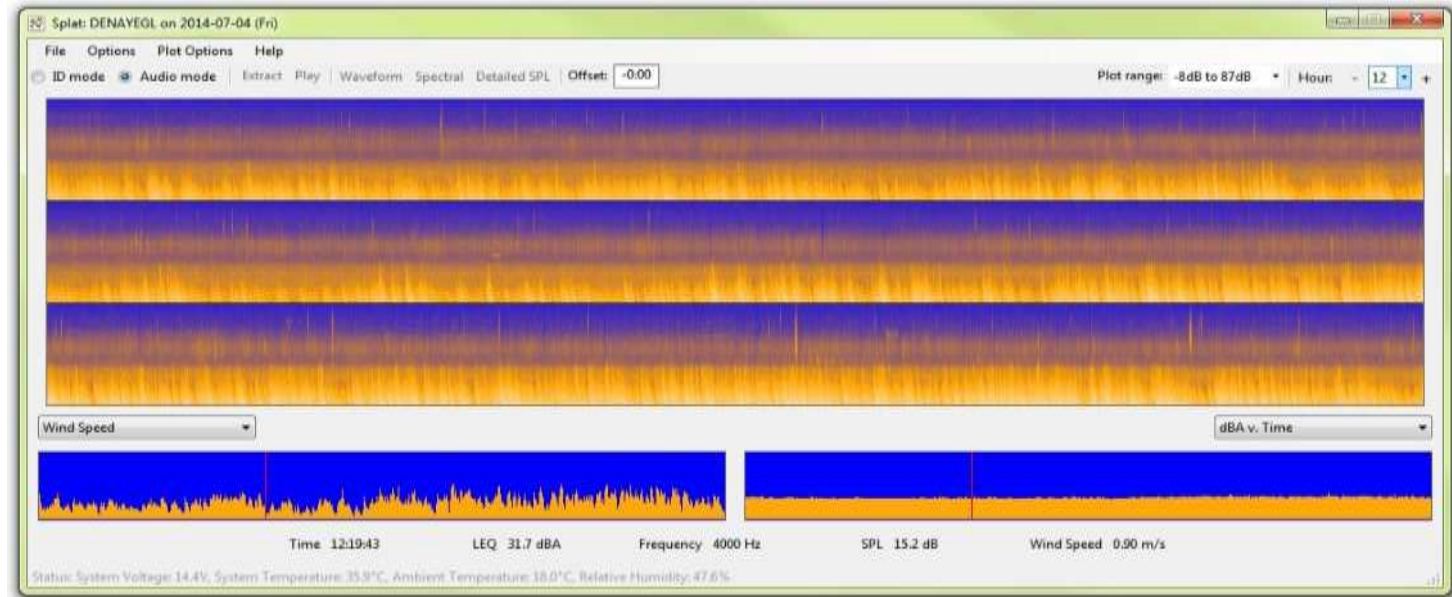
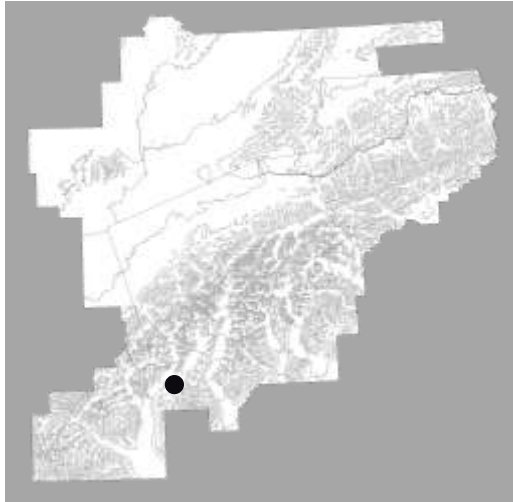
National Park Service  
U.S. Department of the Interior



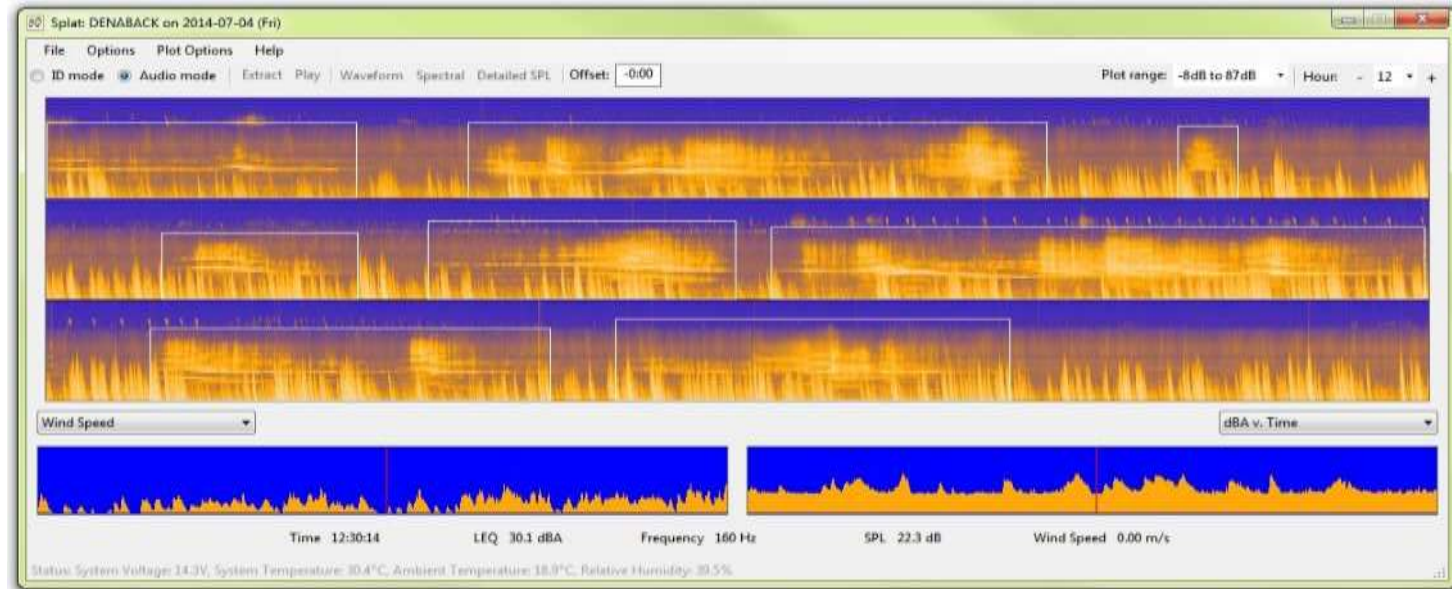
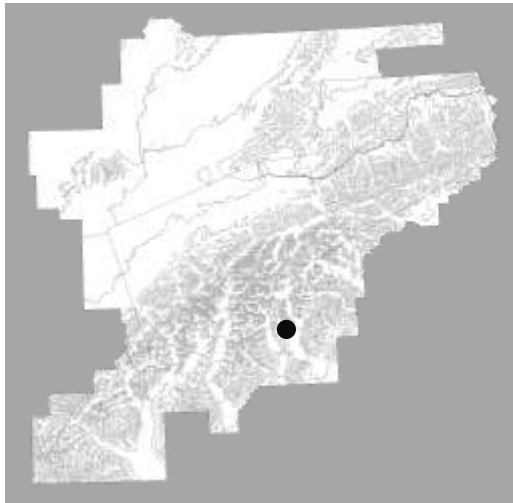


# Same Year, Same Day, Same Hour – Two *Very* Different Human Footprints

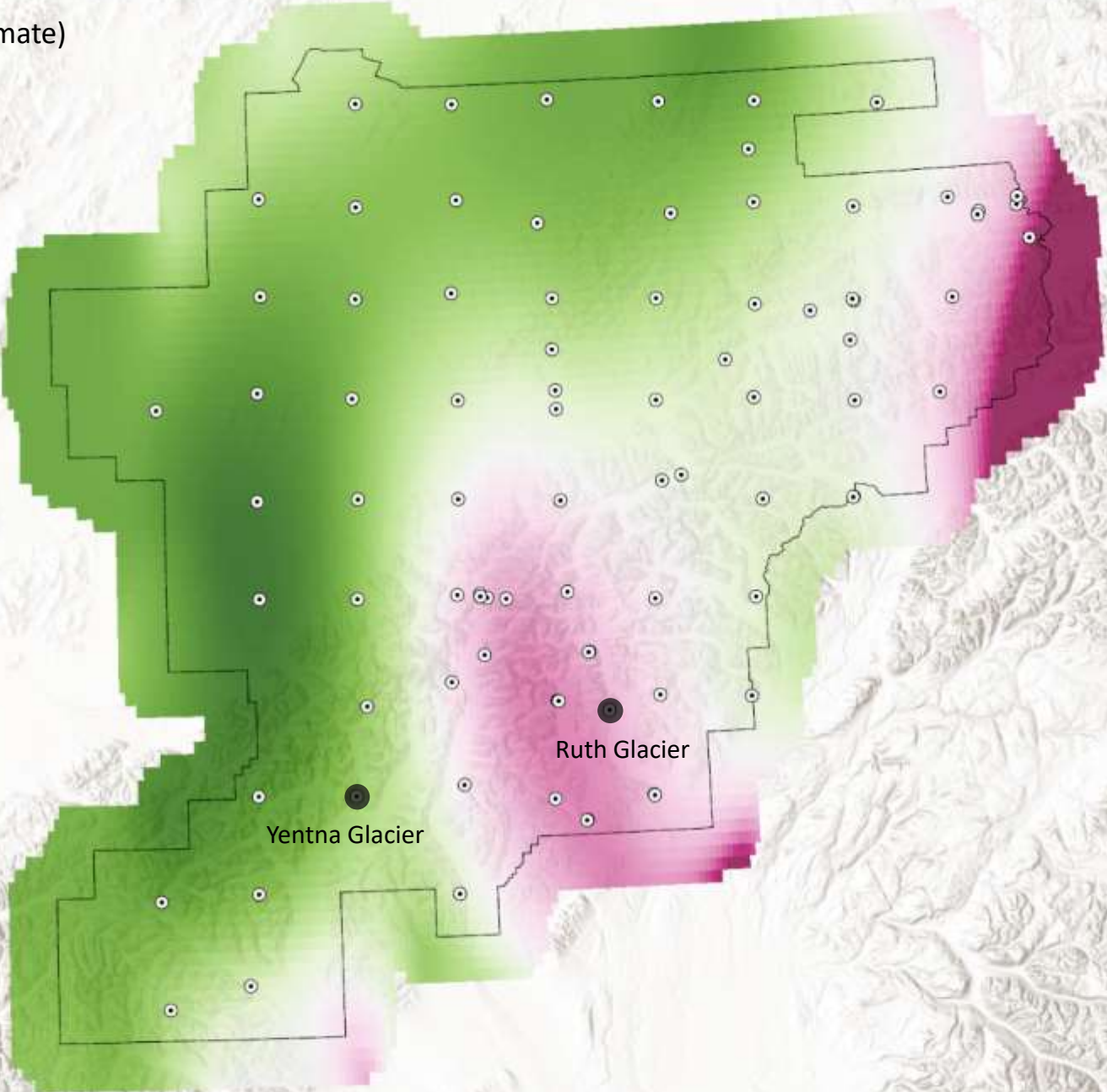
Yentna Glacier



Ruth Glacier

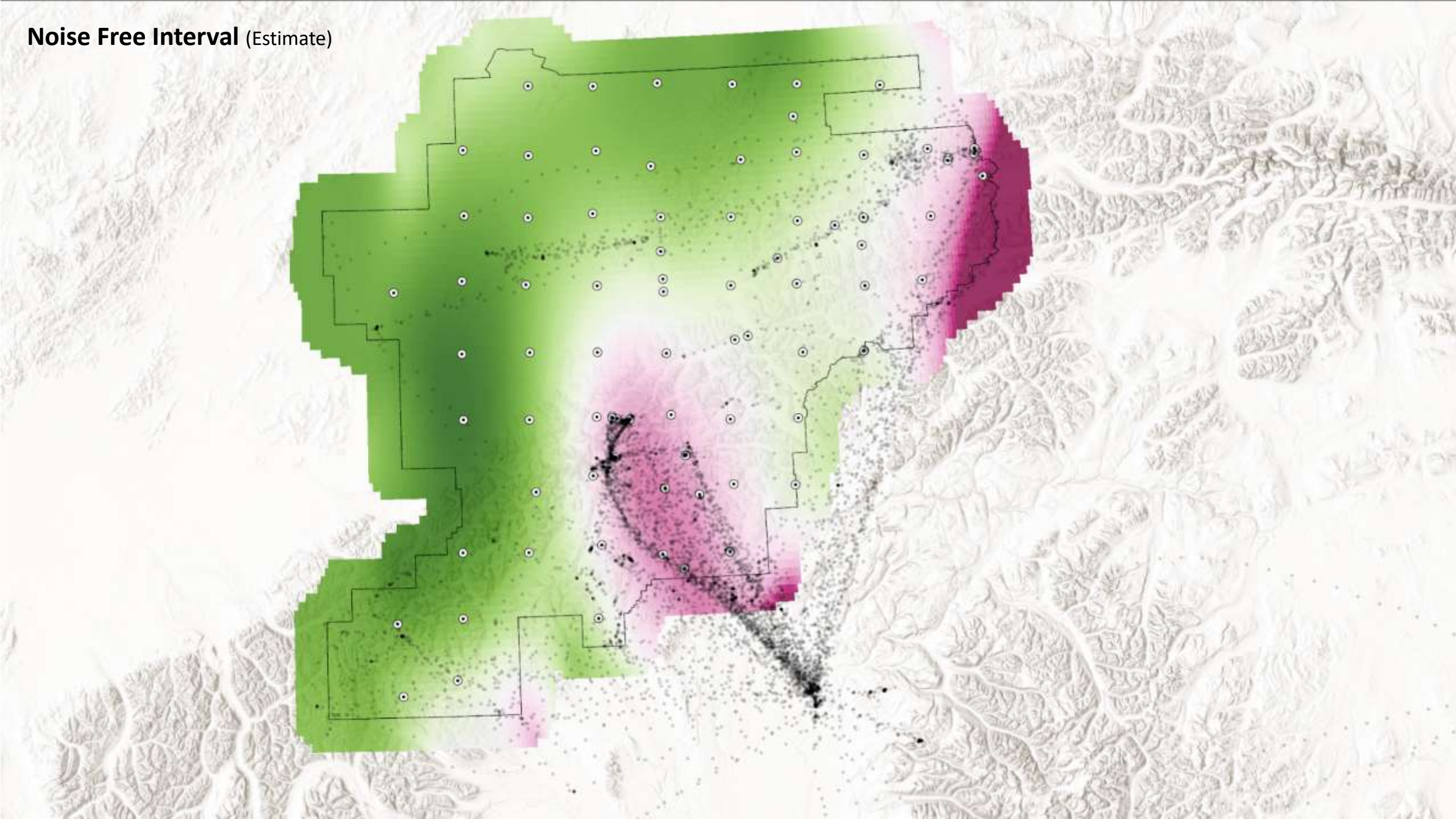


Noise Free Interval (Estimate)



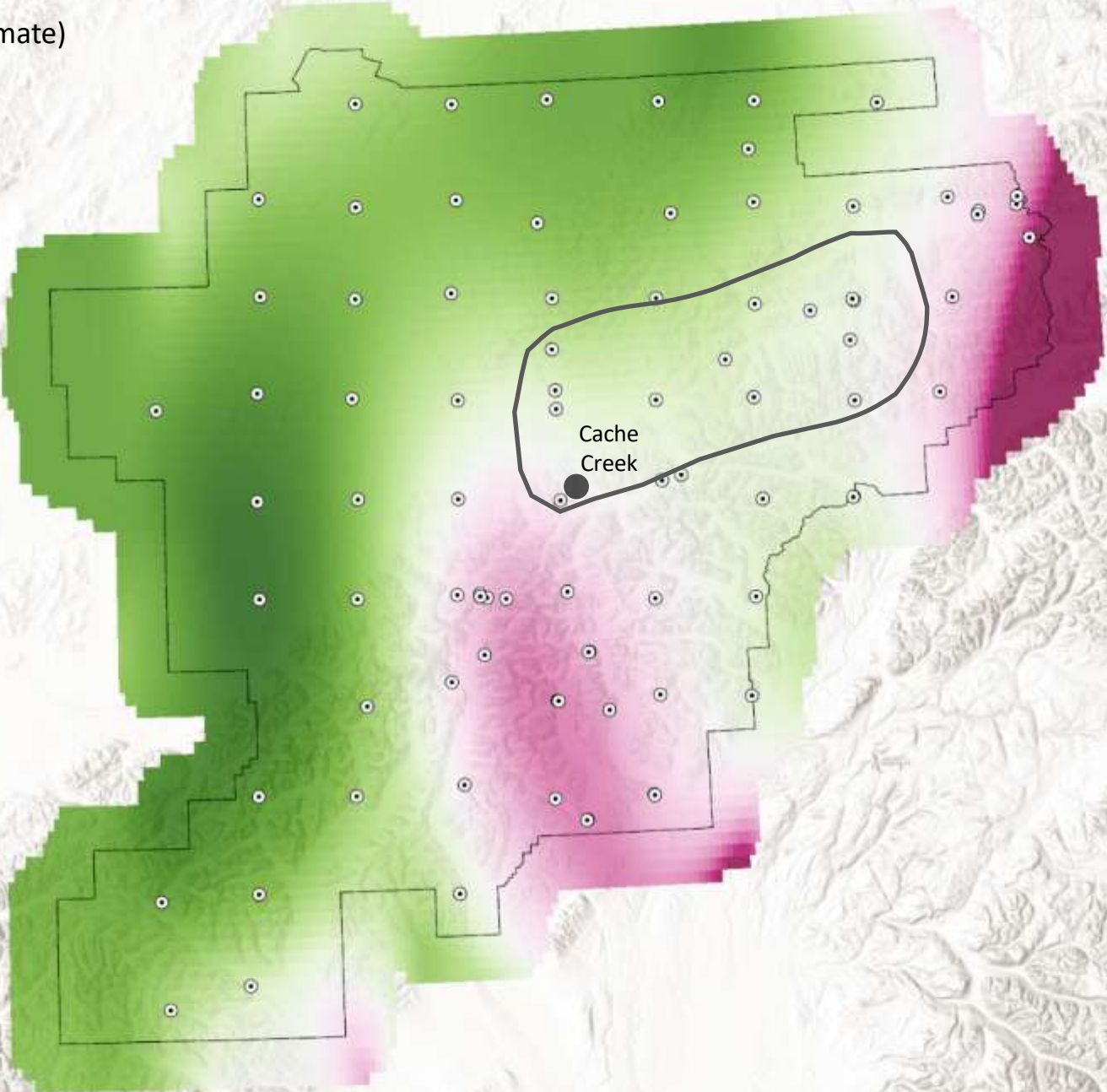


Noise Free Interval (Estimate)





Noise Free Interval (Estimate)



Cache  
Creek



The soundscape is simultaneously a physical environment and a way of perceiving that environment; it is both a world and a culture constructed to make sense of that world.

- Emily Thompson, *The Soundscape of Modernity*, 2002



