Comparing the Arctic and SE Florida

- The infrastructure perspective.
Alaska: The Land of Remote Infrastructure
Storm surges and coastal erosion represent clear challenges.
Sharply rising spring temperatures can cause damaging ice jam floods in interior rivers.
Adding to the challenge are the floods we don’t quite understand.
Water and sewer in rural AK are a challenge...with or without climate change
We See The Sea Rising Seasonally
Flooding Can Be Predicted

City indicated flooding map
Source: City of Miami Beach
Broward/Miami Dade County at 0, 1, 2, 3 ft SLR
Roadways at Risk

Current Base Condition for Low lying Roads

Future Condition for Low lying Roads

Base saturation = Failure
Asphalt
Base
Subbase
Drainage

Water
Sewer
Stormwater

Roadway Elevation 8-10 ft

Power?

Under Roads

El = - 1 ft

Buildings
Permafrost:

“Permanently” frozen soils

Photos by E. Stephani
Constructing infrastructure on permafrost can cause severe thaw.
Permafrost Thaw:

Transitioning from frozen to unfrozen soils can lead to undesirable outcomes...

Cherskiy, Russia, Photo by V. Romanovsky
…but we can design for that.
It is the unknown impacts that presents the greatest design challenges:

→ Ground subsidence (sea level “rise”!)
→ Increased drainage (less water stored on landscape)
We can design it…

- But what is the holistic vision?
Questions?