Rock Adventures with Dan

Everett Rock and Gem Club

1/16/24

https://geometricgeology.com/

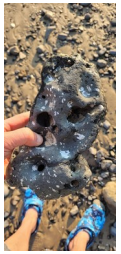
Rock Adventures with Dan

I like rocks and geology

I like trail running, mountain biking and hiking

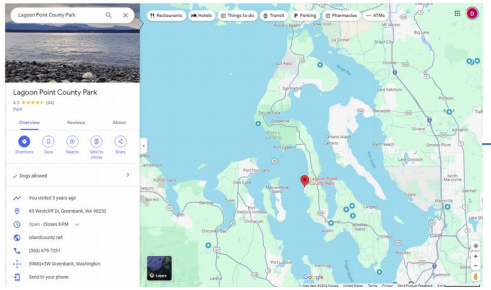








Google maps



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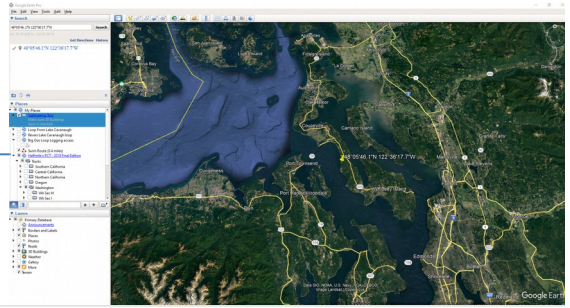
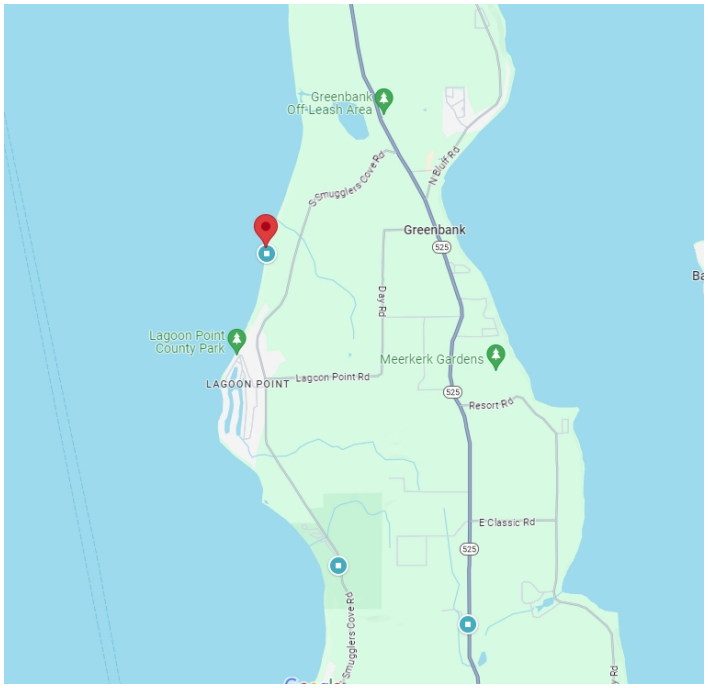
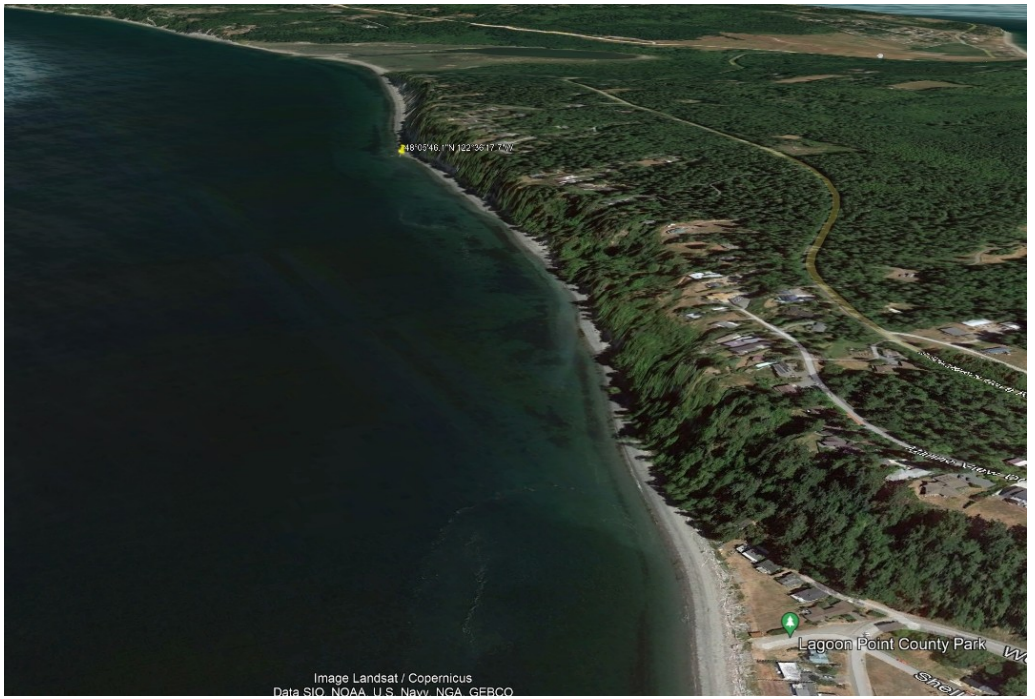


Lagoon Point County Park

Greenbank WA

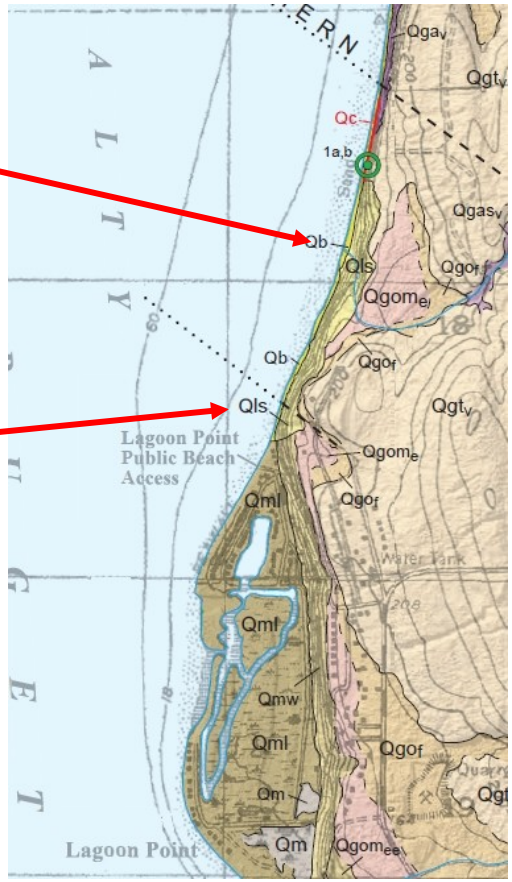




Lagoon Point County Park

Greenbank WA

- Glacial deposits
- Qb
- Beach deposits—Sand and cobbles; may include boulders, silt, pebbles, and clay; pebbles and larger clasts typically well rounded and oblate; mostly well sorted; loose; derived from shore bluffs and underlying deposits and (or) carried in by longshore drift.
- Qls
- Gravel, sand, silt, clay, and boulders in slide body and toe, and exposure of underlying units in scarp areas; angular to rounded clasts; unsorted; generally loose, unstratified, broken, and chaotic, but may locally retain primary bedding; commonly includes liquefaction features.

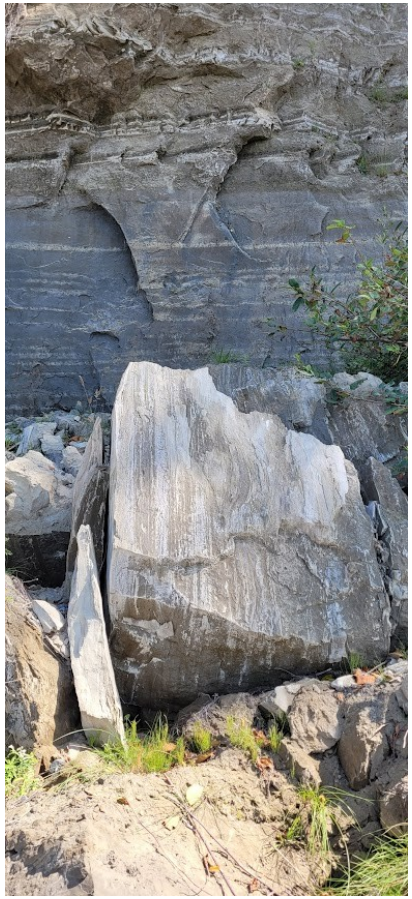


https://www.dnr.wa.gov/publications/ger_gm64_geol_map_freeland_hansville_24k.pdf

Lagoon Point County Park

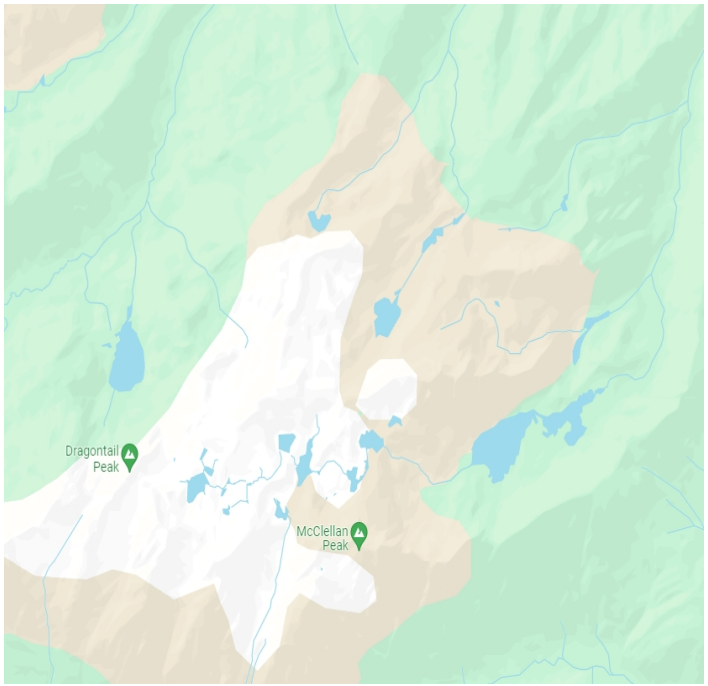
Greenbank WA



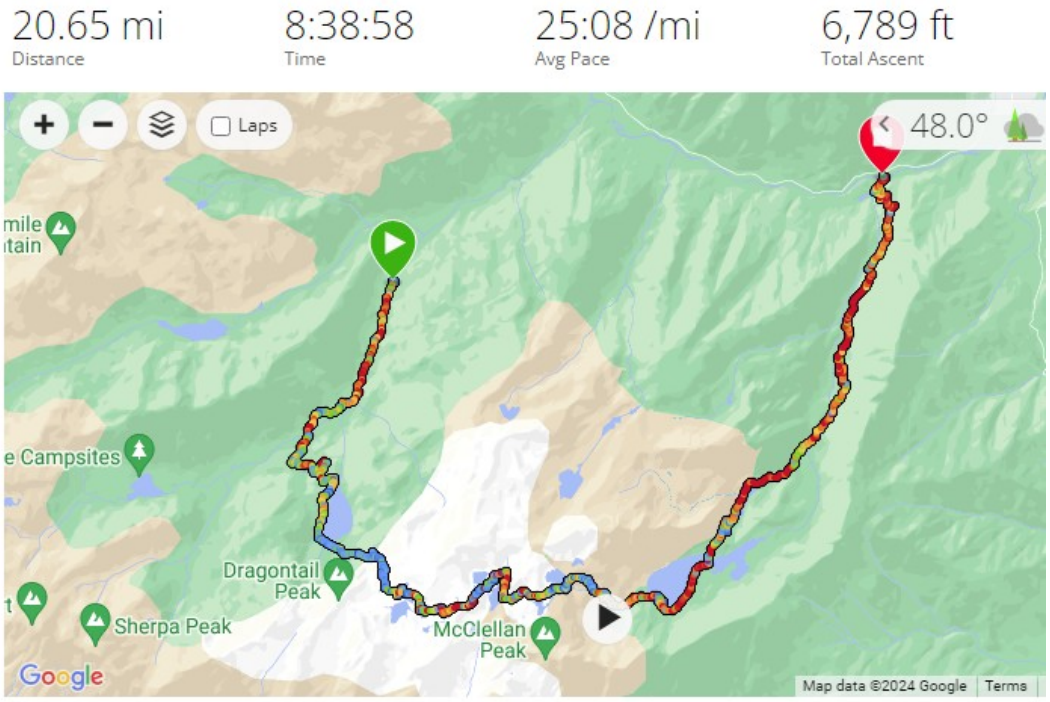
The Enchantments

Leavenworth, WA



The Enchantments

Leavenworth, WA



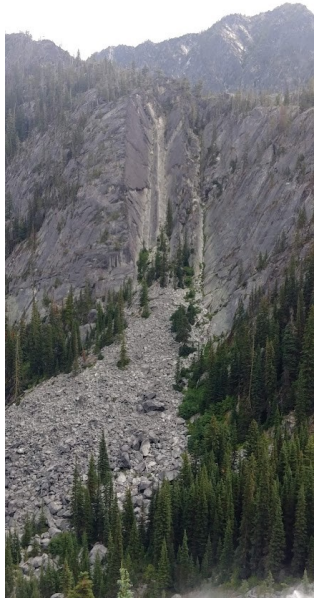
The Enchantments

Leavenworth, WA

- Enchantments are part of the Mount Stuart Batholith
  - Coarse grained granodiorite (granitic rock with mostly plagioclase feldspar)
  - Quartz diorite (Found with granodiorite. Has up to 20% quartz)

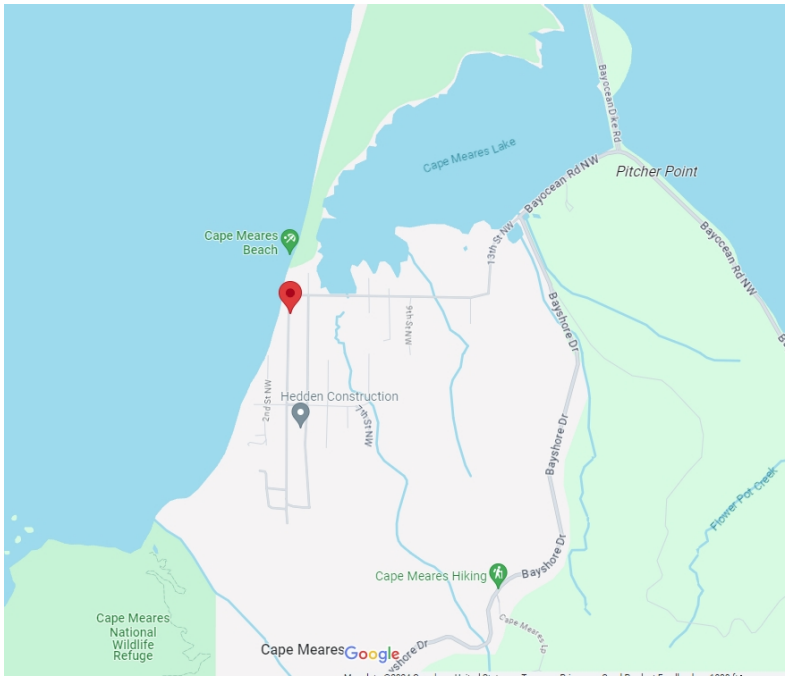
The Enchantments

Leavenworth, WA



Cape Meares – Oregon

One that got away



Cape Meares – Oregon

One that got away

- Cape Meares is a lava delta where canyons eroded into the hills were filled with Columbia River Basalt
- The basalt was later covered with sandstone
- You get an interesting mixture of basalt and sandstone rocks

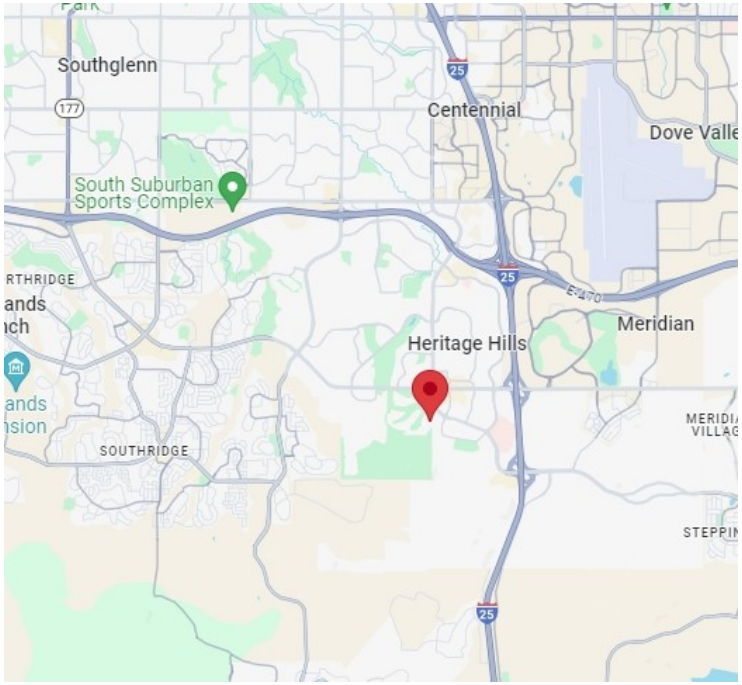
Cape Meares – Oregon

One that got away

- One year when biking on the beach I found these rocks at Cape Meares
- They were too big to carry
- I never got back on that trip
- The next year I went back...and all of the rocks were gone and replaced with small pieces of basalt

Bluffs Regional Park Trail

Lone Tree, CO



Bluffs Regional Park Trail

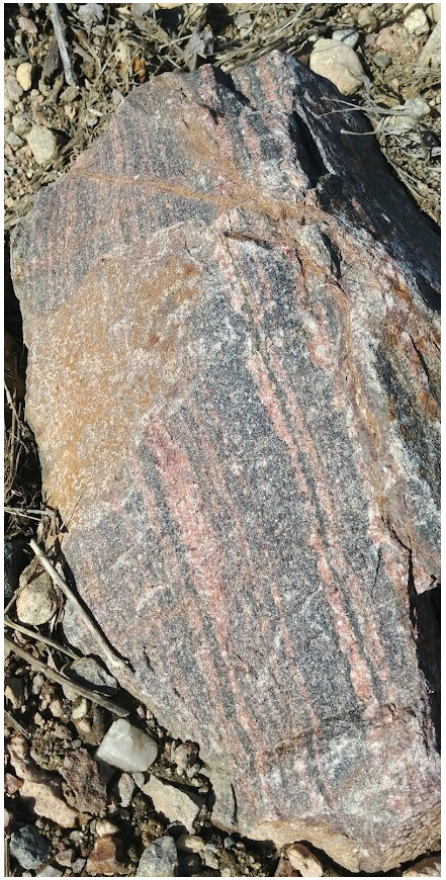
Lone Tree, CO

- Bluffs typically form from erosion by water and wind
- These bluffs are evidence that the area (that is now arid desert) was covered by water at some point

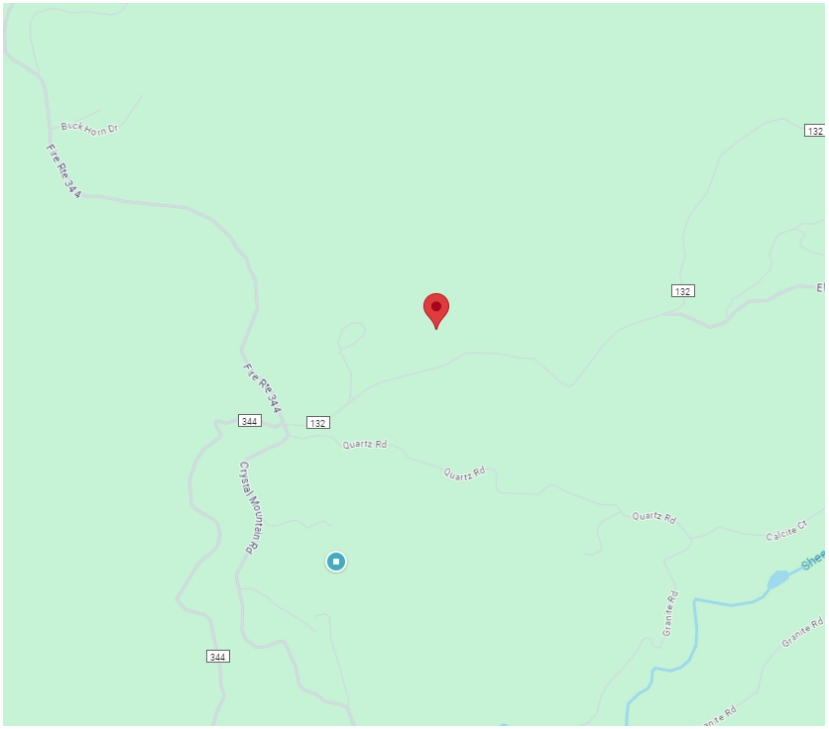
Bluffs Regional Park Trail

Lone Tree, CO

- The park has some great basalt gneiss rocks
- High K-feldspar content (bright pink)



Crystal Mountain
Glen Haven, CO



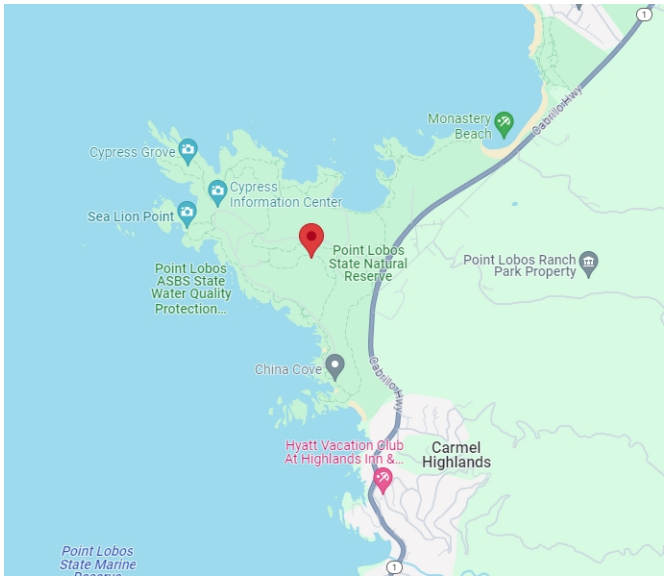
Crystal Mountain
Glen Haven, CO

- The Crystal Mountain area is made up of
  - Granite
    - Lots of K-feldspar (pink)
  - Schist
    - Finely layered rock with high mica content
  - Gneiss
    - Coarsely banded rock
  - Pegmatites
    - Very large grained granitic rocks
    - Cooled very slowly
    - Some are 1 to 2 billion years old

Crystal Mountain
Glen Haven, CO

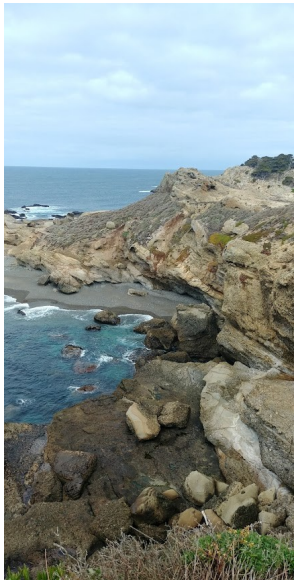
Point Lobos State Natural Reserve

California



Point Lobos State Natural Reserve
California

- Point lobos is a crazy mixture of several rock types
  - Granodiorite
    - coarse grained granitic rock with more plagioclase feldspar than orthoclase feldspar)
  - Carmelo formation
    - pebble and cobble conglomerate
    - Sandstone and mudstone
  - Marine terraces
  - Sand and gravel

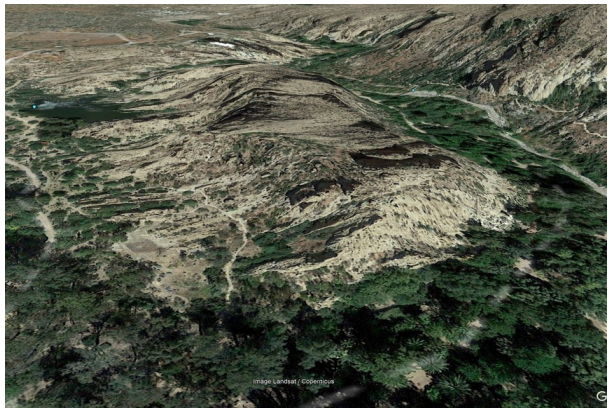


Point Lobos State Natural Reserve

California

Bryce Thompson Arboretum

Superior Arizona



Boyce Thompson Arboretum

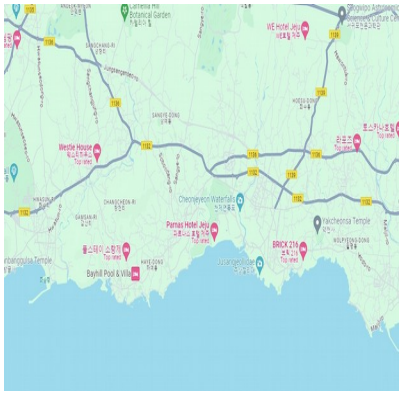
Superior Arizona

- Boyce Thompson Arboretum sits adjacent to hills and formations made of volcanic tuff
  - Hot ash and rock welded together into a randomly formed rock
- There are also intrusions of diorite
  - Salt and pepper granite
- And a nice Breccia!

Bryce Thompson Arboretum

Superior Arizona

Jungmun Saekdal Beach
Jeju Island, South Korea



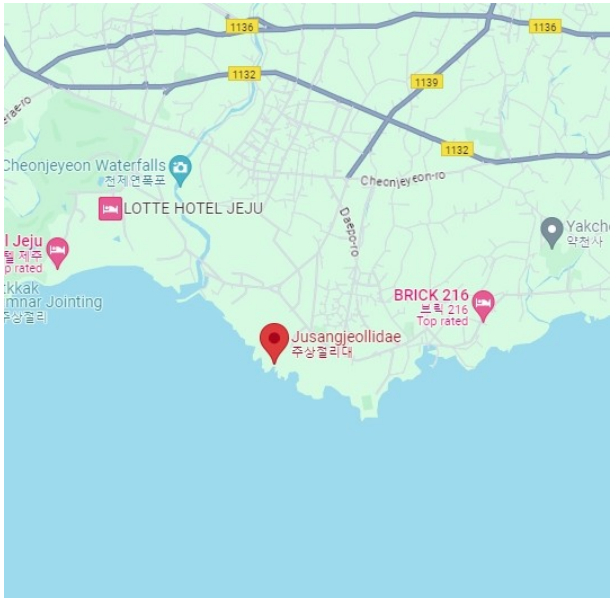
Jungmun Saekdal Beach
Jeju Island, South Korea

- Jeju Island was formed from from a massive eruption about 2 million years ago
- The island is an extinct volcano
- So there is lots of basalt
- Jungmun Saikdal beach has some amazing basalt formation including
- Columnar basalt
- Vesicular Basalt
  - Basalt with holes formed due to trapped gas or liquid

Jungmun Saekdal Beach

Jeju Island, South Korea

Daepo Jusangjeolli Cliff
Jusangjeolli dae
Jeju Island, South Korea



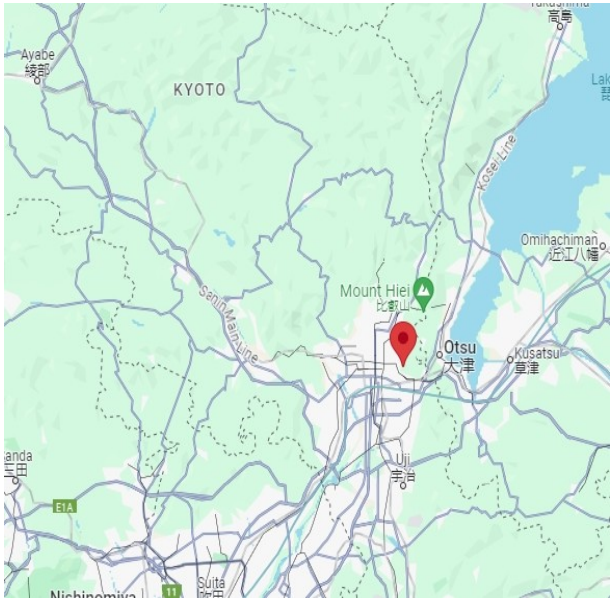
Daepo Jusangjeolli Cliff (Jusangjeolli dae)

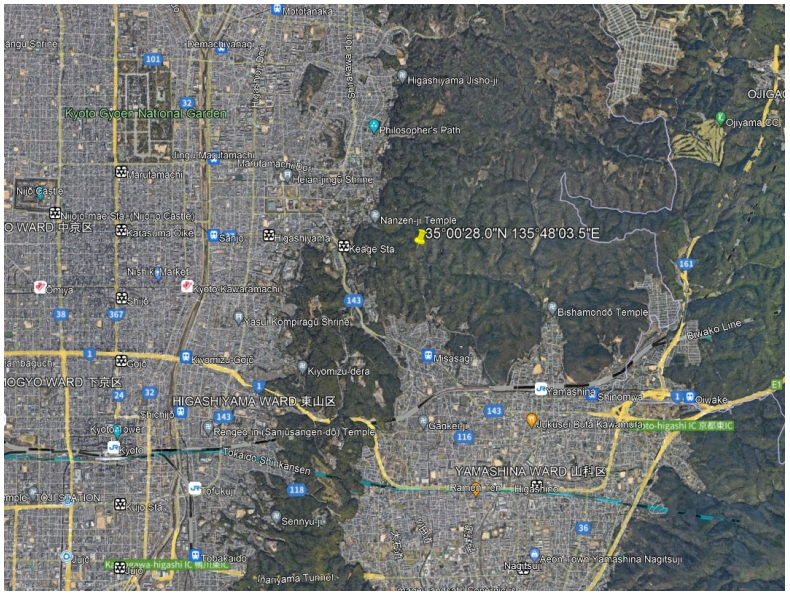
Jeju Island, South Korea

- Columnar basalt formed from lava that flowed from the Hallasan volcano into the sea
- Jusangjeolli is a Korean term for columnar jointing
- Some columns are over 60 feet tall
- Columns form as lava is cooled
  - As it cools the lava shrinks
  - In some cases it cools in many different areas (center)
  - The lava pulls in towards these centers as it cools and cracks form
  - In some cases the cracks are uniform and you get columns

Kyoto Trail - Higashiyama

kyoto, Japan





Kyoto Trail - Higashiyama

kyoto, Japan

Kyoto Trail - Higashiyama
kyoto, Japan

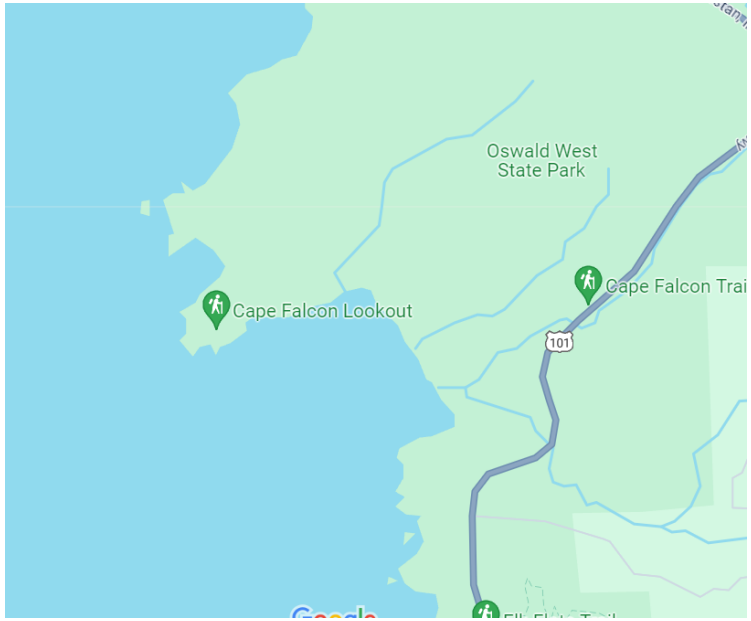
- Kyoto has a wide range of mixed up rocks (melange)
- In the area I was in there is:
  - Chert
  - Mudstone
  - Sandstone
  - Shale
  - Biotite Granite

Kyoto Trail - Higashiyama

kyoto, Japan

Cape Falcon

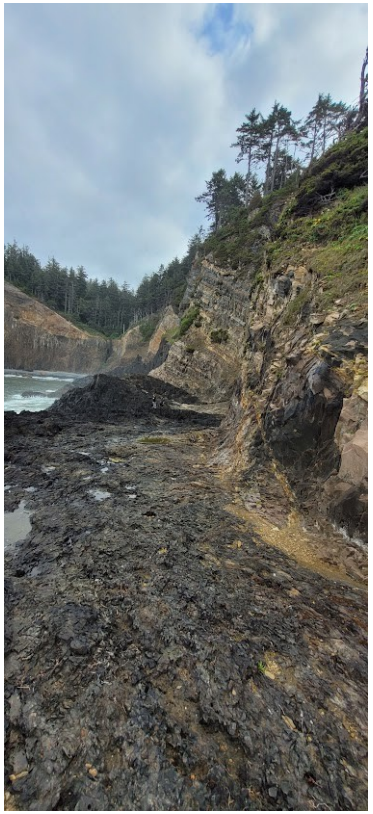
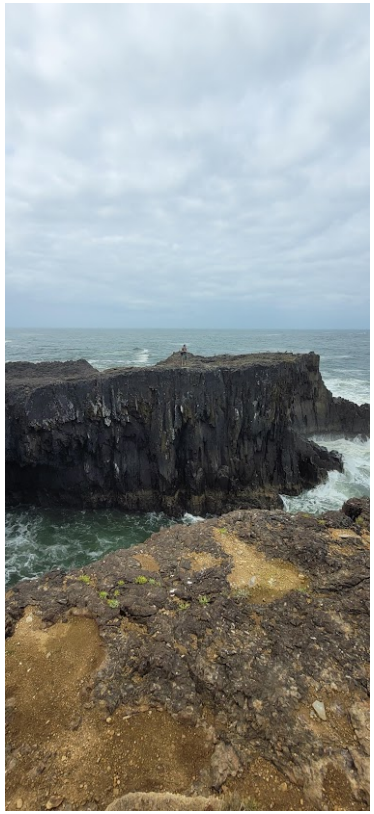
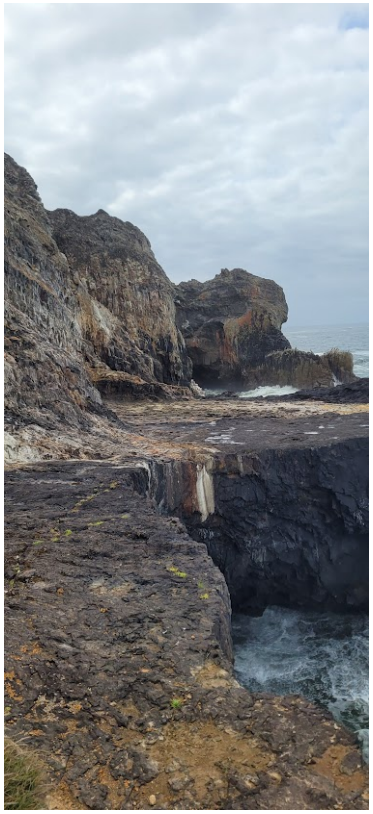
Oswald State Park, Oregon



Cape Falcon
Oswald State Park, Oregon

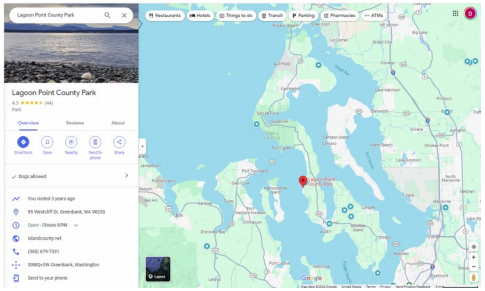
- Like much of the Oregon coast, Cape Falcon is predominantly made of basalt
- There are sedimentary rocks on the southside
- The photos here are taken from an area only accessible from a very steep hidden trail

Cape Falcon
Oswald State Park, Oregon


Where will your next rock adventure be?

Google maps



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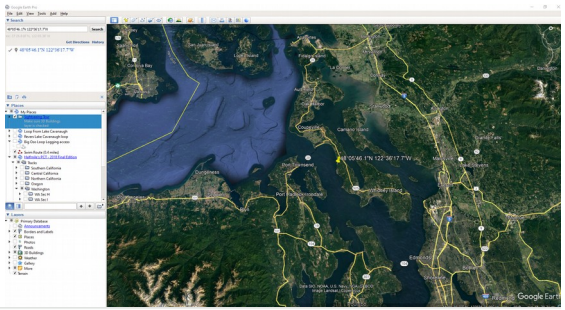

Google location name geology

https://climate.nasa.gov/news/2206/earth-from-space-15-amazing-things-in-15-years/