

# The Klamath Mountains

As seen

From the Air

Mystery City not in the Klamath Mountains



Applegate Lake, Klamath Mountains



# Riddle, OR, Klamath Mountains



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Google earth

1994

Imagery Date: 7/15/2015 42°56'08.18" N 123°25'36.76" W elev 948 ft eye alt 36084 ft

# Hanna Nickel Mine, Klamath Mountains



# Marble Mountain, Klamath Mountains



# Trinity Lake and Trinity Alps, Klamath Mountains



The Klamath Mountains

As seen

Along Interstate 5

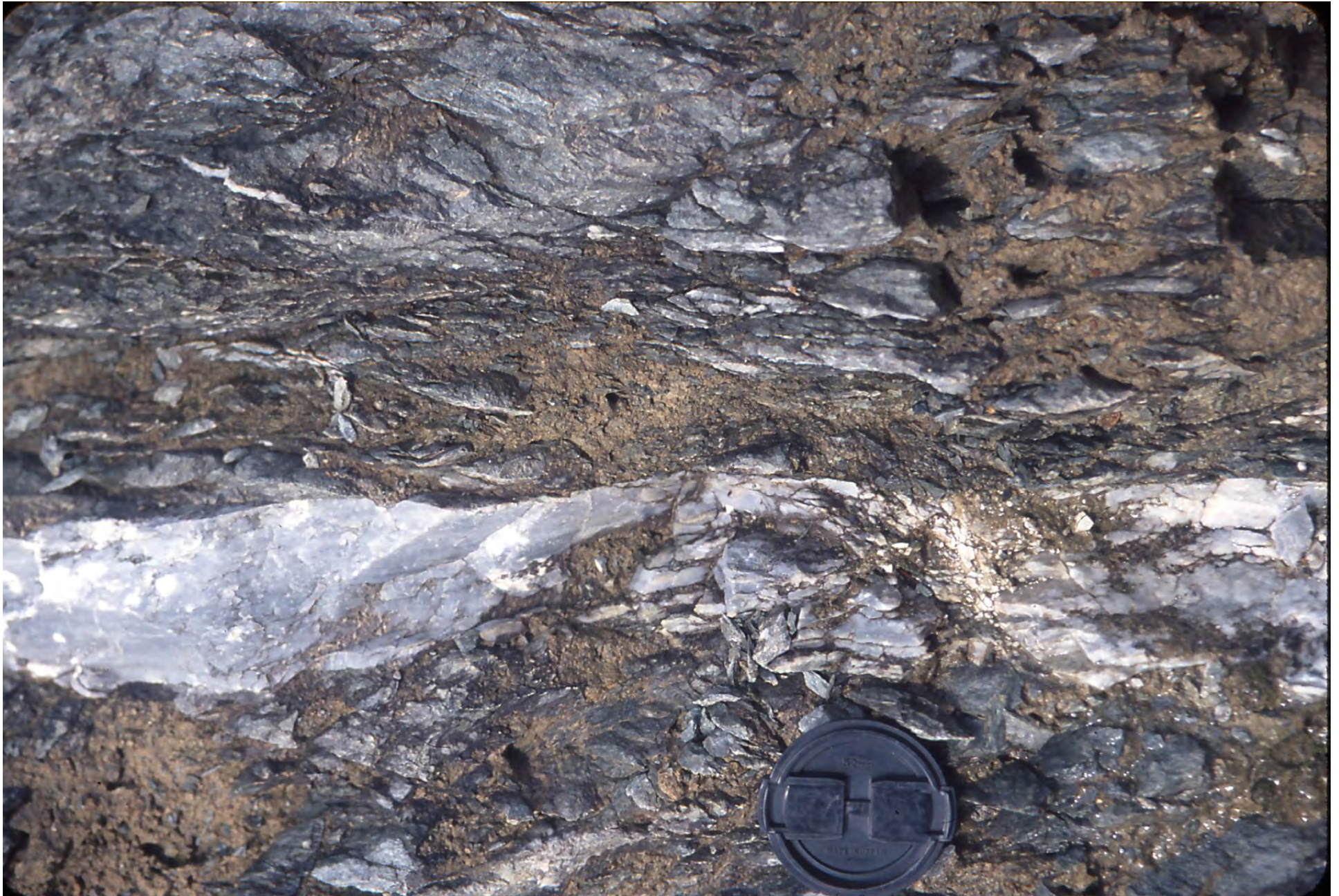




Cow Creek Fm gneiss, near Sutherlin, OR: W Klamath Terrane



Cow Creek Fm Gneiss detail: Western Klamath Terrane



Cow Creek Fm, metabasalt outcrop: Western Klamath Terrane



Cow Creek Fm Granite: White Rock Pluton, W. Klamath Terrane



Hanna Nickel Mine, Riddle, OR: Western Klamath Terrane



Hanna Nickel Mine, Riddle OR: Josephine Ophiolite, W Klamaths



Serpentinite, I-5, near south of Roseburg, OR Western Klamaths

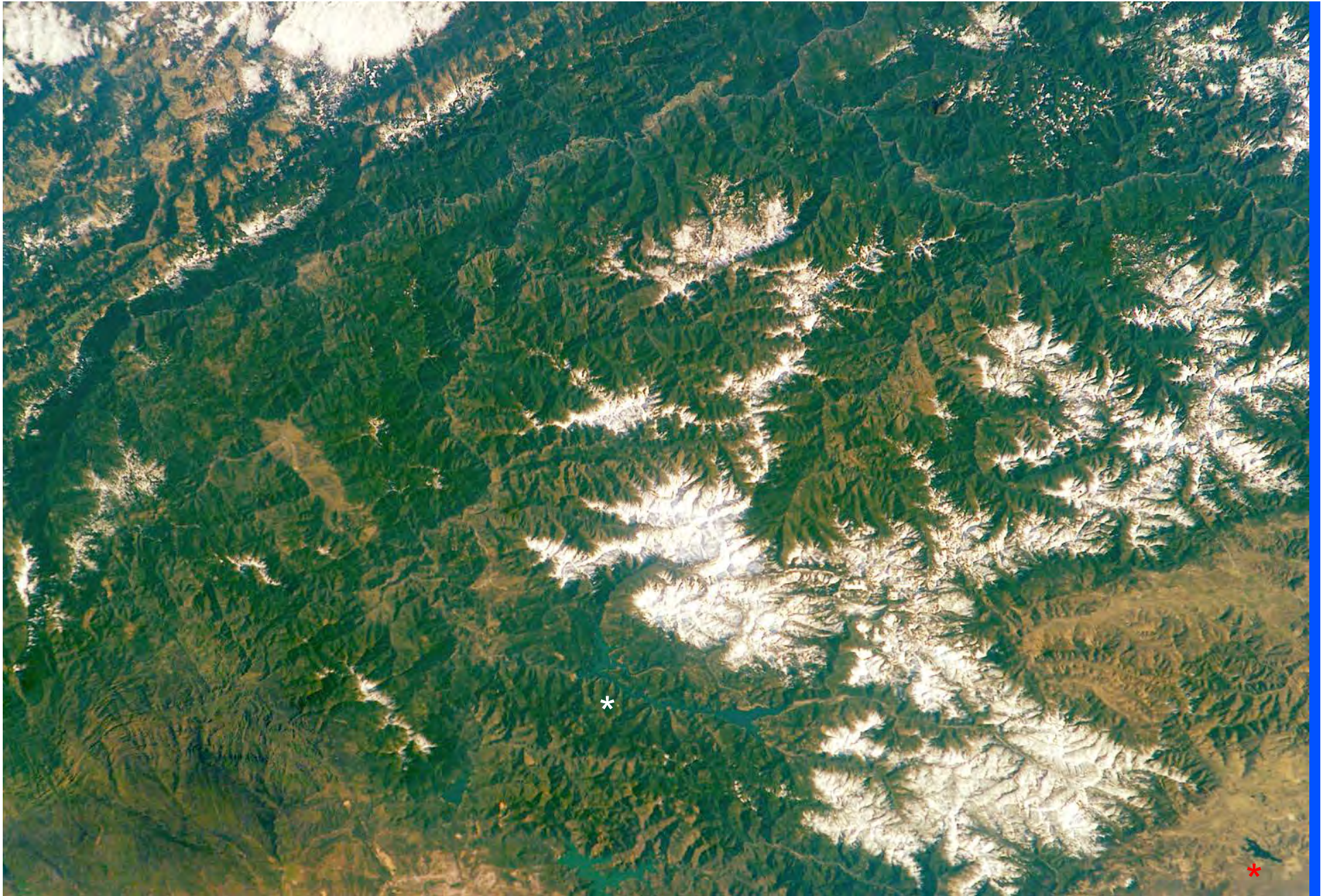


Applegate Fm, near Applegate, OR Hayfork Terrane





Hornbrook Fm, Siskiyou Summit, Cretaceous Overlap Assemblage



Klamath Mountains, Klamath & Shasta Lakes, Northern California



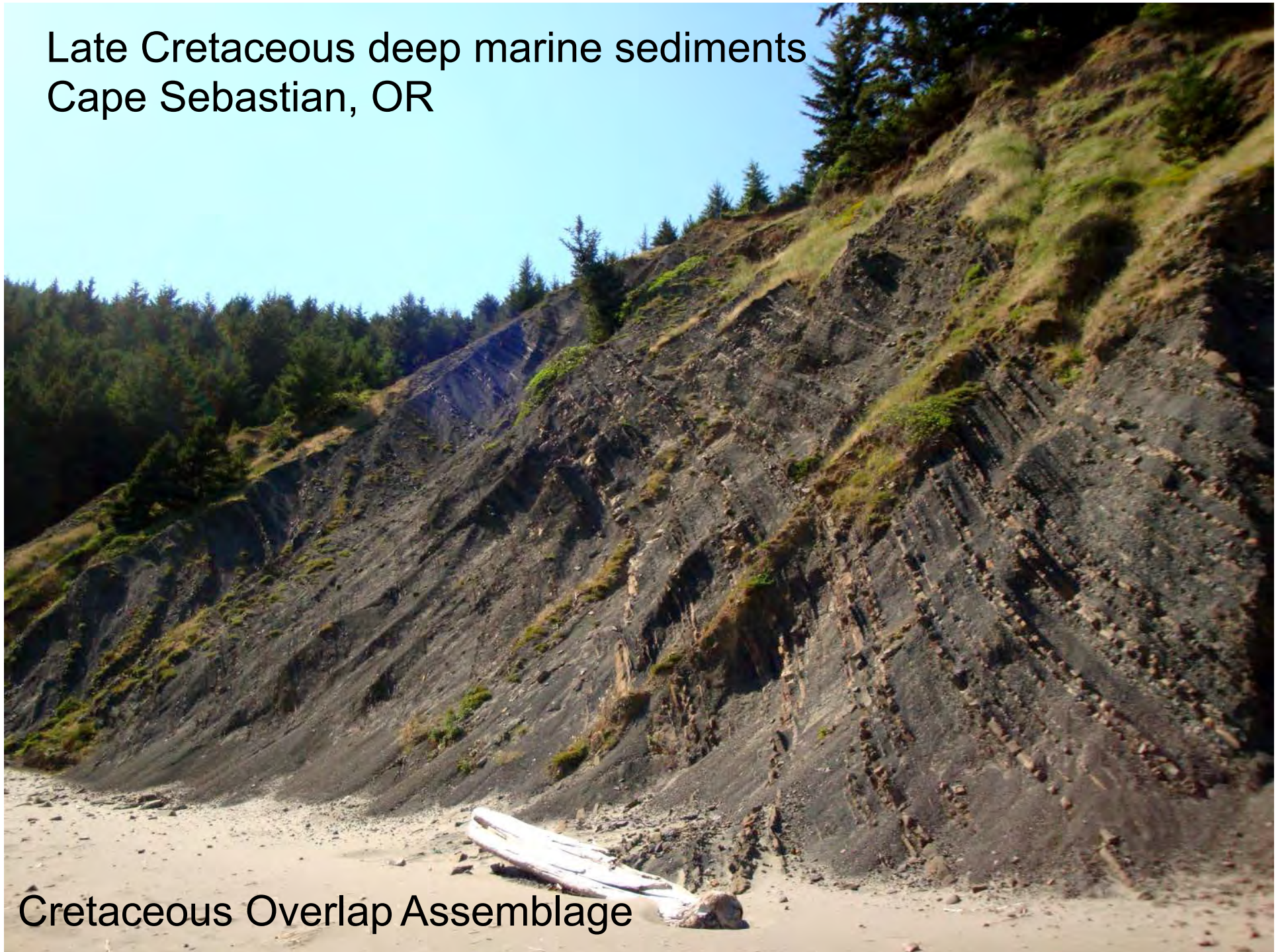
Trinity Ophiolite, near Yreka, CA Eastern Klamath Terrane



Castle Crags, near Dunsmuir, CA Castle Crags Pluton

Klamath Mountains  
as seen along  
Oregon Coast  
and near  
Oregon Caves NP

Late Cretaceous deep marine sediments  
Cape Sebastian, OR



Cretaceous Overlap Assemblage

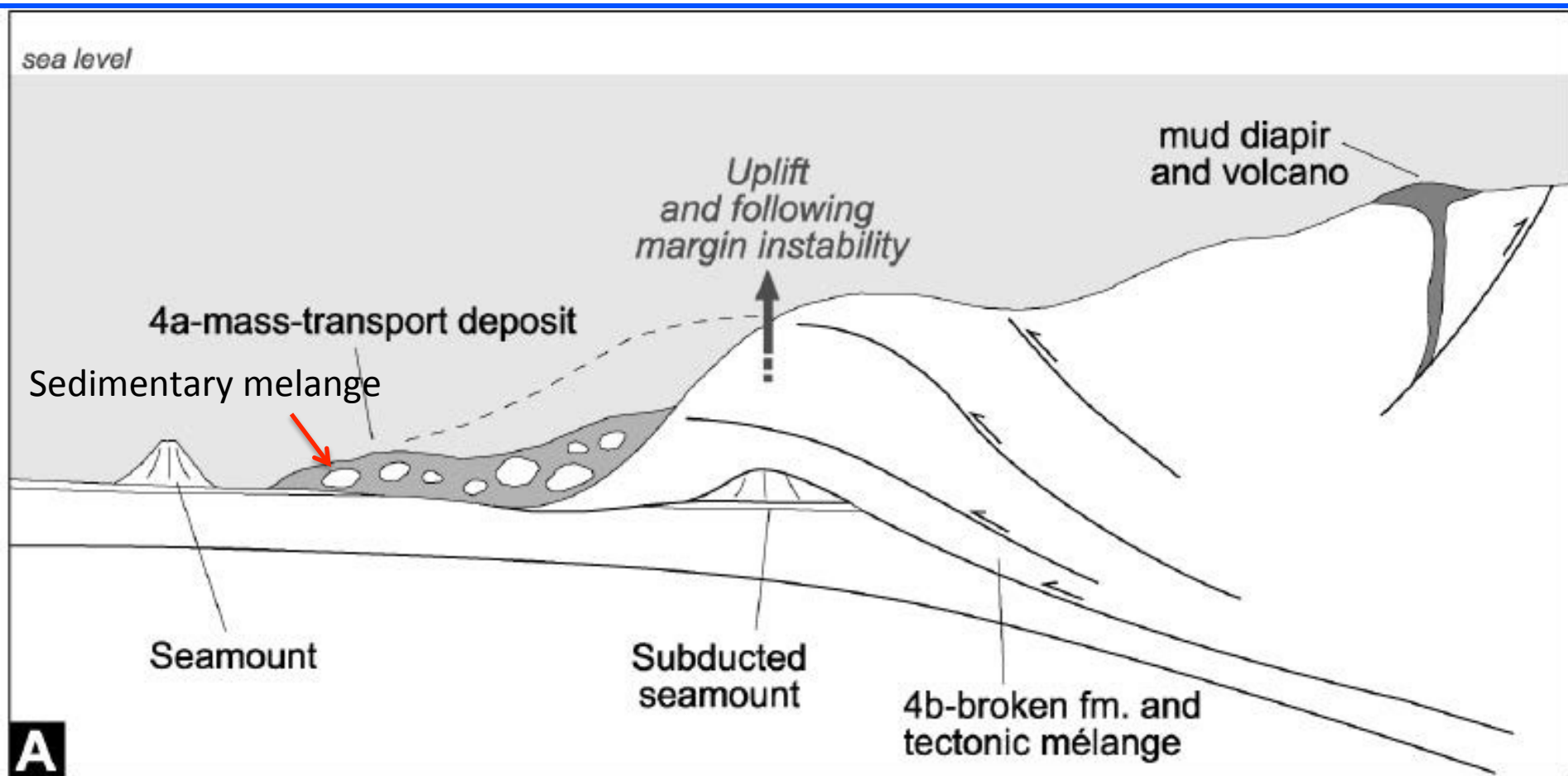
**Broken Formation:** stratally disrupted units without exotic elements, that preserve their lithological and chronological identity. Hsu 1968

**Melange:** (Fr) Mixture

Melange: mappable units or bodies of mixed rocks including blocks of different ages and origin, embedded in an argillic, sandy, or ophiolitic matrix . . . These units are interpreted as “chaotic”. Festa et al 2010

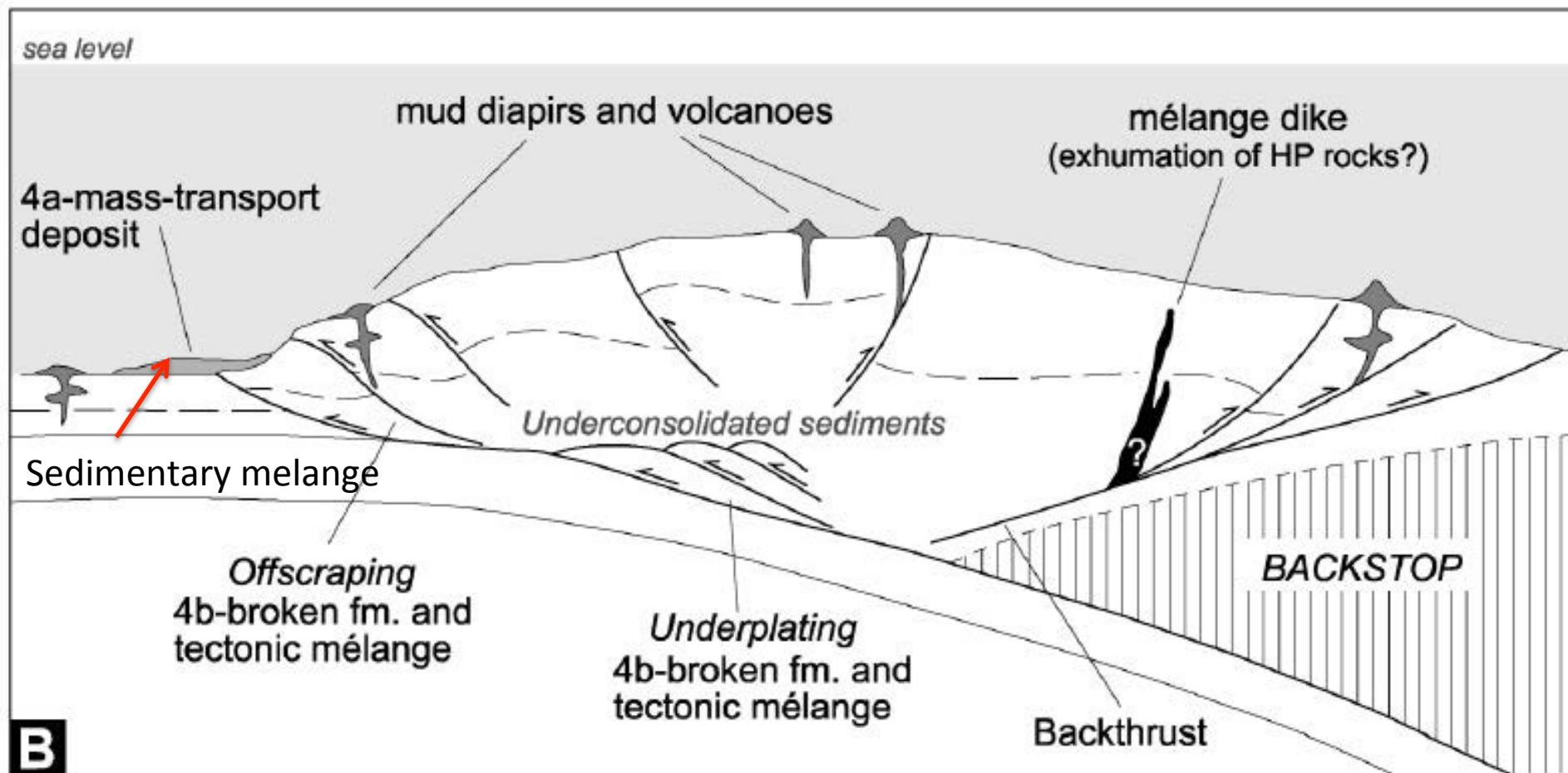
Tectonic Melanges and Sedimentary Melanges can be found in subduction zones.

Not all subduction zones are alike, however.

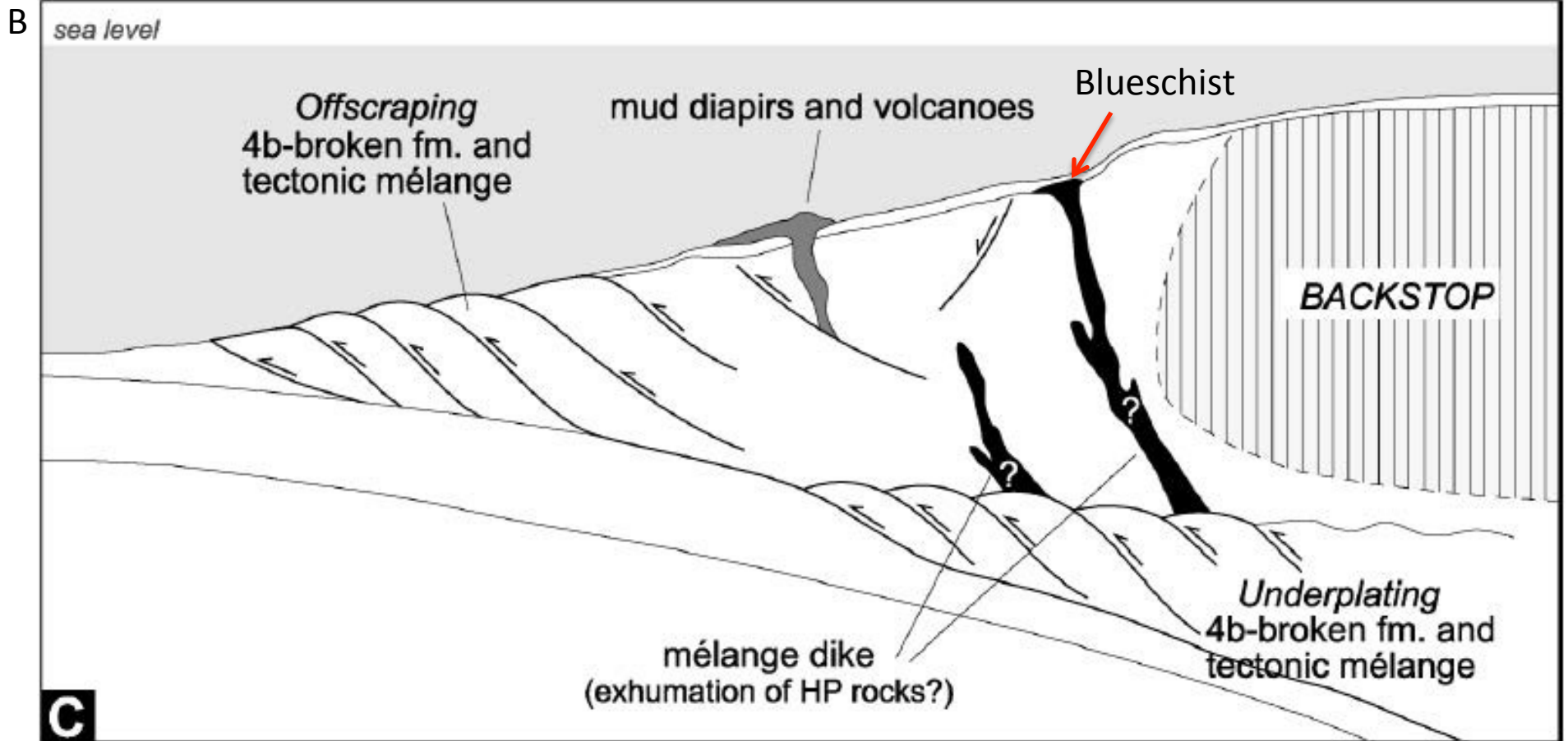


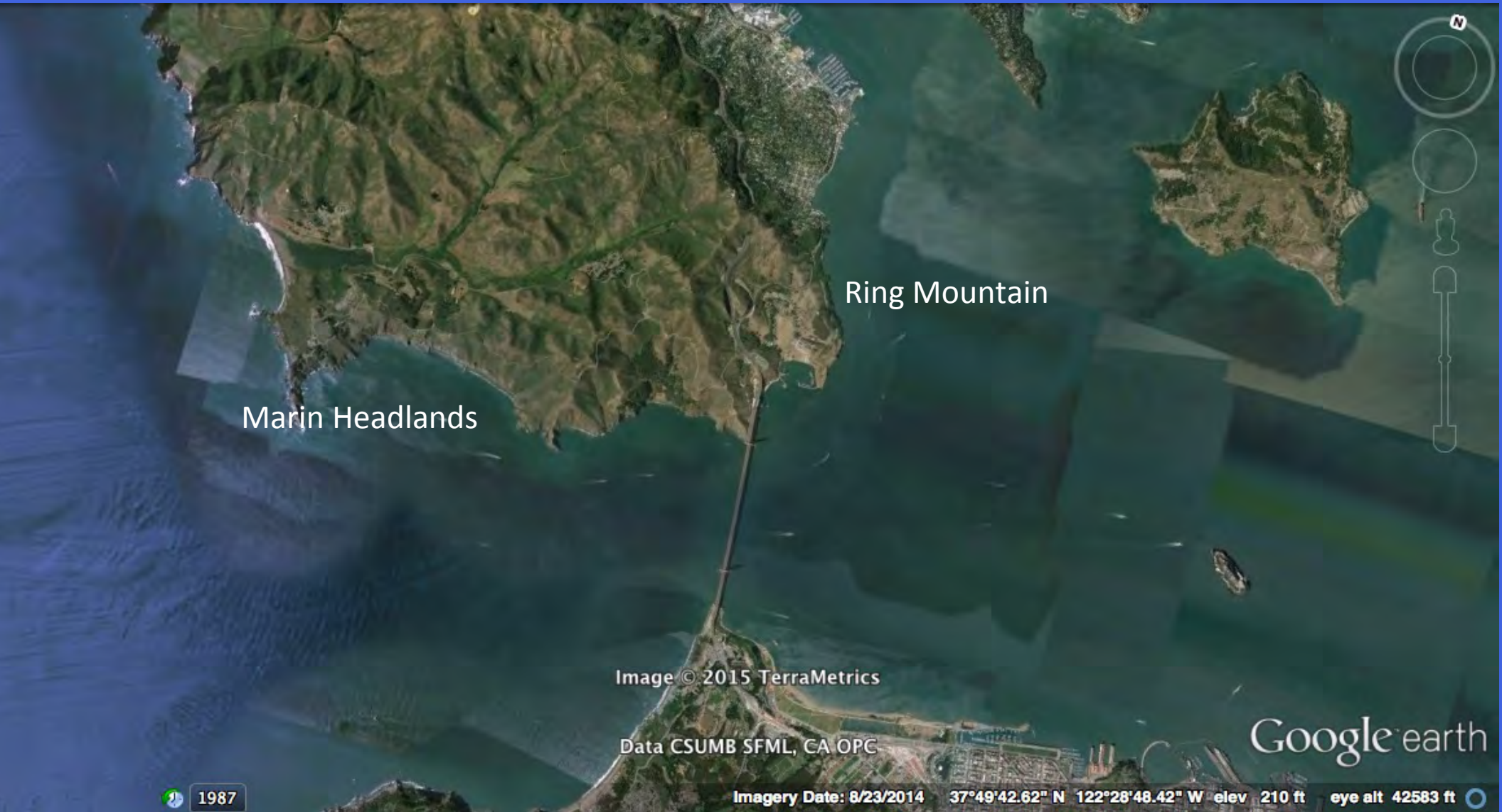
Festa et al 2010





Festa et al 2010





Marin Headlands

Ring Mountain

Image © 2015 TerraMetrics

Data CSUMB SFML, CA OPC

Google earth

1987

Imagery Date: 8/23/2014 37°49'42.62" N 122°28'48.42" W elev 210 ft eye alt 42583 ft

# Marin Headlands, California Franciscan Melange



Marin Headlands, California  
Deformed Chert Beds in Franciscan Melange



Franciscan Melange: Ring Mountain, Marin County, CA  
Blueschist outcrops within deformed argillite matrix



# Franciscan Melange: Ring Mountain, Marin County, CA



Franciscan Melange: Ring Mountain, Marin County, CA







Melange Blueschist blocks  
Bandon,, OR



1994

Google earth

Imagery Date: 5/3/2013 43°06'08.71" N 124°26'03.75" W elev 5 ft eye alt 988 ft

# Bandon, OR Late Jurassic Otter Point Formation





Late Jurassic Otter Point Fm meta-basalt, Bandon, OR



Late Jurassic Otter Point Fm, Buena Vista Point, OR US 101



Cape Sebastian, Late Jurassic Otter Point Fm meta-basalts



Josephine Ophiolite, south of Cave Junction, OR W Klamaths



Oregon Caves NM, Meta-sediments, Rattlesnake Ck Terrane

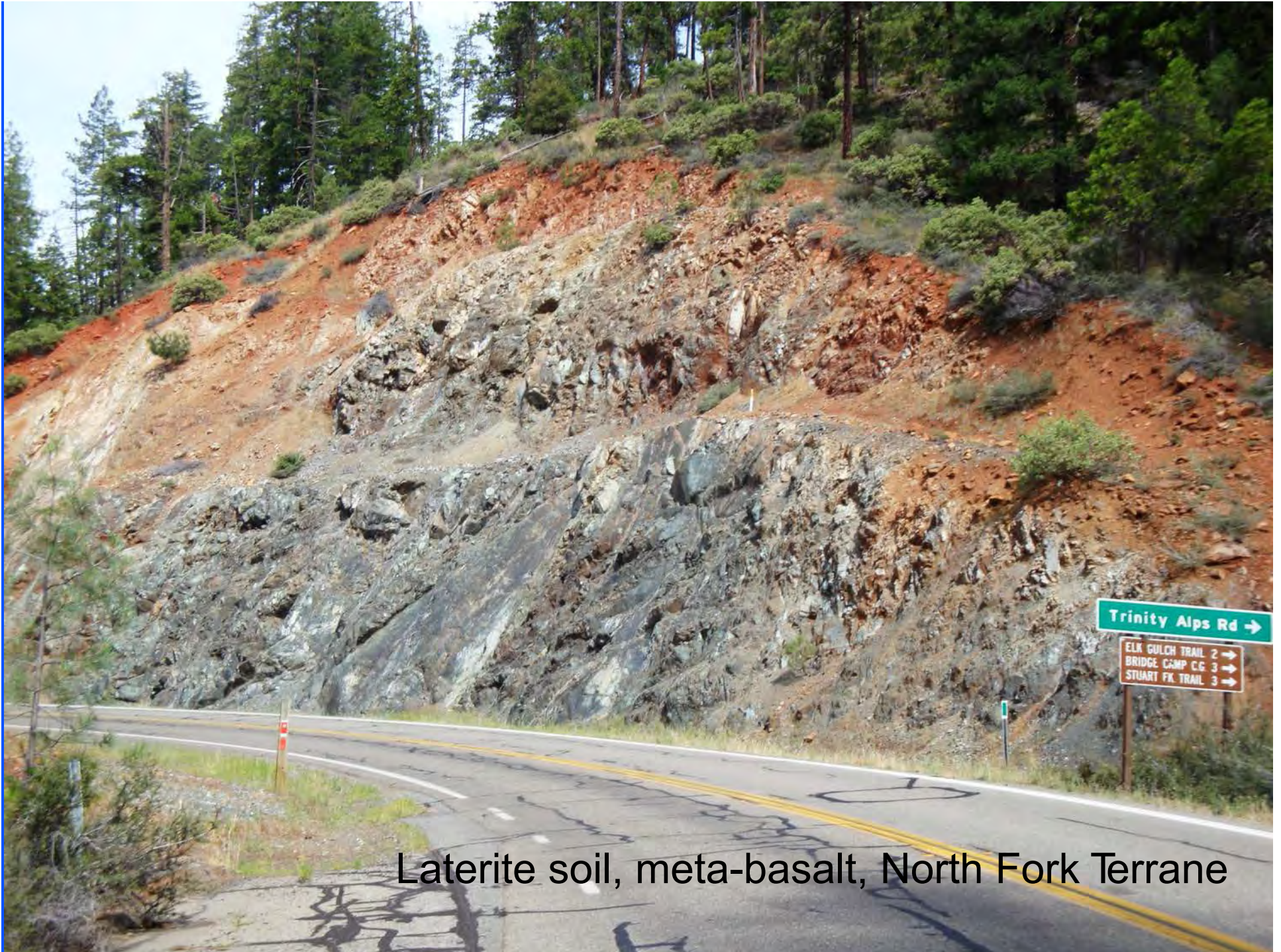


Oregon Caves NM, Permian meta-sediments, Rattlesnake Ck T



# Klamath Mountains

Near  
Sawyer's Bar  
California



Laterite soil, meta-basalt, North Fork Terrane



Thrust fault, North Fork Terrane



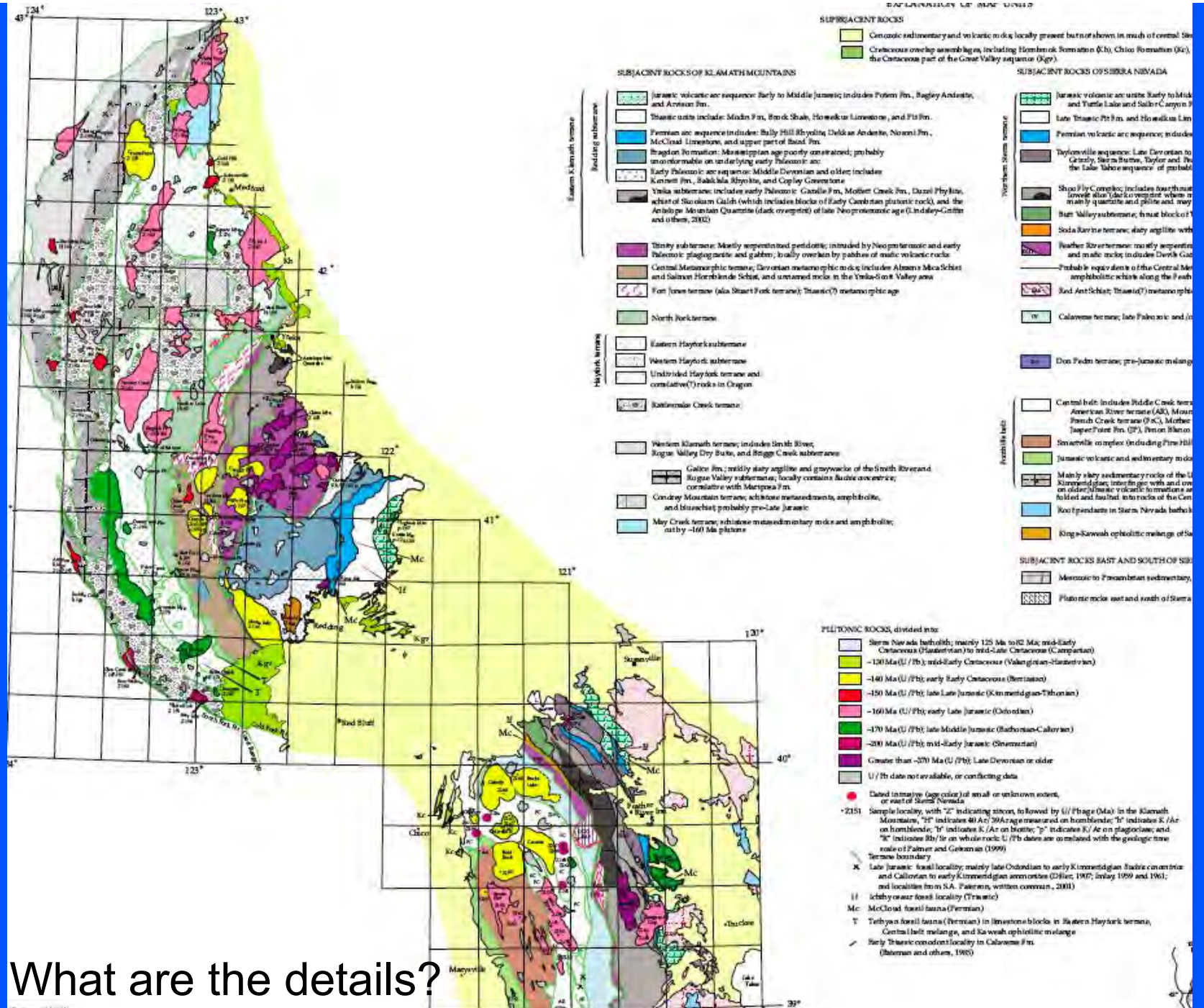
Gruss: Weathered Granite, English Peak Pluton



Sawyer's Bar, CA

# Terrane

- A crustal block bounded by faults
- Preserves a geologic history that is distinct from adjacent terranes
- Accreted by tectonic processes



What are the details?