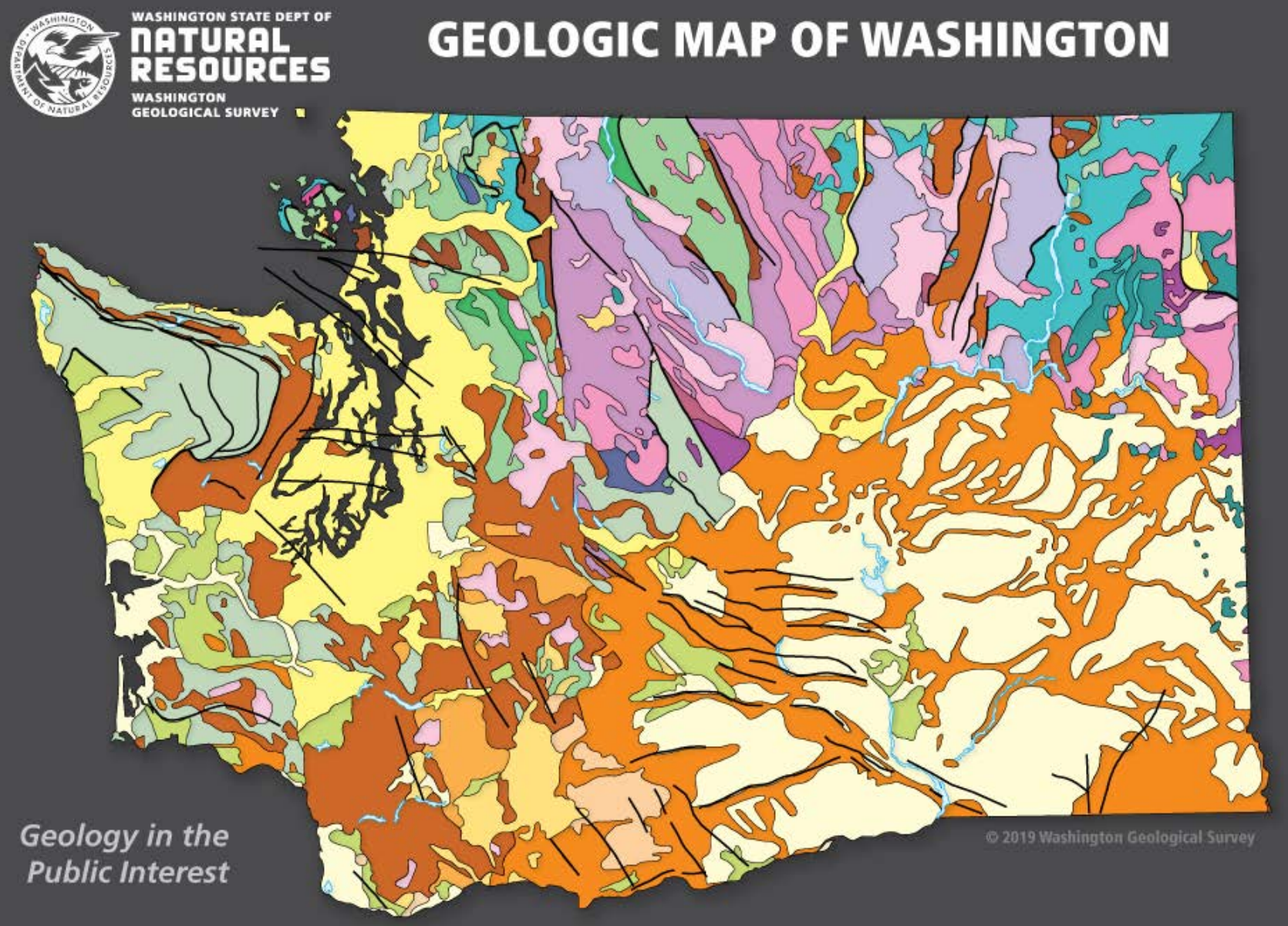
DIGITAL MAPPING TECHNIQUES 2020

The following was presented at DMT'20
(June 8 - 10, 2020 - A Virtual Event)

The contents of this document are provisional

See Presentations and Proceedings
from the DMT Meetings (1997-2020)

http://ngmdb.usgs.gov/info/dmt/

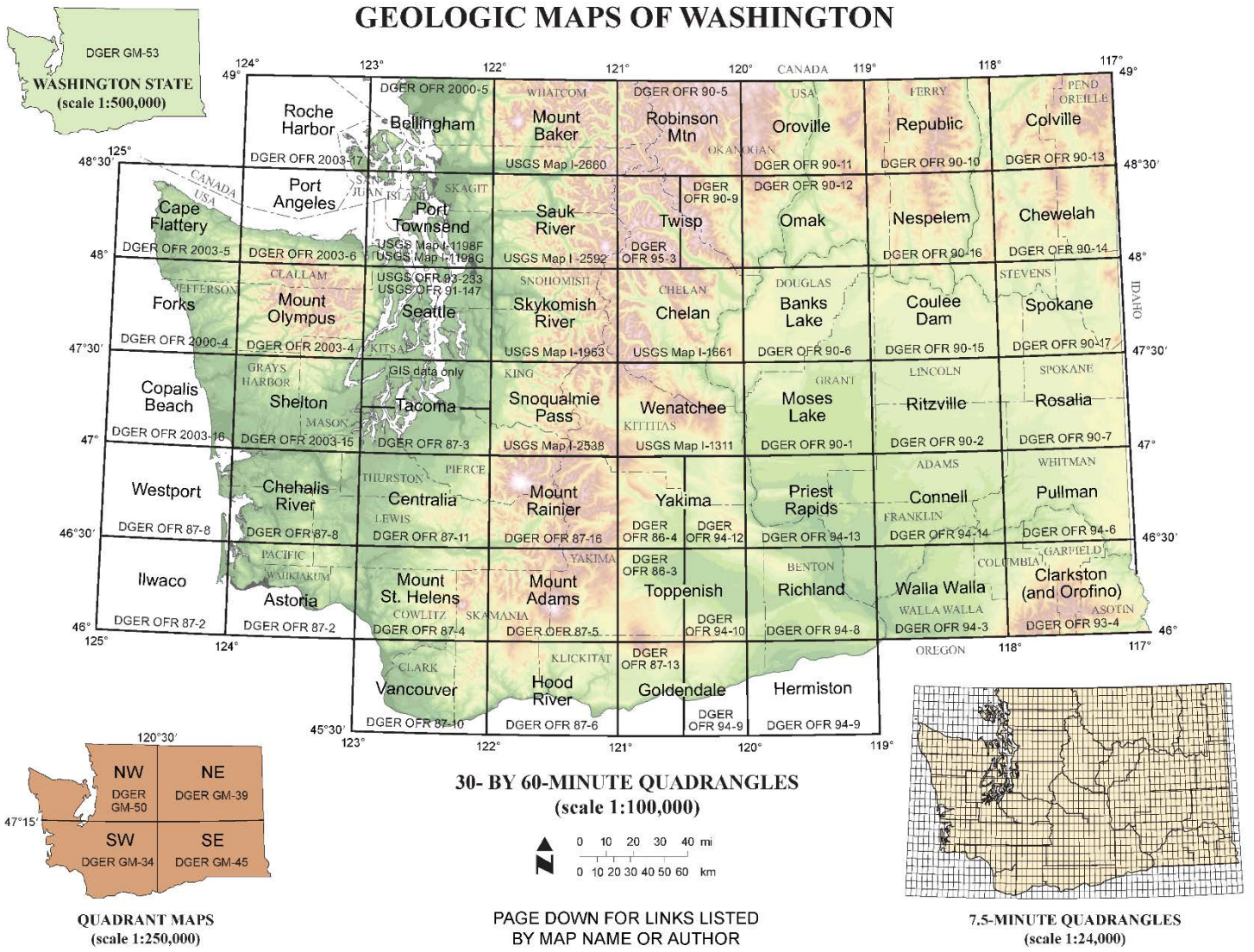


Washington's Foray into GeMS

Funding for the Project

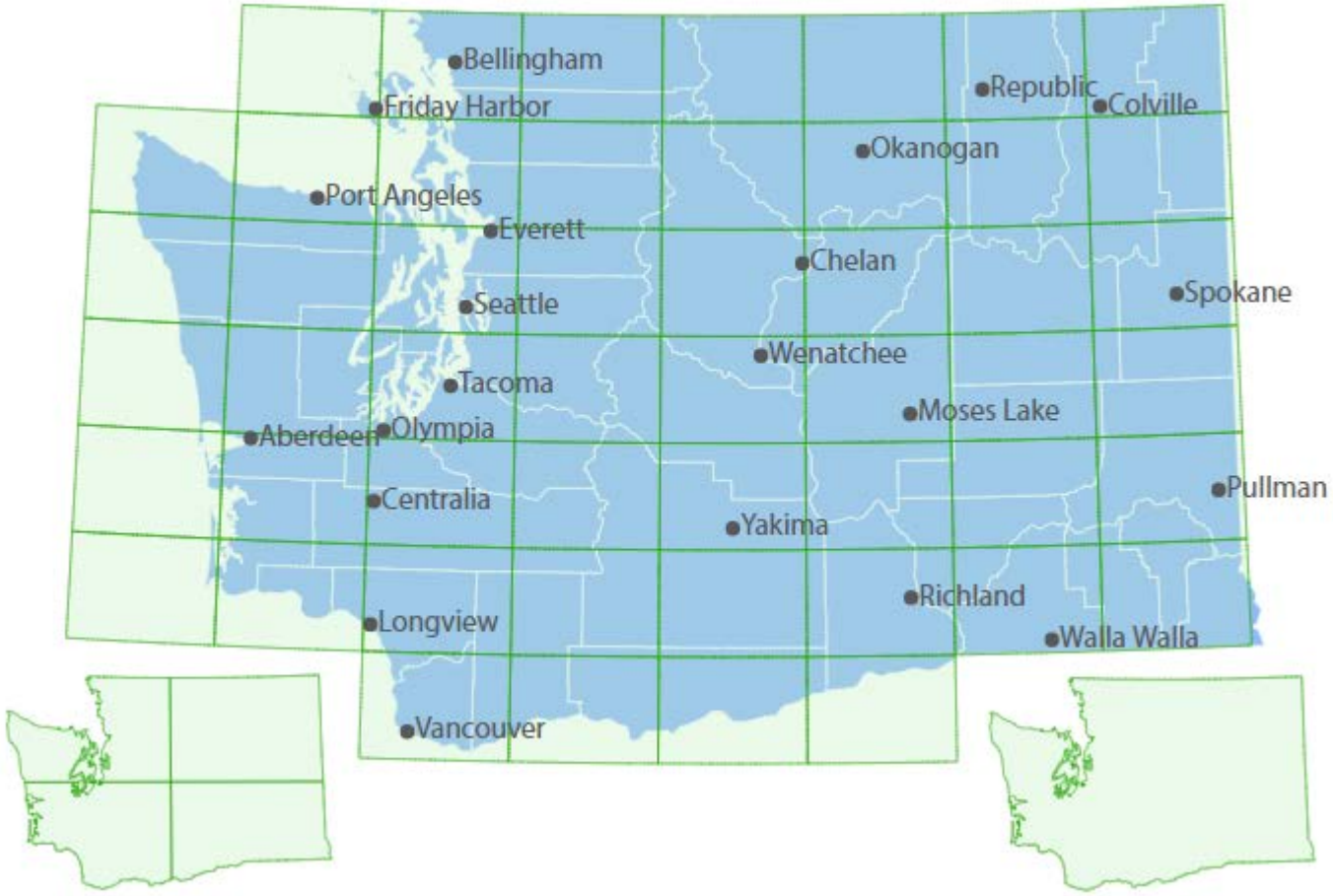
- Funded for FY19-20 through Data Preservation—NGGDPP

- We proposed to convert our 1:100,000-scale surface geologic dataset to GeMs, and to create unit descriptions for over 1800 units, which would also be used for our existing non-GeMS dataset.



Background of the 100K Dataset

- Digital dataset was created by compiling all 100k maps within the state (done around 2000, last update 2016)
- Such a large dataset that was very different from a single publication proved to be very interesting to convert—and time consuming



Background of the 100K Dataset

- Units from individual publications were regrouped into “simplified and combined” into new grouped units—unit within dataset does not match unit on plate most of the time

Quad	Dataset Unit	Pub Unit	Lithology	Name
Mt. Adams	Mva(cb)	Tcb	andesite flows	Council Bluff, volcanic rocks of
Mt. St Helens	Mva(cb)	Tcb(1)	andesite flows	Council Bluff, volcanic rocks of
Hood River	Mva(cb)	Tcb(a)	andesite flows	Council Bluff, volcanic rocks of

Schema Explosion

- There was a lot of splitting, shoving and transposing involved
  - Example of WGS Faults vs. GeMS Faults

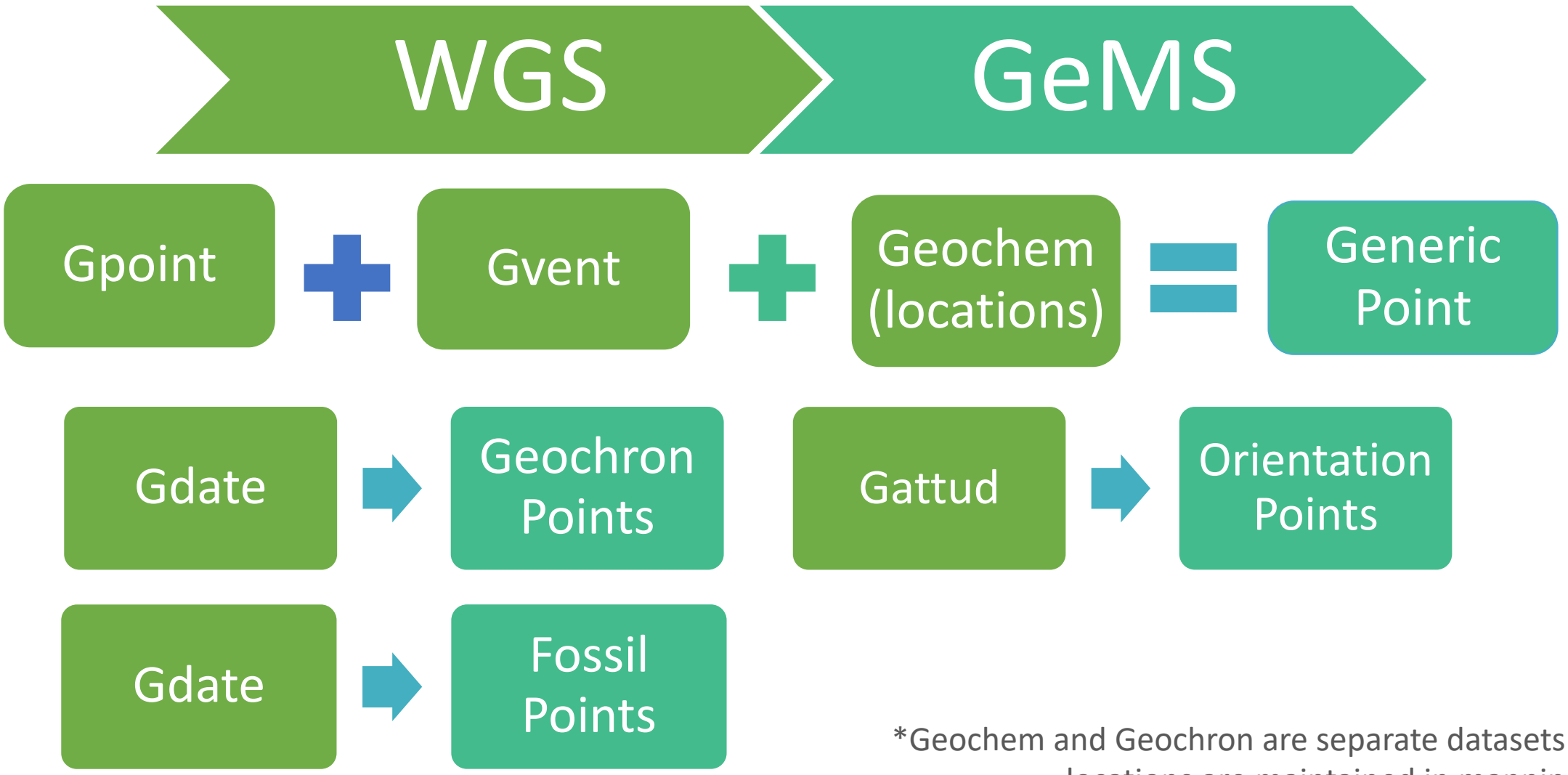
WGS

Fault Code	Description	USGS ref no.
43	Normal fault- Identity and existence certain, location accurate	2.2.1
46	Normal fault- Identity and existence questionable, location accurate	2.2.2
44	Normal fault- Identity and existence certain, location approximate	2.2.3

GeMS

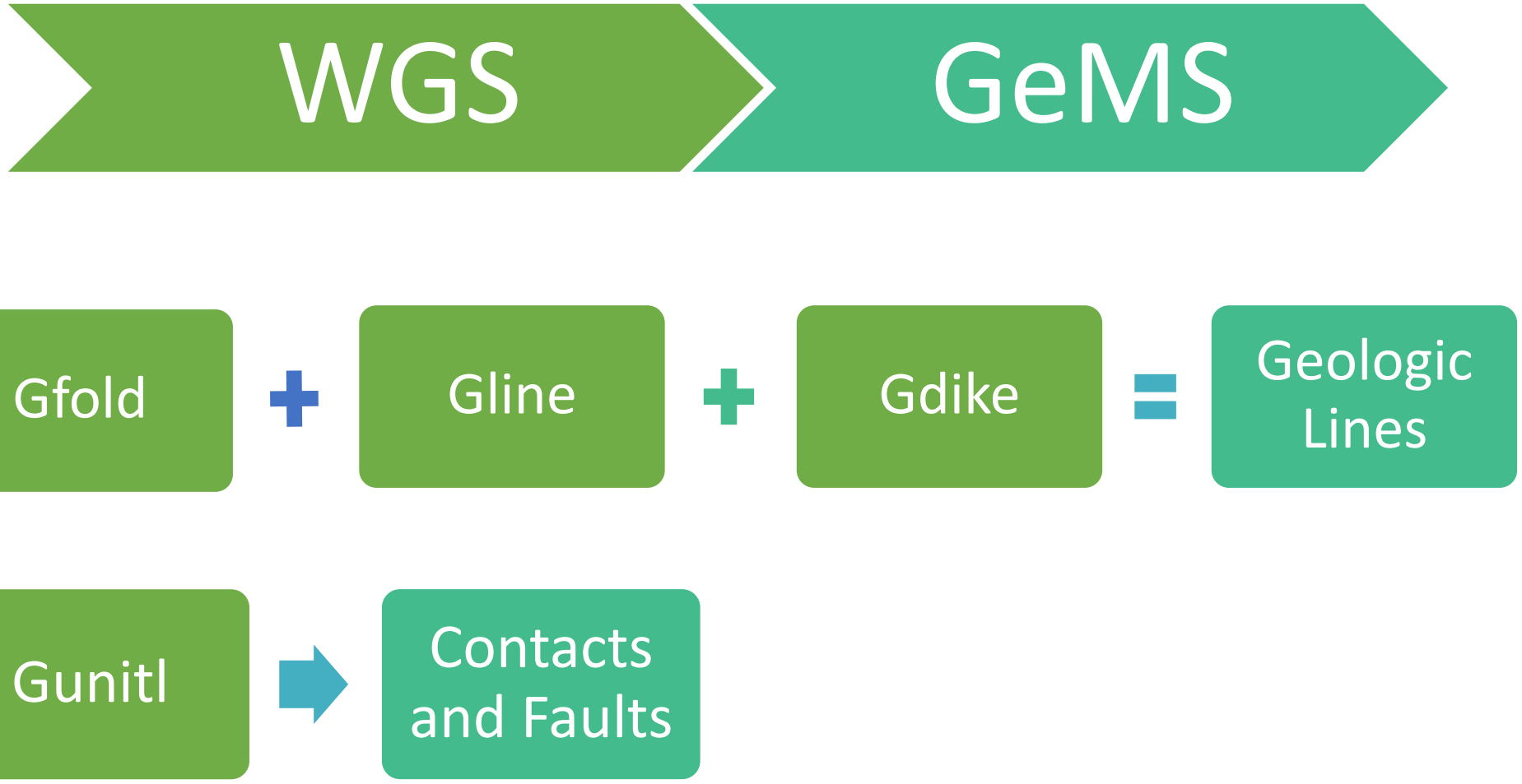
Type	Is Concealed	Existence Confidence	Identity Confidence
Normal fault	No	Certain	Certain

Schema Explosion–Feature Classes–Points

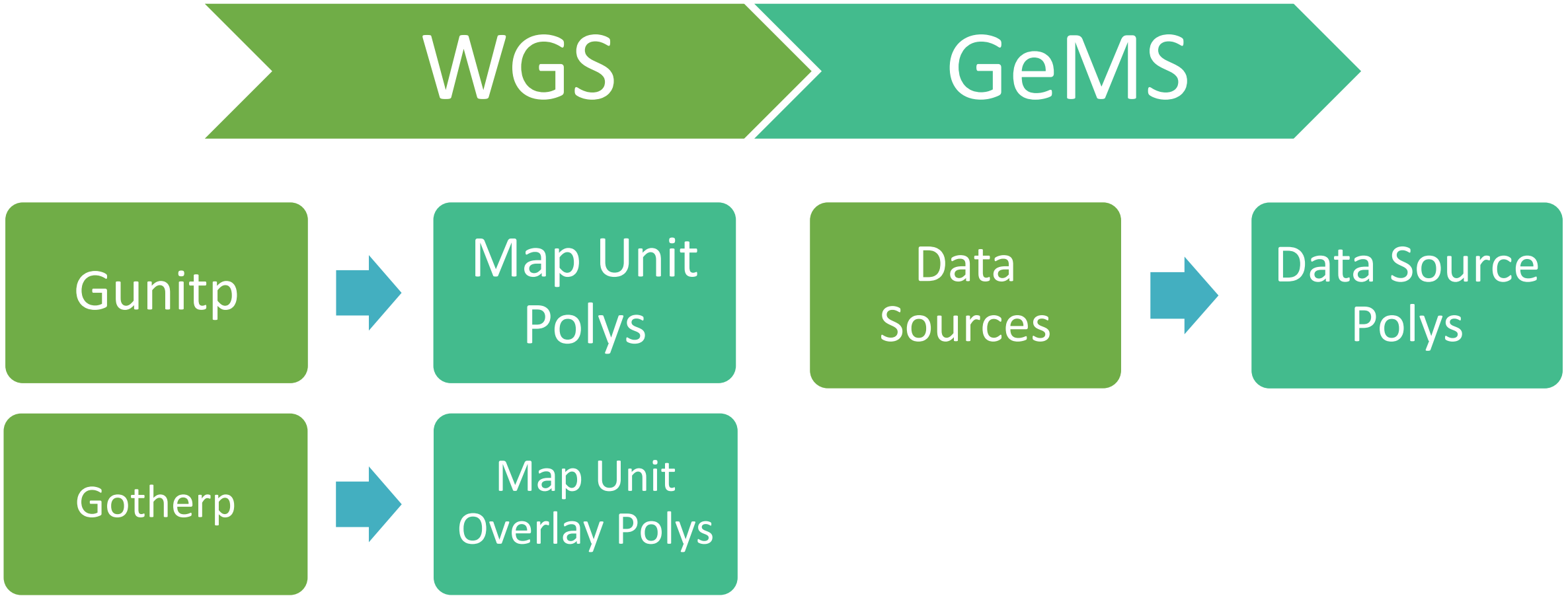


*Geochem and Geochron are separate datasets and only locations are maintained in mapping dataset

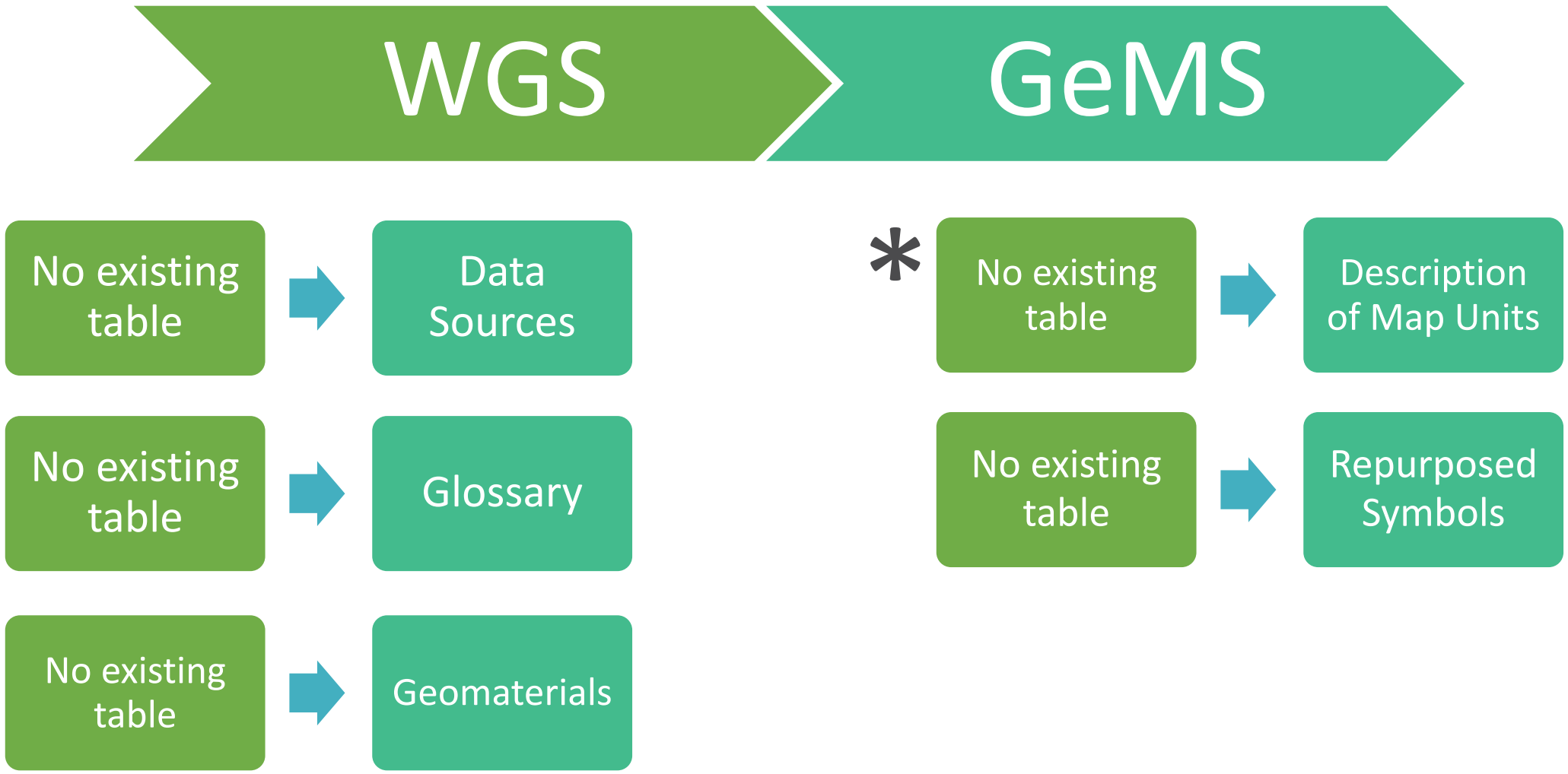
Schema Explosion–Feature Classes–Lines



Schema Explosion–Feature Classes–Polygons



Schema Explosion–Related Tables



*Description of Map Units will exist after next update

Digital Dataset vs. Geologic Map

Extra Complications

- ❑ Original geologists no longer around to answer questions
- ❑ Many of the fields in GeMS were not used because the 100k digital dataset would never be a “printed map”
- ❑ Took some time to figure out which fields pertained to 100k mapping vs 24k mapping for this particular project

Printed Map Fields

- Hierarchy key field
- Paragraph Style
- Area Fill RGB
- Area Fill Pattern Description

Some Questions…

Glossary

- ❑ Thought behind the purpose of the glossary—what is the intent for the user
- ❑ Used the AGI Glossary of Geology
- ❑ Is it necessary to define even the simplest terms such as ‘fault’? Where is the dividing line?

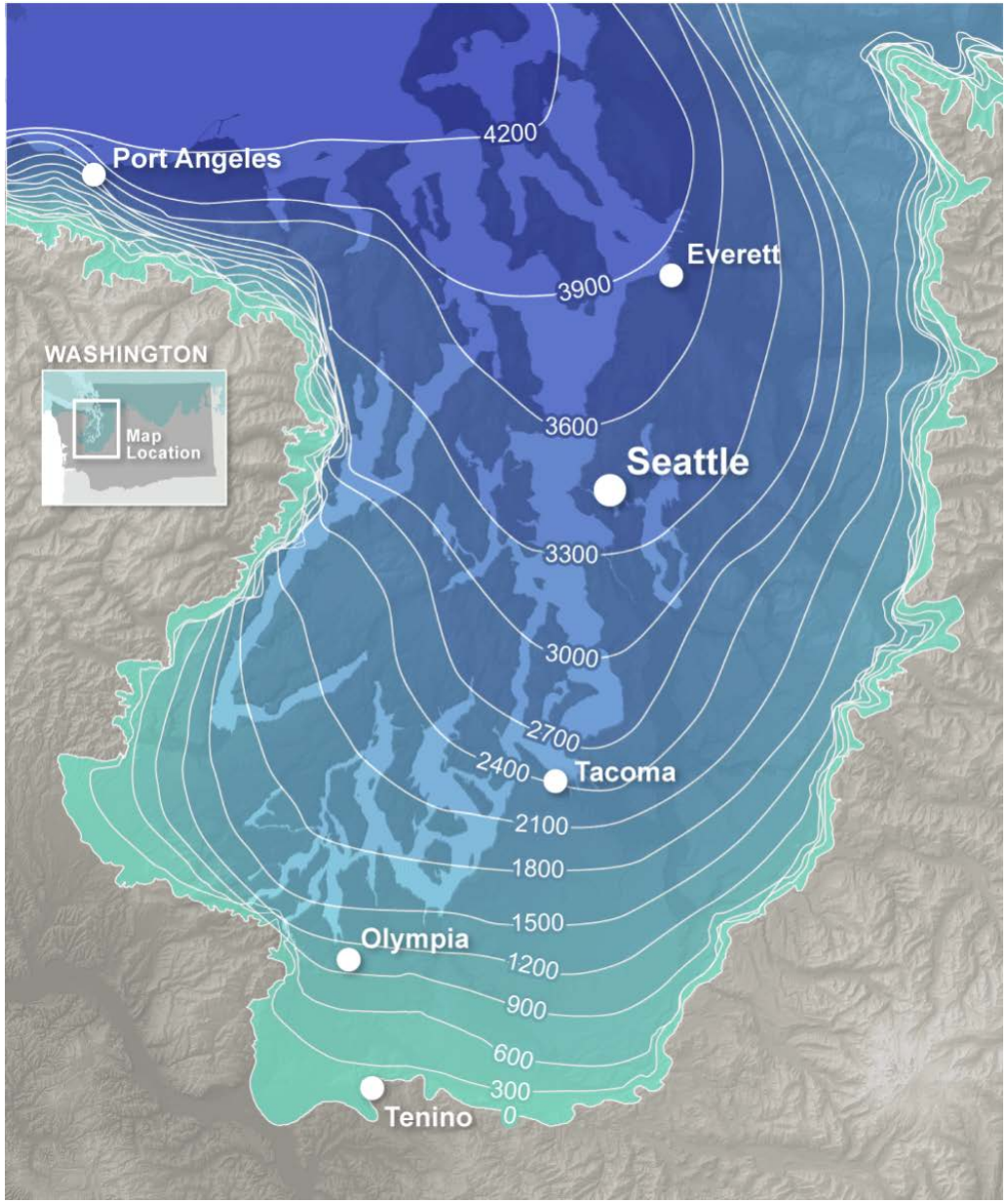
- Wrote a script against the online version
- Populated with all terms in our codes document for a complete glossary

Some Questions…

Geomaterials—GeMS

Glacial Materials

- Alluvial sediment
- Till
- Ice contact and ice marginal sediment

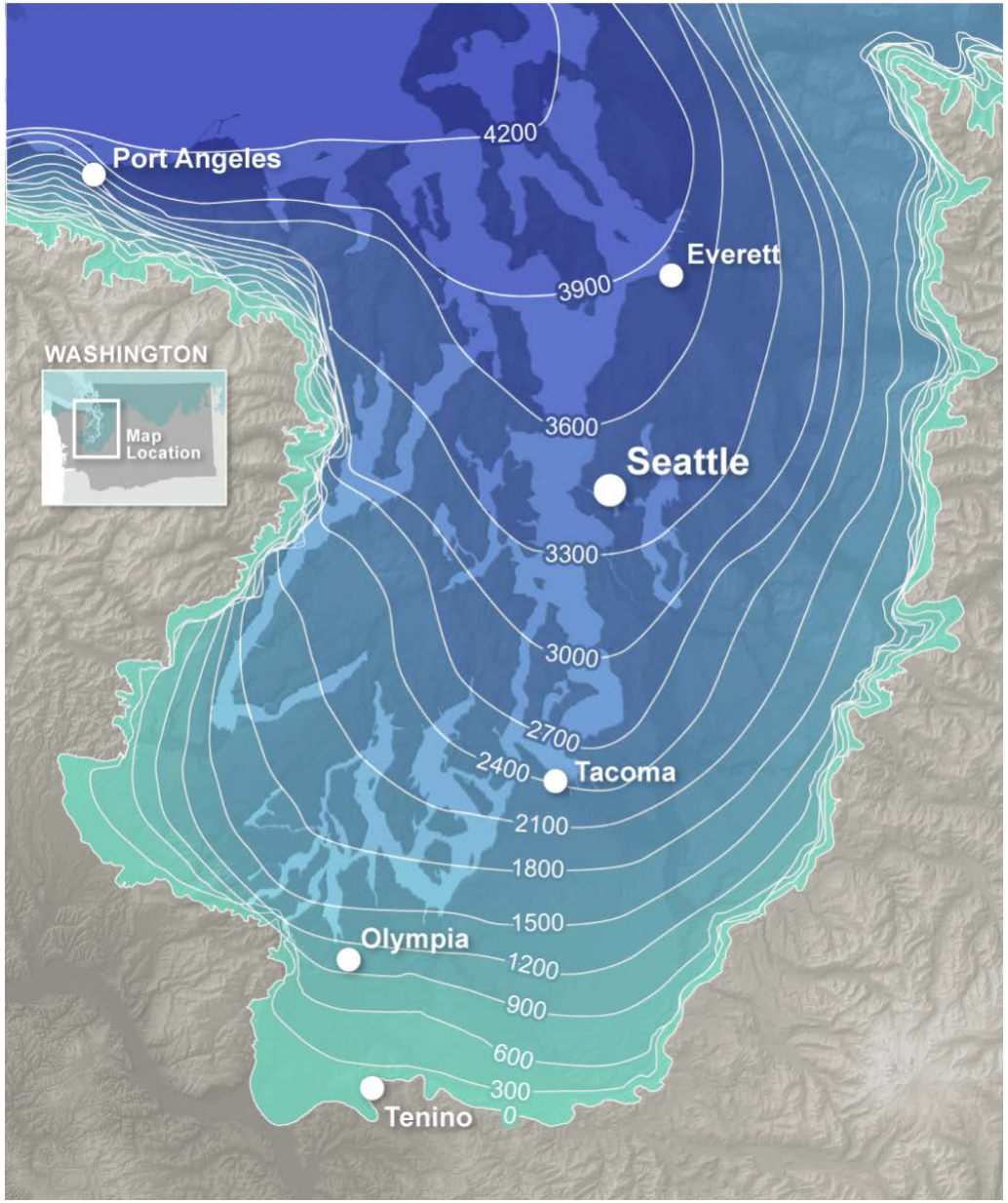


Some Questions…

Geomaterials—WGS

Glacial Materials

- Alluvium
- Drift
- Till
- Outwash
- Glacial-marine
- Glaciolacustrine
- Advance continental glacial outwash
- Alluvial fan
- Alpine glacial drift/till/outwash
- Continental glacial and non-glacial
- Continental glacial drift/till/outwash/moraines



Future Steps

- Writing a script to help convert future projects
- We will be tackling our 250 and 500k datasets in the coming year