

The following was presented at DMT'11
(May 22-25, 2011).

The contents are provisional and will be
superseded by a paper in the
DMT'11 Proceedings.

See also earlier Proceedings (1997-2010)
<http://ngmdb.usgs.gov/info/dmt/>

GEOLOGIC MAP PRODUCTION IN NCGMP DATABASES

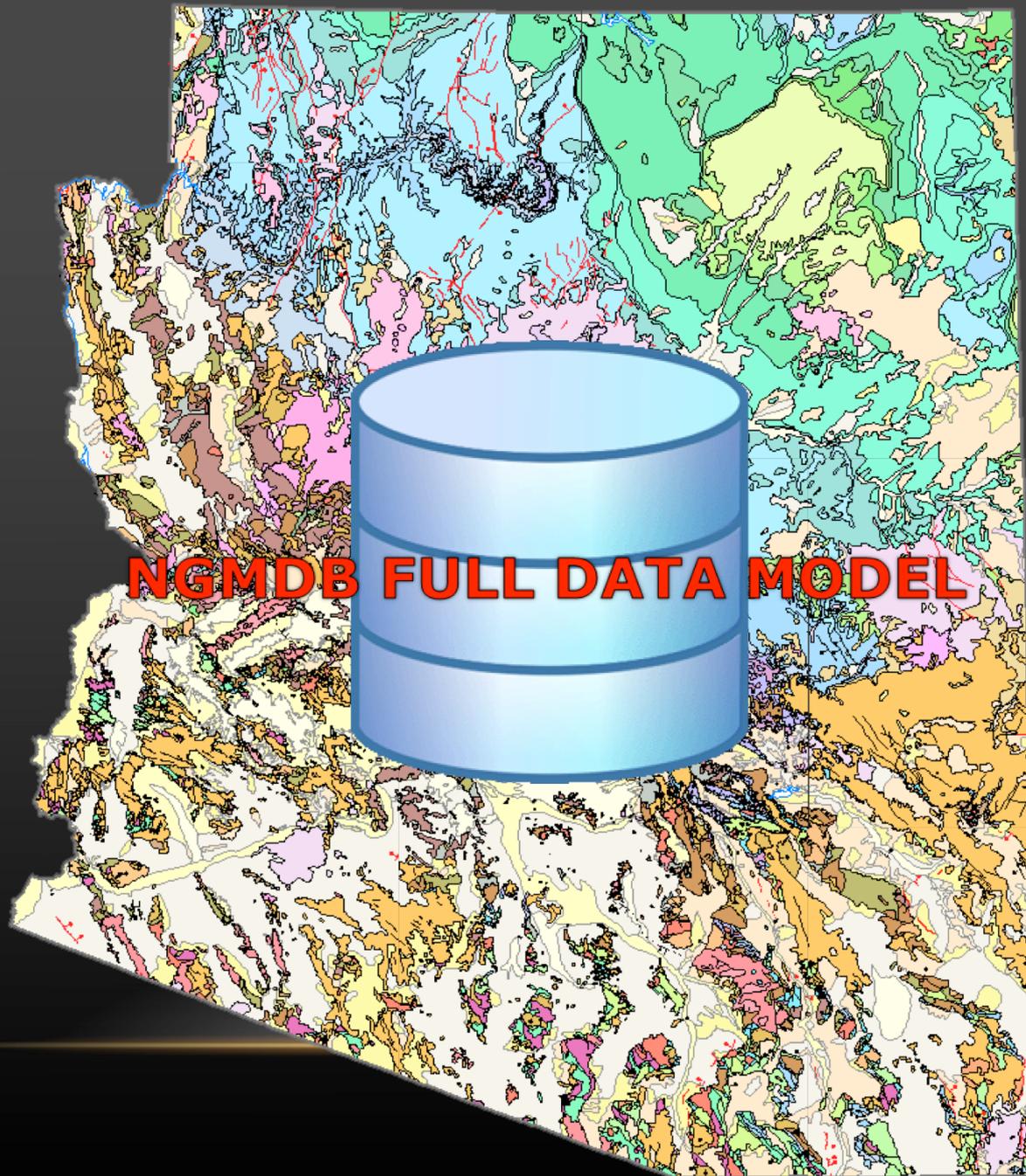
Simpler... Easier... Better?

By Ryan Clark

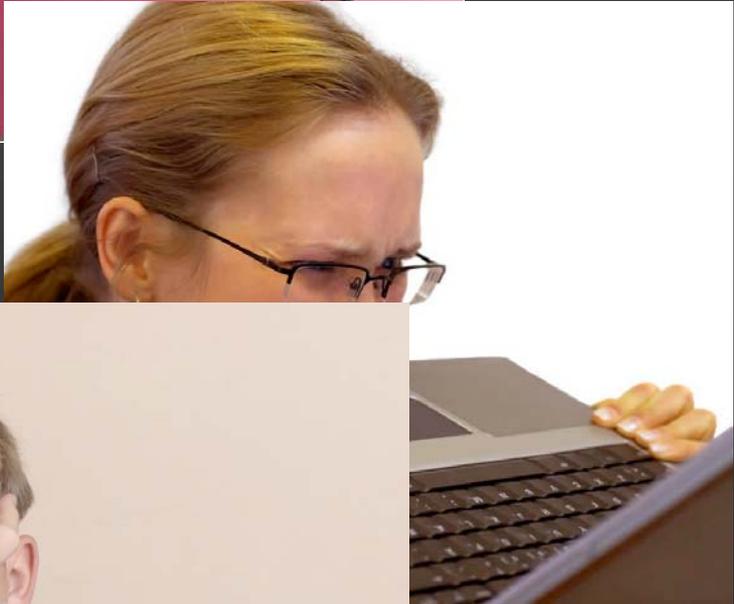
Arizona Geological Survey

Abandoning complexity...

WHAT CAME BEFORE



NGMDB FULL DATA MODEL



- ✓ Robust digital representation of our geologic knowledge
- ✓ House multiple maps in a single database: Query across map boundaries
- ✓ Allows us to automate complex questions
- ✓ Would we ask them if we could?
- ✗ More difficult data entry because there's more data to enter
- ✗ Does not match the way we work: Project-by-project basis
- ✗ Classically, map compilation treated as a separate project
- ✗ Are we asking the complex questions?

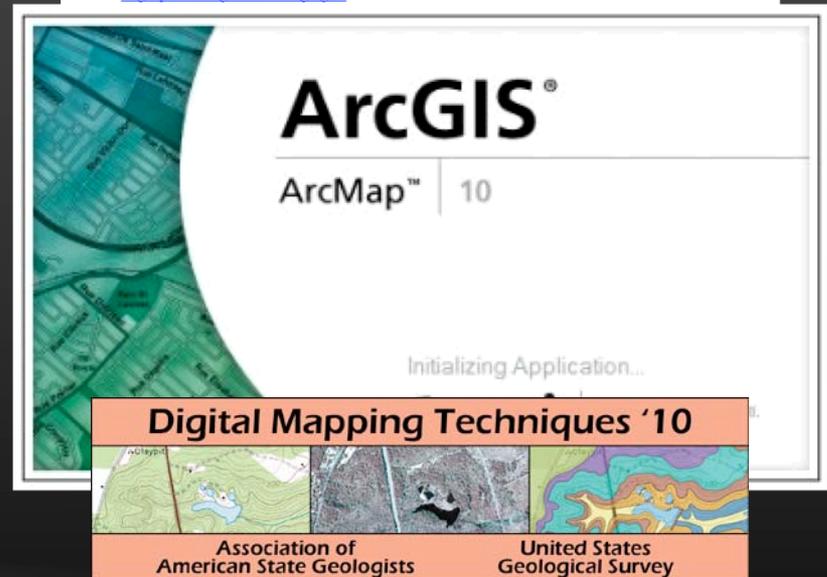
COMPLEXITY: IS IT WORTH IT?

- NCGMP09 design nearing “completion”
- Transition to ArcGIS v.10 required re-tooling
- Data Preservation project funding to recover old datasets
- Excited about NCGMP database’s possibilities after last year’s DMT

NCGMP09—Draft Standard Format for Digital Publication of Geologic Maps, Version 1.1

By the USGS National Cooperative Geologic Mapping Program (NCGMP)¹

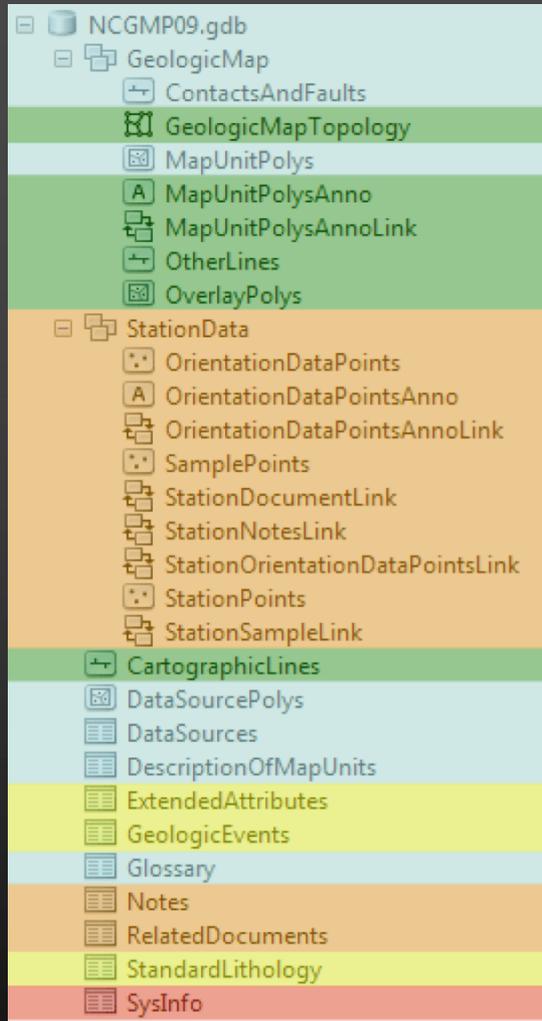
¹Prepared on behalf of the NCGMP by members of the National Geologic Map Database Project and the Pacific Northwest Geologic Mapping Project. Contributors (in alphabetical order): Ralph A. Haugerud, Stephen M. Richard, David R. Soller, and Evan E. Thoms
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TRANSITIONAL “PERFECT STORM”

What have I done?

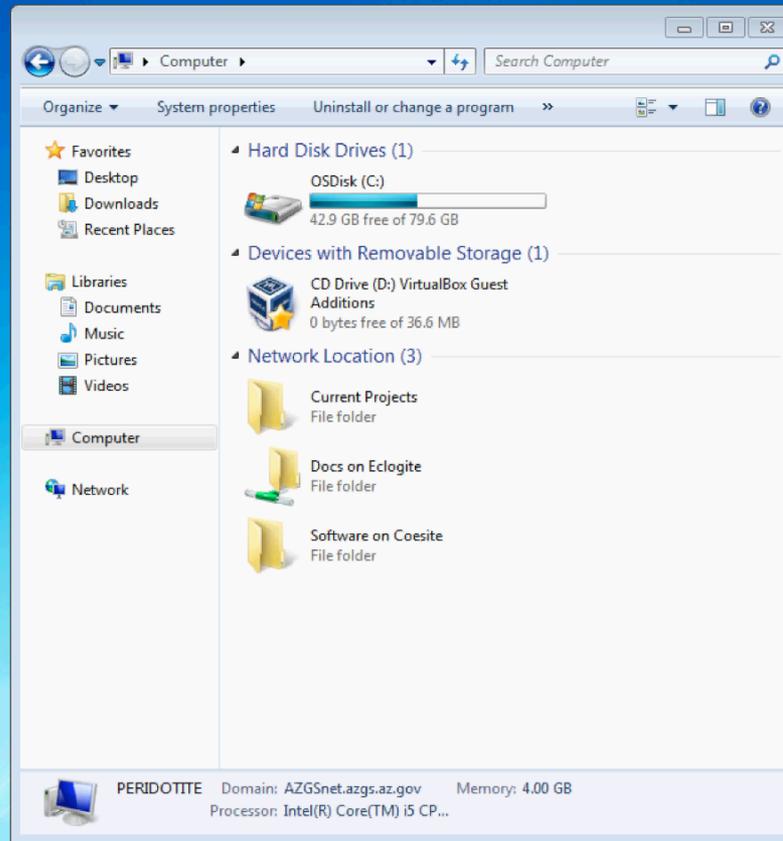
NCGMP SCHEMA ADDITIONS



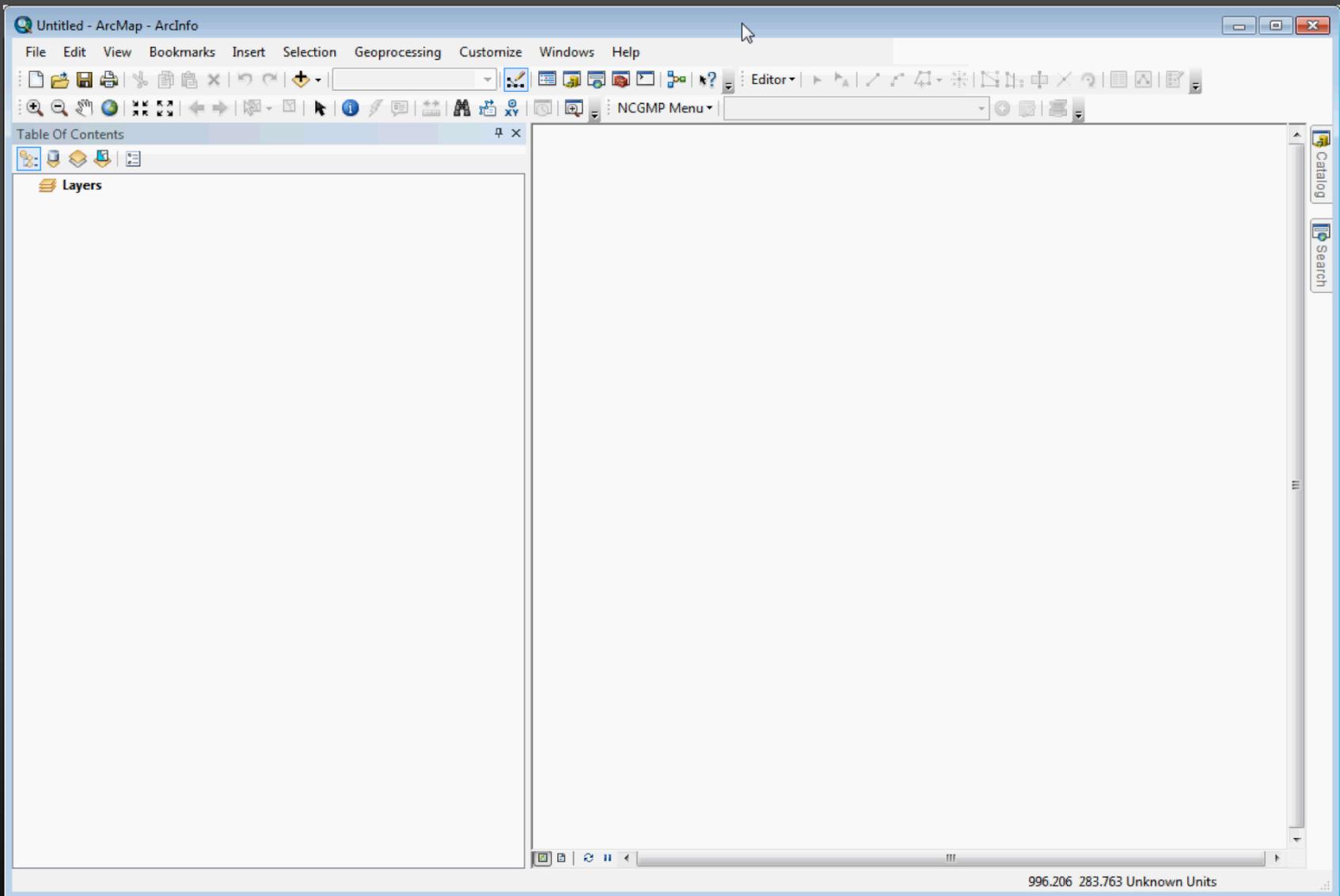
- Core Content
- Topology, Annotation, Representations
- Station Data
- Expanded Unit Descriptions
- SysInfo: For the tools (don't include in your export!)

Making simple easier...

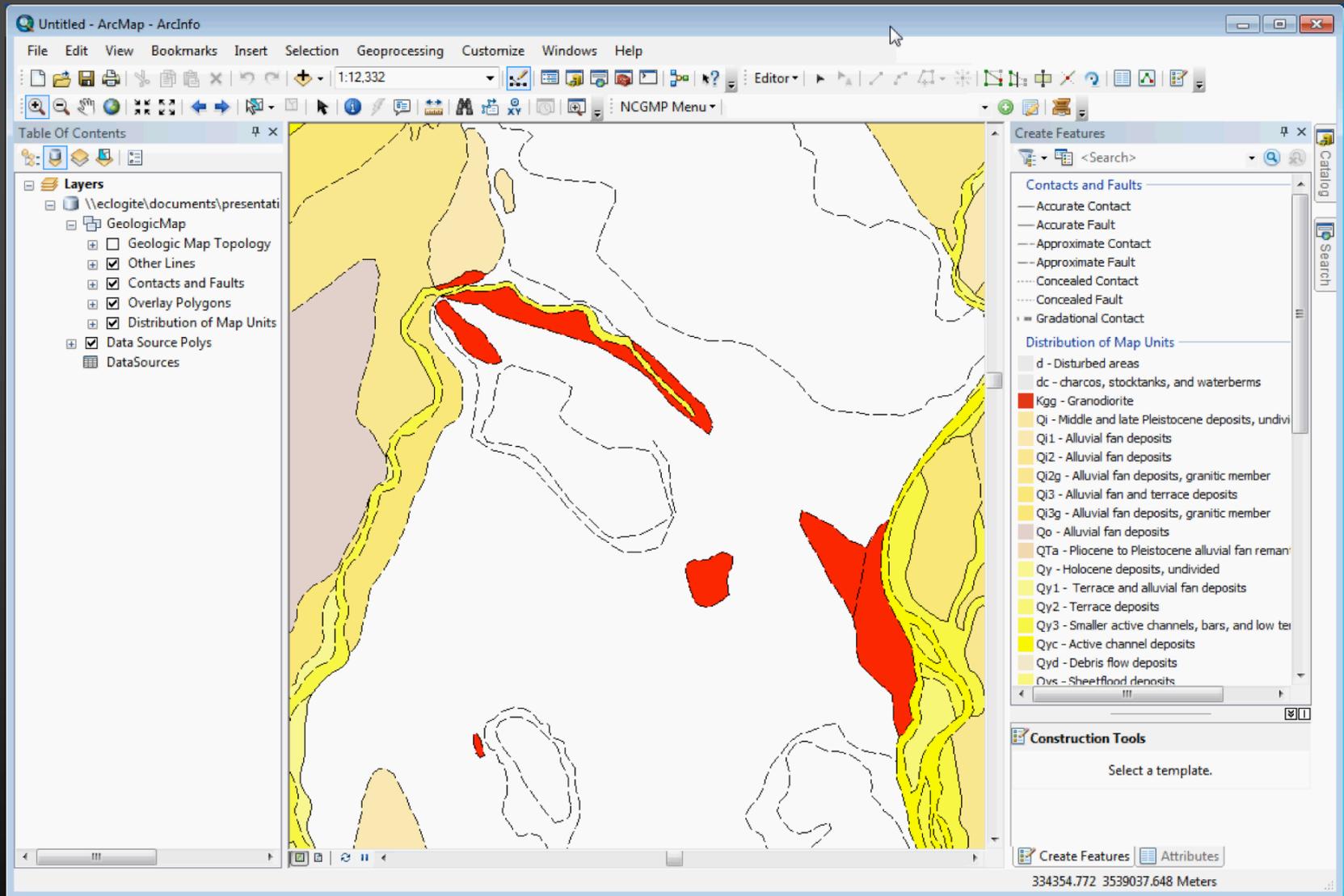
ARCMAP NCGMP TOOLSET



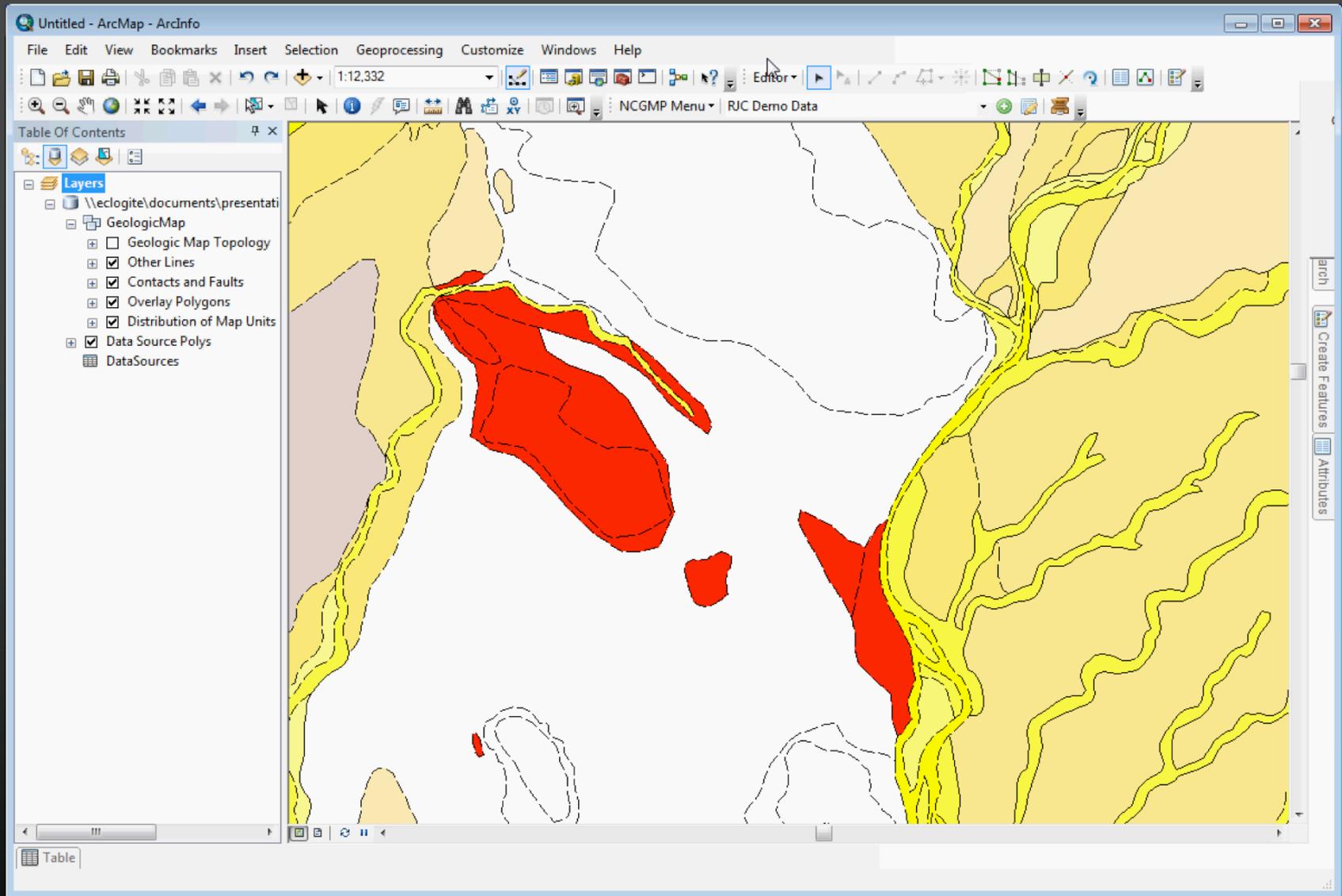
THE TOOLBAR: INSTALLATION



THE TOOLBAR: NEW/OPEN DATABASE



THE TOOLBAR: DATASOURCE MANAGER



THE TOOLBAR: LEGEND EDITOR

- **EDITOR EXTENSION**

- Enable the toolbar if you're editing a valid NCGMP database
- Add feature identifiers as you create new features
- Populate DataSourceID attributes from your selection on toolbar

- **TOOLBAR**

- Create a blank NCGMP database, open existing one with automatically generated layers, appropriate symbology and default feature templates
- Datasource management, select a default for creation of new features
- Map Unit Legend Editor: Nice user-interface for populating the DescriptionOfMapUnits table and attributing polygons. Seamless symbology integration
- Other database management functions that I didn't demo...

TOOLSET: SUMMARY

- Read DescriptionOfMapUnits table, draw legend onto layout view from the data
- QA/QC: Datasource and Glossary validation
- Simplify some existing tools / code
- Other suggestions?

TOOLSET: SOON TO COME

FOSS-lover's paradise

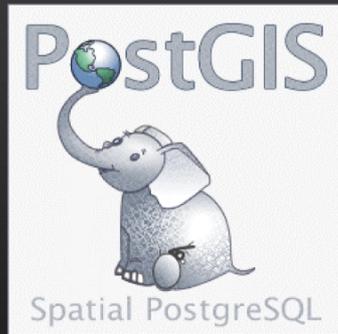
NCGMP-BASED WEB-SERVICES



Geospatial **D**ata **A**bstractio**n** **L**ibrary



DJANGO / PYTHON



POSTGRES SQL + POSTGIS



GeoServer

OPEN-SOURCE APPLICATIONS



MS Access Geodatabase

GDAL



.csv and geoson files



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```

Django



Spatial
You'
from
[LOU



GeoServer



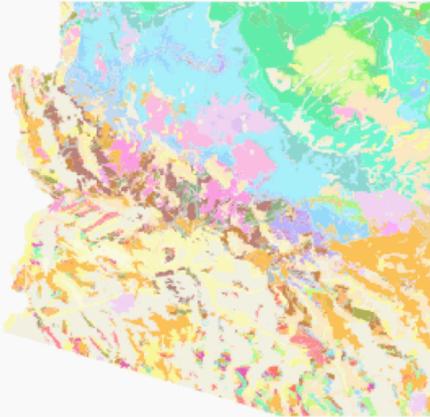
WFS 1.0



Whatever you want...

Demo x +

services.usgin.org/ncgmp/demo



Navigation icons: compass, zoom in (+), zoom out (-), globe.

Q Quaternary Surficial deposits, undivided (0-2 Ma)
Unconsolidated to strongly consolidated alluvial and eolian deposits. This unit includes: coarse, poorly sorted alluvial fan and terrace deposits on middle and upper piedmonts and along large drainages; sand, silt and clay on alluvial plains and playas; and wind-blown sand deposits.

QTb Holocene to Middle Pliocene Basaltic Rocks (0-4 Ma)
Mostly dark-colored basaltic lava and cinders young enough that some original volcanic landforms are still apparent. Includes a small amount of andesite, dacite, and rhyolite. Rocks of this map unit are largely restricted to six areas widely distributed in Arizona: San Francisco and Uinkaret volcanic fields in northern Arizona (0-4 Ma); Springerville (0-4 Ma) and San Carlos (0-2 Ma) volcanic fields in east-central Arizona; and San Bernardino (0-1 Ma) and Sentinel (1-4 Ma) volcanic fields in southern Arizona. Rocks of this unit are also present in the extreme southwestern part of Arizona where they were erupted at the edge of the Pinacate volcanic field (0-2 Ma) in northwestern Sonora.

QTV Holocene to Middle Pliocene Volcanic Rocks (0-4 Ma)
Rhyolite to andesite deposited as a sequence of lava flows and associated rocks; generally light to medium gray, tan, or reddish brown. These rocks are part of the San Francisco volcanic field.

Qr Holocene River Alluvium (0-10 ka)
Unconsolidated to weakly consolidated sand and gravel in river

THANK YOU

Questions?