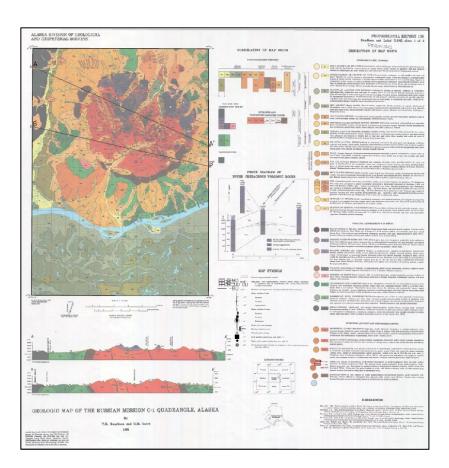
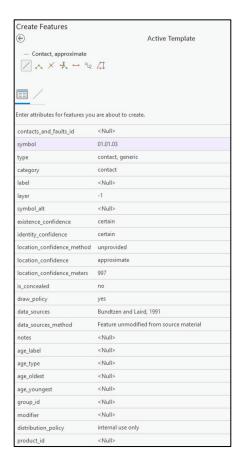
Increasing Efficiency of Contracted Geologic Map Digitization - Hail the Feature Template -







Mike Hendricks, Chris Wyatt Alaska Division of Geological & Geophysical Surveys 3354 College Rd, Fairbanks AK 99709

Background

The Alaska DGGS has leveraged contractors in our geologic map/data conversion to GeMS projects for over 3 years

STATEMAP FY21: 8 Maps

STATEMAP FY22: 11 Maps

STATEMAP FY23: 14 Maps

DMT Talk on the subject in 2022,

https://doi.org/10.14509/30890

This talk will discuss the efficiencies we have introduced, particularly focusing on the use of feature templates into our workflow.

Changing views on the process

Original Ideas:

- Firm Fixed Contract. New contract ~ annually
- Extensive Contractor training required with GeMS and AK GeMS
- Emphasis on Geologic experience versus Geospatial
- In House Gems Savy Geologist fixes all issues after contractor work

Newer Ideas:

- Set up Master Agreement with Contractor Kinney Engineering
- Contractor only requires general GeMS knowledge
- Emphasis on Geospatial versus Geologic
- In House Gems Savy Geologist prepares extensive templates and packages prior to contractor work
- Limited effort required after contractor

Every Map gets a Contractor Package

- Conversion Notes
- ArcPro Project File & AK GeMS DB
 - Feature Templates
 - Representative objects digitized from Legend
- Original georeferenced map image and Report
- Style File
- Toolbox
 - Planarize contacts and faults
 - Create Map Unit Polygons from Contacts and Faults with Map Unit Points

Conversion Notes

Digitizing notes: russian_mission_c1_quads_geo

Map publication: https://dggs.alaska.gov/pubs/id/2290

Coordinate system of geologic map feature dataset: NAD 1927 UTM Zone 4N

The map border has been digitized in the feature classes <u>product_info</u> (symbol = ak.101.02) and <u>contacts_and_faults</u> (symbol = 31.08). Snap new contacts and faults to the <u>contacts_and_faults</u> map border.

The feature template examples for this map are drawn adjacent to the legend on the georeferenced map sheet.

Laver details and style file symbol codes:

pr109_sh001_r1.tif

Georeferenced .tif raster image of original map, including map collar with legend. Coordinate system is UTM NAD27 Zone 4.

map unit points

- "Synthetic" map unit points features corresponding to each map unit in the description of map units table, with feature template examples <u>digitized</u>: used to identify map unit polys polygons to be generated automatically from digitized contacts and faults line features.
- Create one synthetic map unit points feature within each polygon defined by contacts and faults features.
- Digitize the Kuskokwim River as unit "Water", but small lakes can be included with surrounding map units.

contacts and faults

- The original map used a solid line symbol for "approximately" located contacts and faults; the GeMS digital version will use a dashed line
 - Identity and existence certain, location approximate (01.01.03)
- 2. Boundaries
 - a. Outer edge of map (31.08)
 - Map border had been digitized in contacts and faults; snap new contacts and faults to this feature.
- There are a few dashed contacts on the original map that are not in the legend; digitize these as "approximate" as with most of the other contacts.

cartographic points

- There are four versions of the "Fault, apparent offset" symbol; choose the one that works best for each location and rotate the symbol as needed – (02.11.ak.02, 03, 04, 05)
- 2. Bearing of paleocurrent: two symbols in Kus at the <u>Kuskokwim river</u> near the eastern edge of the map; there may be more (09.001)
- Cross section endpoints these have been digitized with label only, no symbol; default
 point symbol edited to no outline color and no fill color, to be invisible.
 Completed/drawn for this map, as an example.

orientation points

- 1. Inclined features:
 - Locate and digitize <u>features</u>, and rotate as needed; the "azimuth" field will
 populate automatically.
 - Manually populate the "inclination" field with the dip value on the map; DGGS will copy the inclination value to the "label" field.
- 2. Horizontal features:
 - a. Azimuth = 0
 - b. Inclination = 0 (label will be <Null>)
- 3. Vertical features:
 - a. Azimuth = (derived from symbol rotation)
 - b. Inclination = 90 (label will be <Null>)

geochron points

- 1. K-Ar age-date locality
 - a. Locate and digitize features, and add 'label' to feature class table.
 - b. Age data will be added to feature class table by DGGS.

geologic points

- 1. Glacial erratic locality (30.03.16)
- 2. Major oxide sample locality (31.21)
- 3. Geochemical sample locality at prospect or site of mineral occurrence (19.03.ak.01)

review item point

Web feature service layer, edited by DGGS and contractor, to identify features/areas requiring

https://services1.arcgis.com/7HDiw78fcUiM2BWn/arcgis/rest/services/review_item_point/FeatureServer

cartographic lines

- 1. Cross section lines (31.10)
- 2. Completed/drawn for this map, as an example.

geologic lines

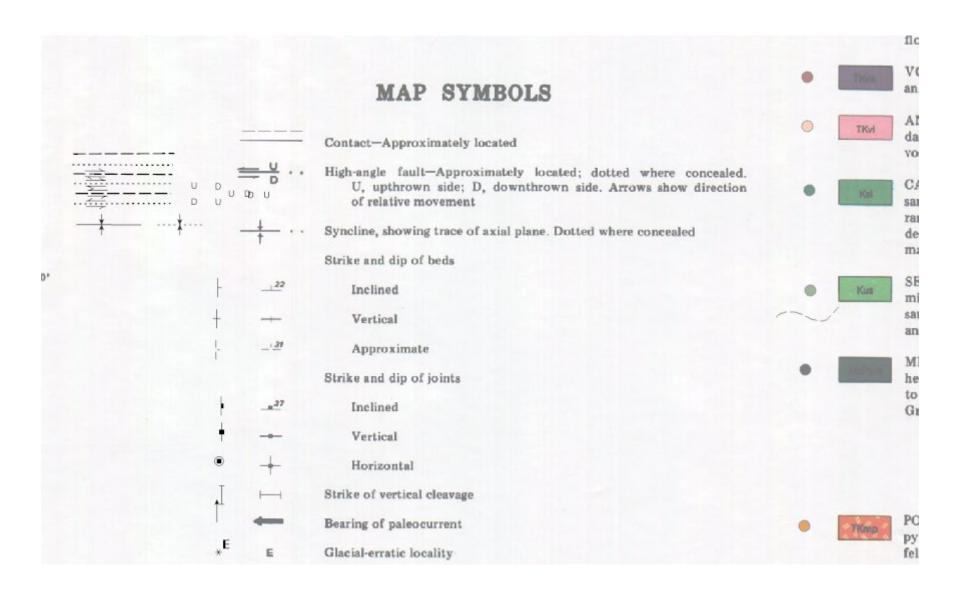
- 1. Bedding trends in map unit Kus (01.02.03)
- 2. These are mapped in the northeast corner of the map, and possibly elsewhere.
- 3. Example polygon is drawn adjacent to Kus in raster Description of Map Units.

structure_lines

1. Syncline: accurately located (05.05.01) and concealed (05.05.07)

overlay polys

 Ankerite and sericite alteration in map unit <u>TKsy</u>; example polygon is drawn adjacent to <u>TKsy</u> in raster Description of Map Units.



Create Features Search Templates Favorites / x x + - % 4 - Contact, approximate - Fault, high-angle, approximate · · · Fault, high-angle, concealed - Fault, strike-slip, left-lateral, approximate ··· Fault, strike-slip, left-lateral, concealed contacts_and_faults_id - Fault, strike-slip, right-lateral, approximate ··· Fault, strike-slip, right-lateral, concealed ✓ data_sources data_sources → description_of_map_units description_of_map_units ▼ geochron_points ■ K-Ar age-date locality ✓ geologic_lines - Bedding trends in Kus ▼ geologic_points • Geochemical sample locality at prospect or site of mineral occurrence * Glacial erratic locality · Major oxide sample locality → map_unit_lines TKda TKdf → map_unit_points Ksl Kus MzPzvs O Qa Qaf Qag Qas product_id Qat

Create Features

Active Template

- Contact, approximate











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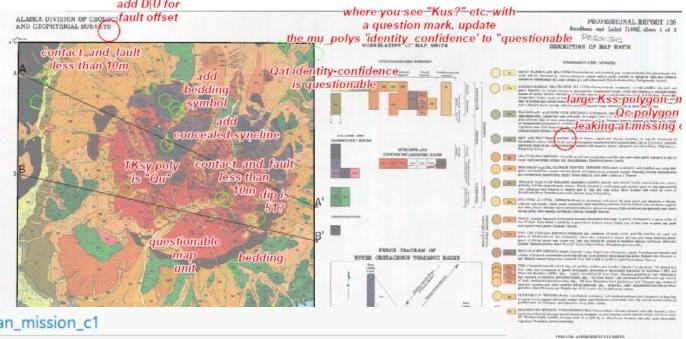
Enter attributes for features you are about to create.

symbol	01.01.03	
type	contact, generic	
category	contact	
label	<null></null>	
layer	-1	
symbol_alt	<null></null>	
existence_confidence	certain	
identity_confidence	certain	
location_confidence_method	unprovided	
location_confidence	approximate	
location_confidence_meters	997	
is_concealed	no	
draw_policy	yes	
data_sources	Bundtzen and Laird, 1991	
data_sources_method	Feature unmodified from source material	
notes	<null></null>	
age_label	<null></null>	
age_type	<null></null>	
age_oldest	<null></null>	
age_youngest	<null></null>	
group_id	<null></null>	
modifier	<null></null>	
distribution_policy	internal use only	

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Online AGOL service shared for QC



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Conclusion

- The Master Agreement has and will save us time
- The investment in time to prepare contractor packages that include rich attributed feature templates save time and money in the end.
- Having an expert Digitize the map's legend decreases confusion for the contractor and as a result saves money.