The following was presented at DMT'13
(June 2-5, 2013, Golden, CO).

The contents are provisional and will be
superseded by a paper in the
DMT'13 Proceedings.

See also earlier Proceedings (1997-2012)
http://ngmdb.usgs.gov/info/dmt/

USGS *TNM* on Mobile

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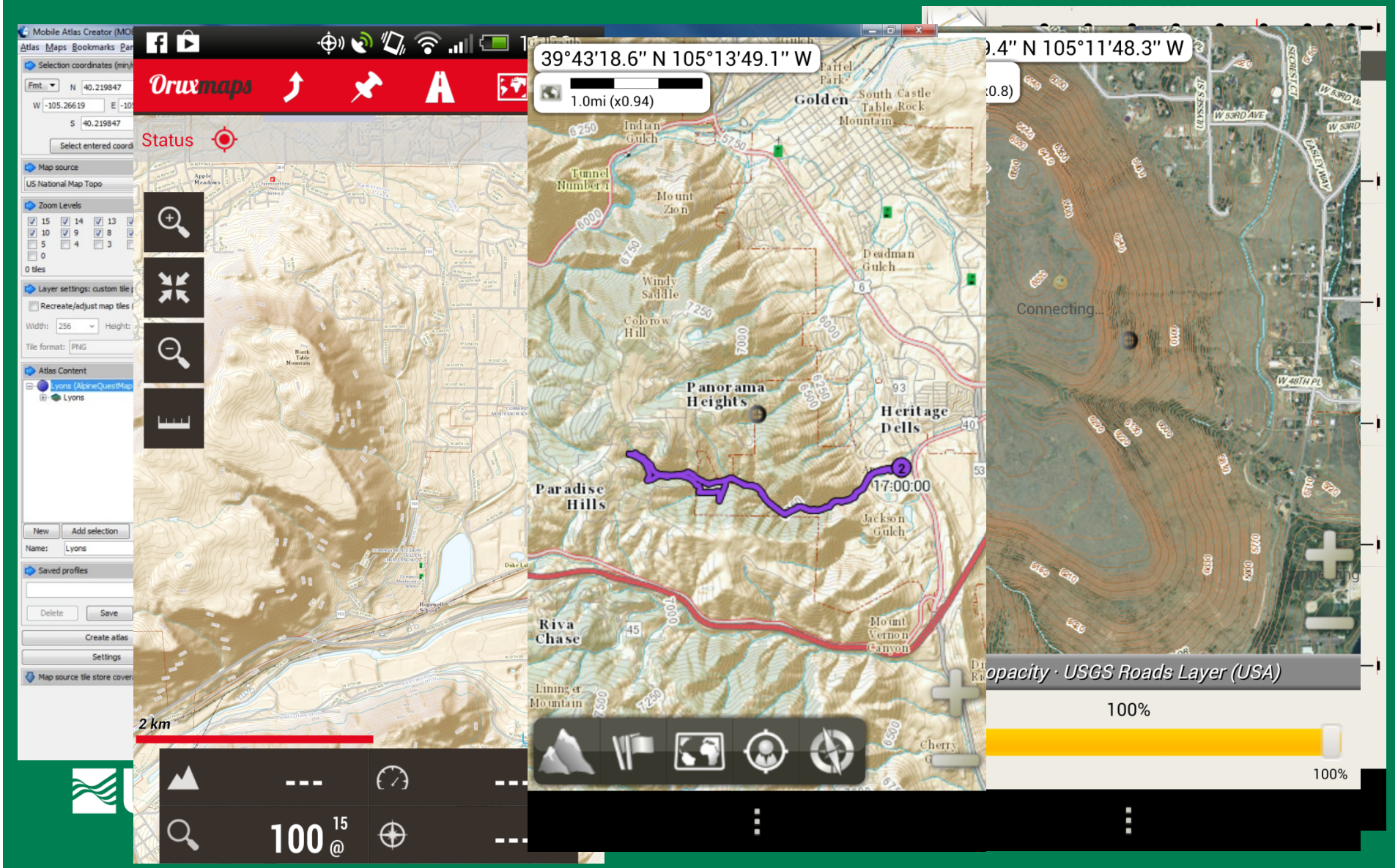
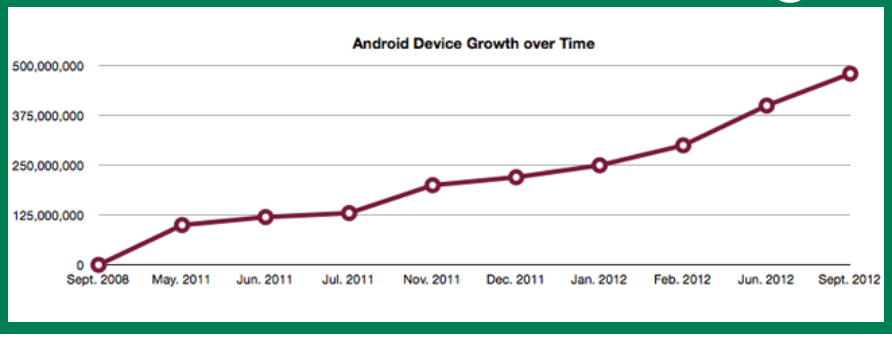
U.S. Department of the Interior
U.S. Geological Survey

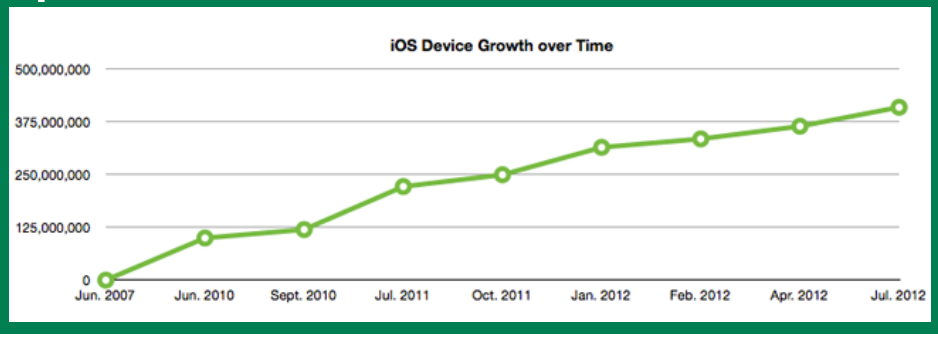
USGS *TNM* on Mobile Devices!



Importance of Mobile…

- "Charlie Regan, who runs the maps division for National Geographic, said the ***company has sold more paper map products in the past three years than it has ever sold since launching the division in 1915***. He attributed it to customers learning to appreciate good map data — and also noted that sales of international maps have remained consistent, and that sales of recreational hiking maps are on the rise."





Strategic Thoughts…

- Business Example: Marvel Comics
  - Increased sales of traditional hard copy products
  - …through the offering and continued creation of live action media
- Similarly: Can geospatial data be an equivalent "driver" for our hard copy products, and vice versa?
  - Traditional products versus digital products…
    - USTOPO GeoPDFs enabling custom printed products as well as enabling GPS apps like Avenza
    - TNM tiles enabling viewers…desktop to mobile

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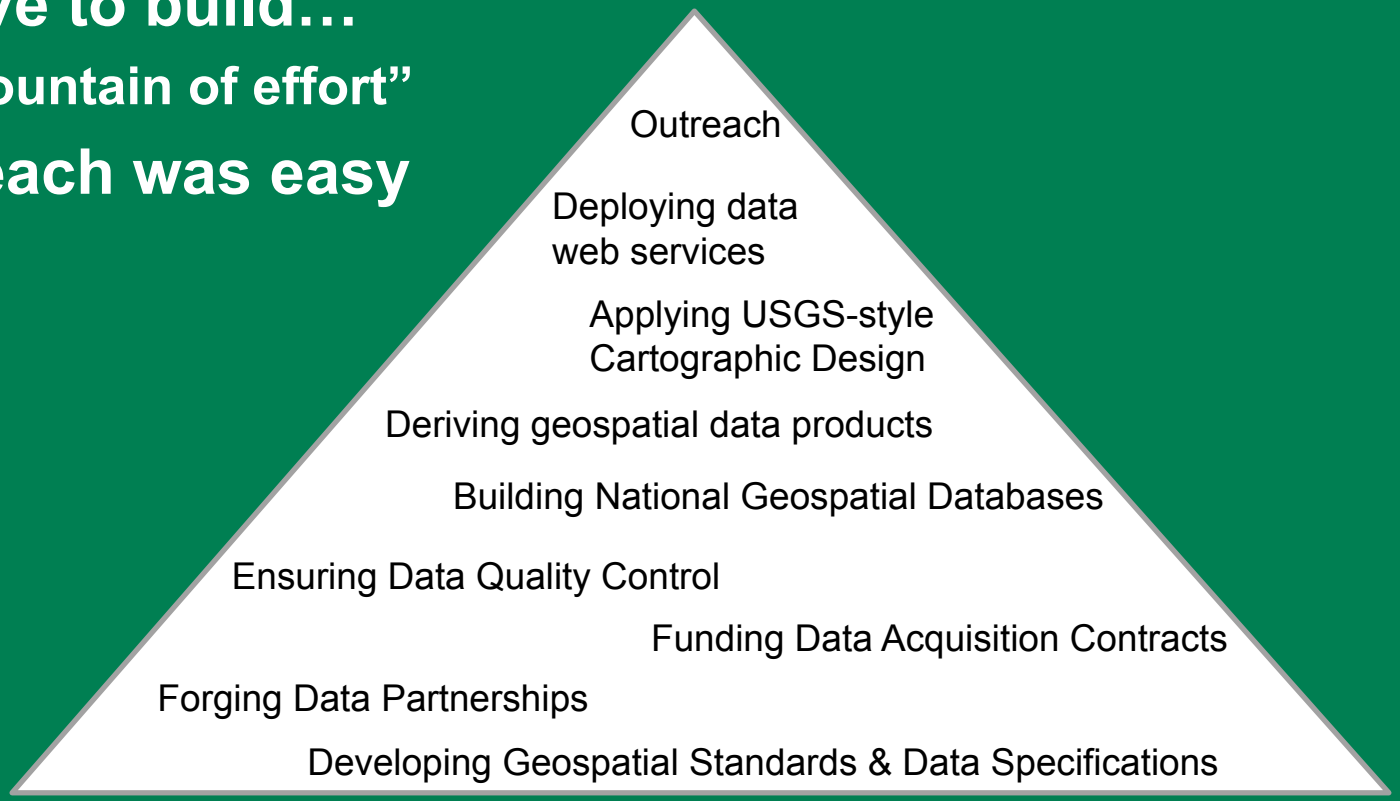
USGS *TNM* on Mobile

- What it took…
  - While the Base Map Tile Caches were very intensive to build…
    - A "mountain of effort"
  - …Outreach was easy



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USGS *TNM* on Mobile

http://viewer.nationalmap.gov/example/services.html

USGS science for a changing world — The National Map Viewer

The National Map - Service Endpoints

The following services are used in the National Map 2.0 viewer. The 'Legend' column links to a page that displays the lege
layer.

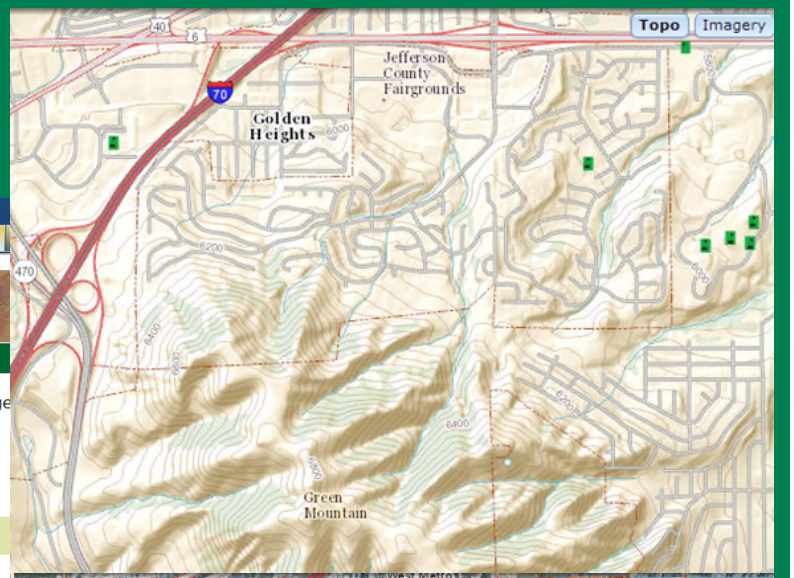
Background Maps

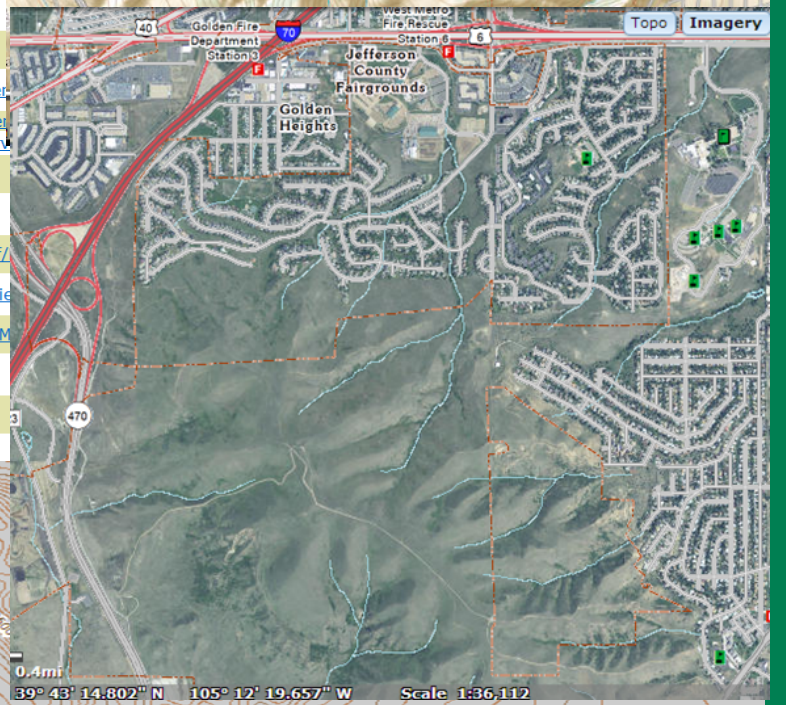
Name	Type	URL
USGS Topo Base Map - Primary Tile Cache	tiled	http://basemap.nationalmap.gov/ArcGIS/rest/services/USGSTopo/MapServer
USGS Topo Base Map - Below 18K Scale Dynamic	dynamic	http://services.nationalmap.gov/ArcGIS/rest/services/USGSTopoLarge/MapServer
USGS ImageryOnly Base Map	tiled	http://basemap.nationalmap.gov/ArcGIS/rest/services/USGSImageryOnly/MapServer
Imagery - Large Scale Dynamic	dynamic	http://raster.nationalmap.gov/ArcGIS/rest/services/TNM_Large_Scale_Imagery/MapSer
Vector Fills - Small Scale	tiled	http://basemap.nationalmap.gov/ArcGIS/rest/services/TNM_Vector_Fills_Small/MapSe
Vector Fills - Large Scale	dynamic	http://services.nationalmap.gov/ArcGIS/rest/services/TNM_Vector_Fills_Large/MapSer
Vector Base Map - Small Scale	tiled	http://basemap.nationalmap.gov/ArcGIS/rest/services/TNM_Vector_Small/MapServer
Vector Base Map - Large Scale	dynamic	http://services.nationalmap.gov/ArcGIS/rest/services/TNM_Vector_Large/MapServer
Shaded Relief - Small Scale	tiled	http://raster1.nationalmap.gov/ArcGIS/rest/services/TNM_Small_Scale_Shaded_Relief/
Shaded Relief - Medium Scale	tiled	http://raster1.nationalmap.gov/ArcGIS/rest/services/TNM_Medium_Scale_Shaded_Relie
Shaded Relief - Large Scale	dynamic	http://raster.nationalmap.gov/ArcGIS/rest/services/TNM_Large_Scale_Shaded_Relief/M
NHD Base Map - Large Scale	dynamic	http://services.nationalmap.gov/ArcGIS/rest/services/NHD_Large/MapServer
NHD Base Map - Small Scale	tiled	http://basemap.nationalmap.gov/ArcGIS/rest/services/NHD_Small/MapServer
Base Map - Blank	dynamic	http://services.nationalmap.gov/ArcGIS/rest/services/TNM_Blank_US/MapServer

Base Data Layers

Name	Type	
US Topo	dynamic	http://services.nationalmap
Geographic Names (GNIS)	dynamic	http://services.nationalmap
Structures	dynamic	http://services.nationalmap
Transportation	dynamic	http://services.nationalmap

Other Featured Data
User Added Content
Favorites





USGS *TNM* on Mobile

- What was accomplished:
  - TNM on two Android applications
  - TNM on Mobile Atlas Creator (MOBAC)
    - "Many birds with one stone"…
  - Provided MotionX GPS/Nike+ with our TNM map tiles and "raw data" (iOS)
    - Interested in hosting our data

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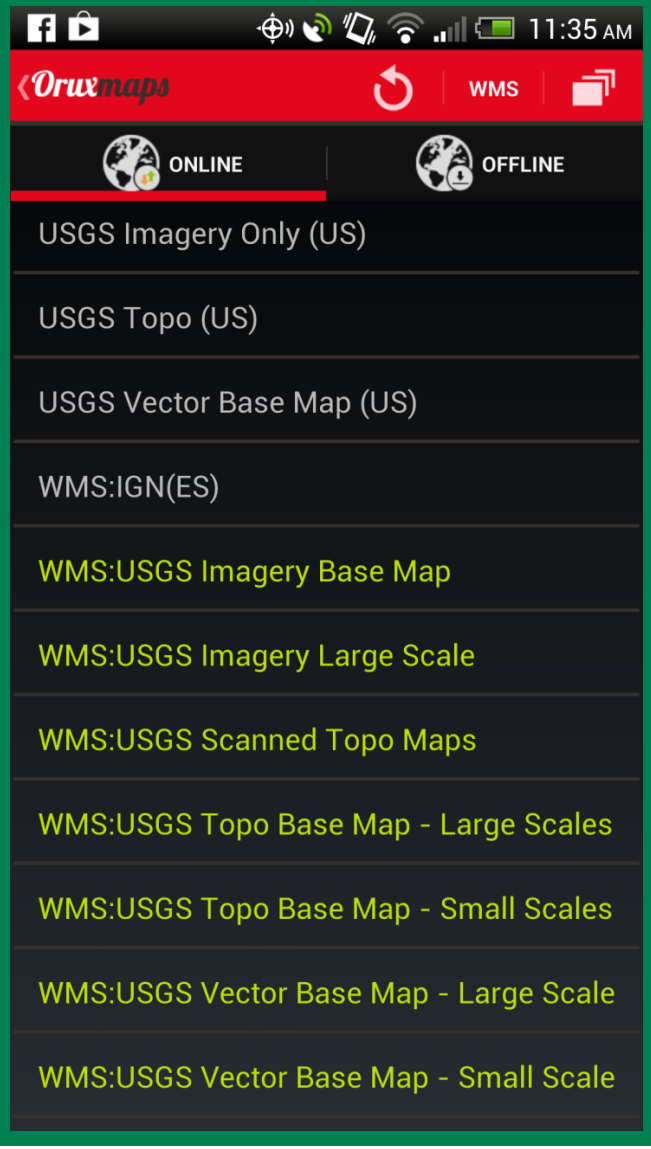
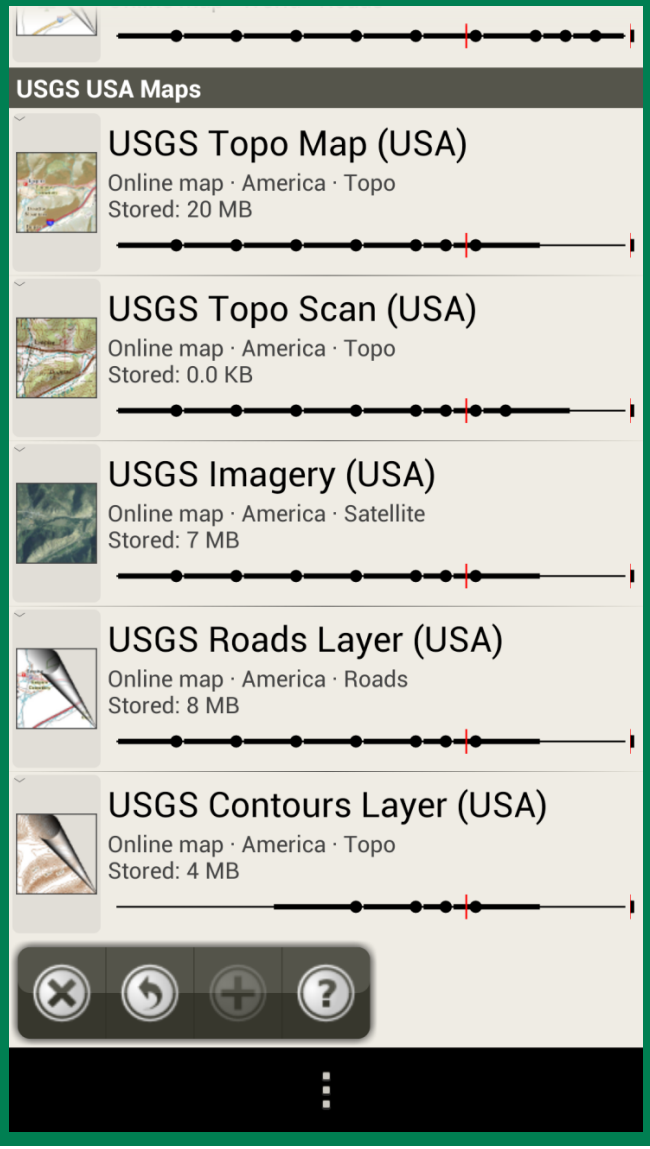
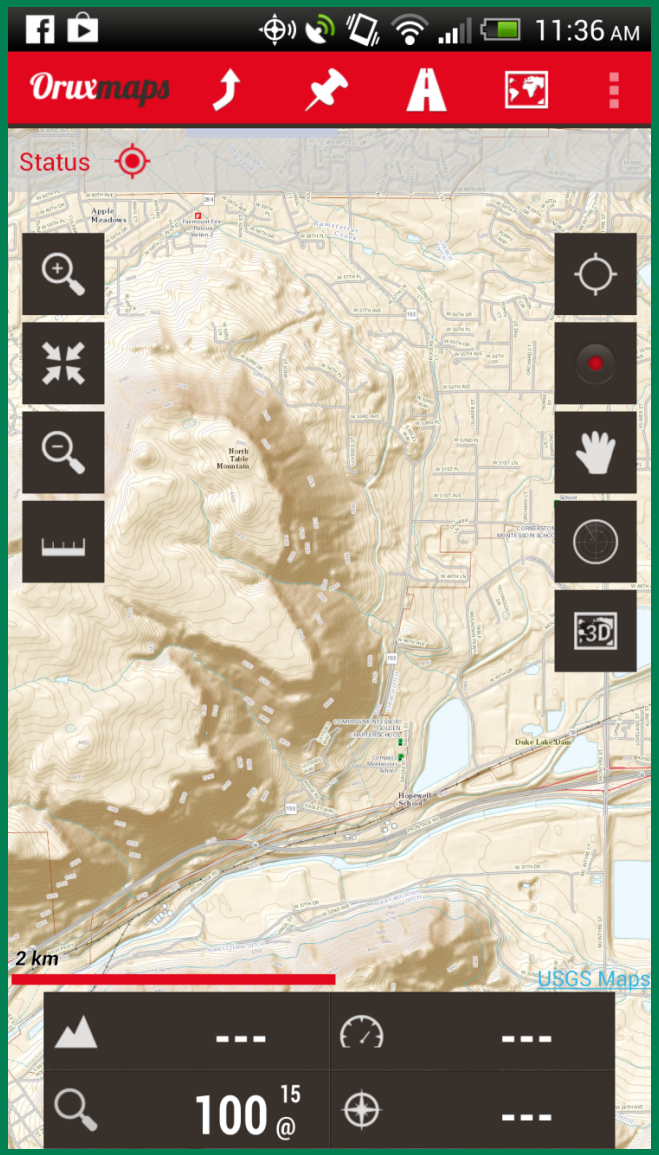
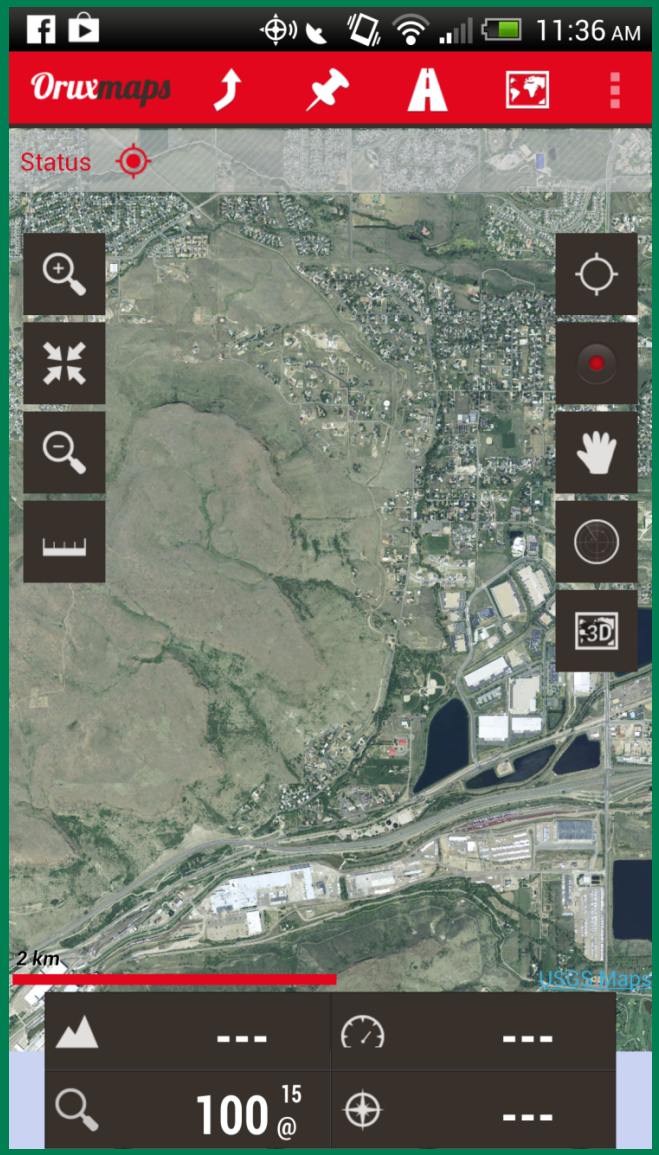
USGS *TNM* on Android…





TNM on OruxMaps





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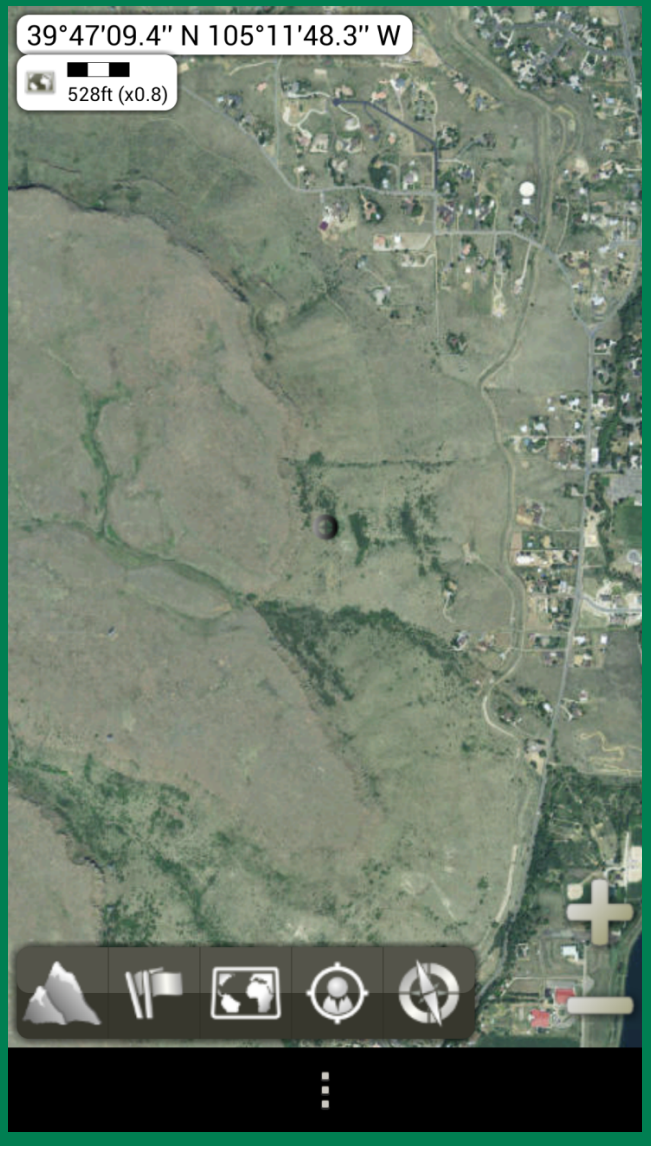
TNM on AlpineQuest



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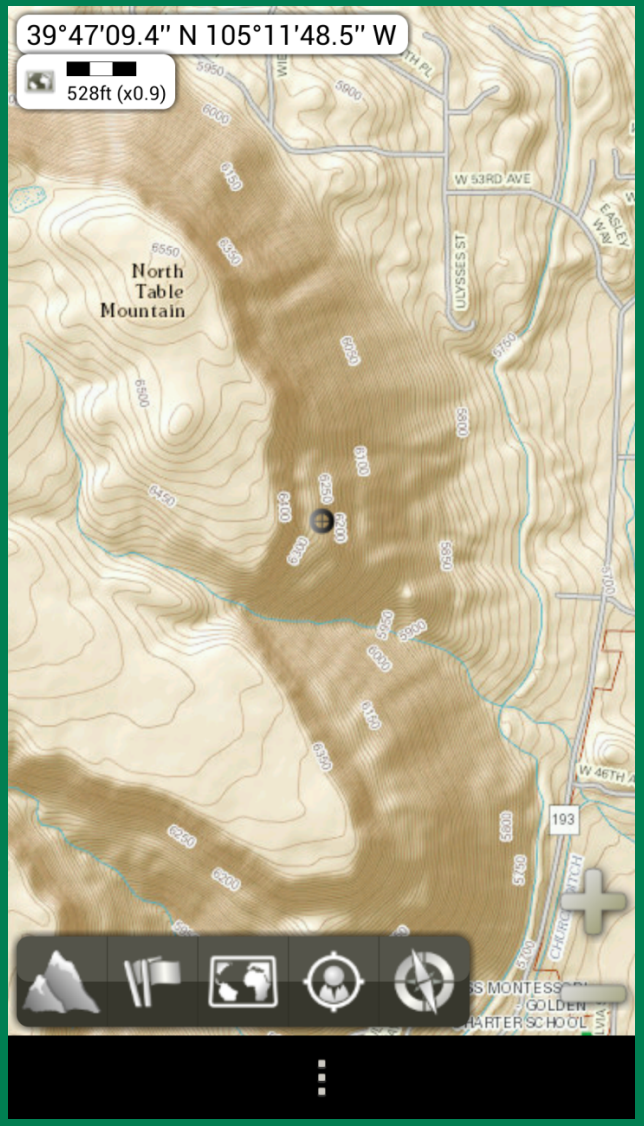
TNM on AlpineQuest



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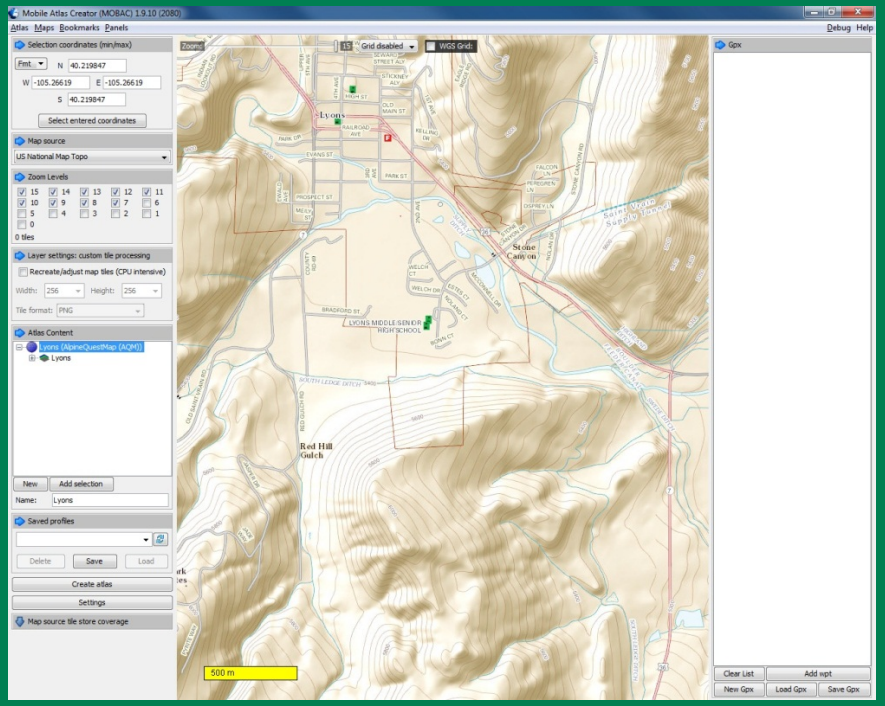
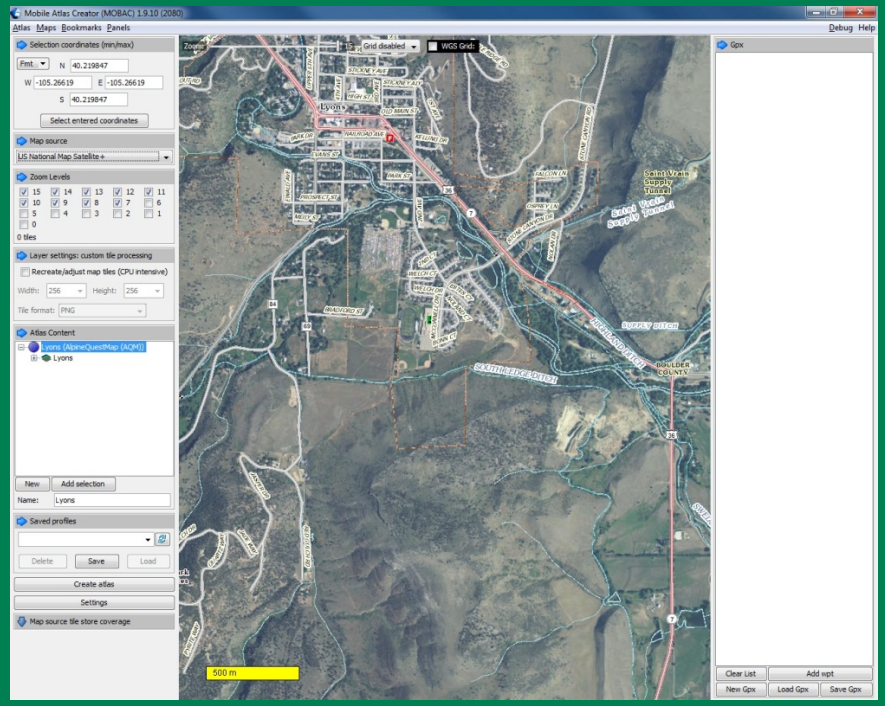
TNM: MOBAC





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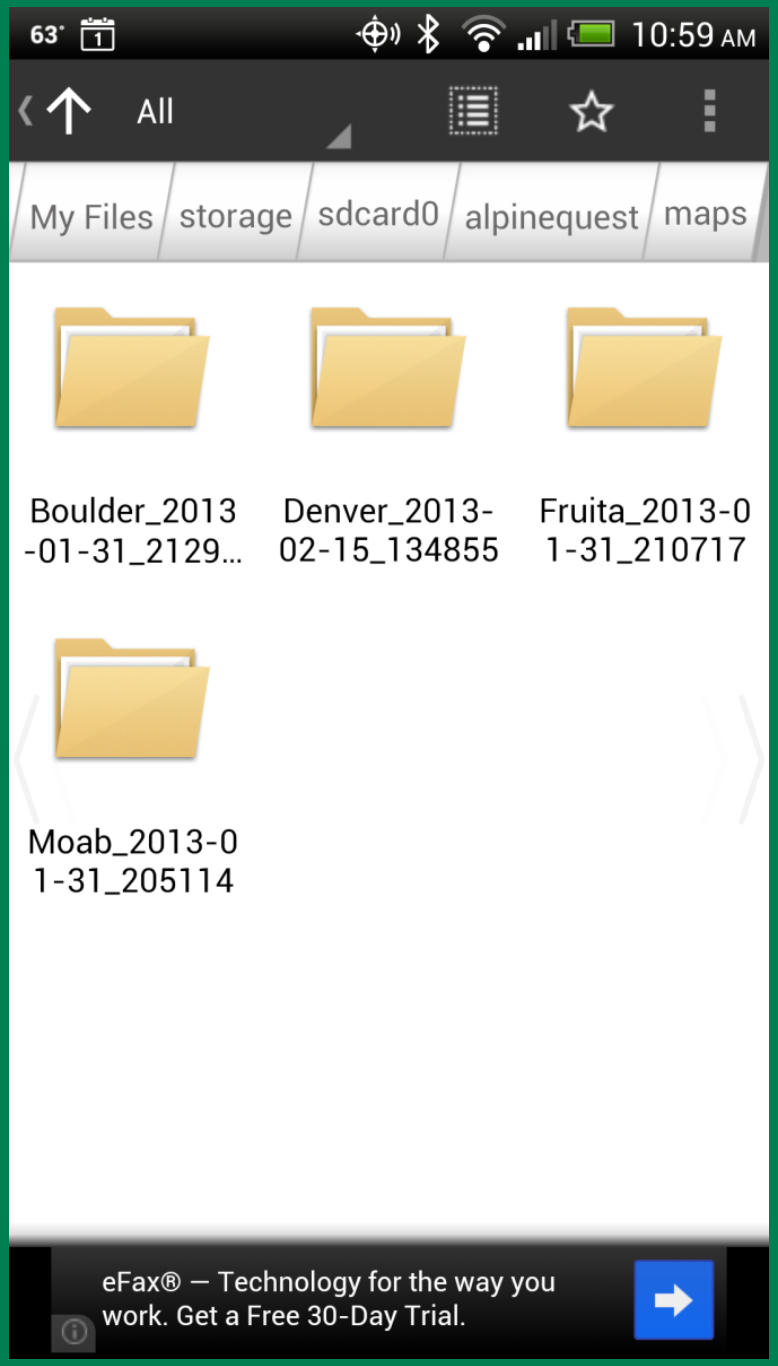
TNM: MOBAC

- Map Tiles "hosted" locally on device
- Benefit:
  - Small files
    - ~218mb
  - "Roaming"
  - Faster viewing



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TNM: MOBAC… 30+ apps supported!

- AFTrack (Symbian)
- AlpineQuest (Android)
- AndNav (Android)
- BackCountry Navigator (Android)
- CacheBox (Windows Mobile)
- Cachewolf
- Galileo Offline Maps (iOS)
- Garmin Custom Map – KMZ (GPS Handhelds)
- Etc…

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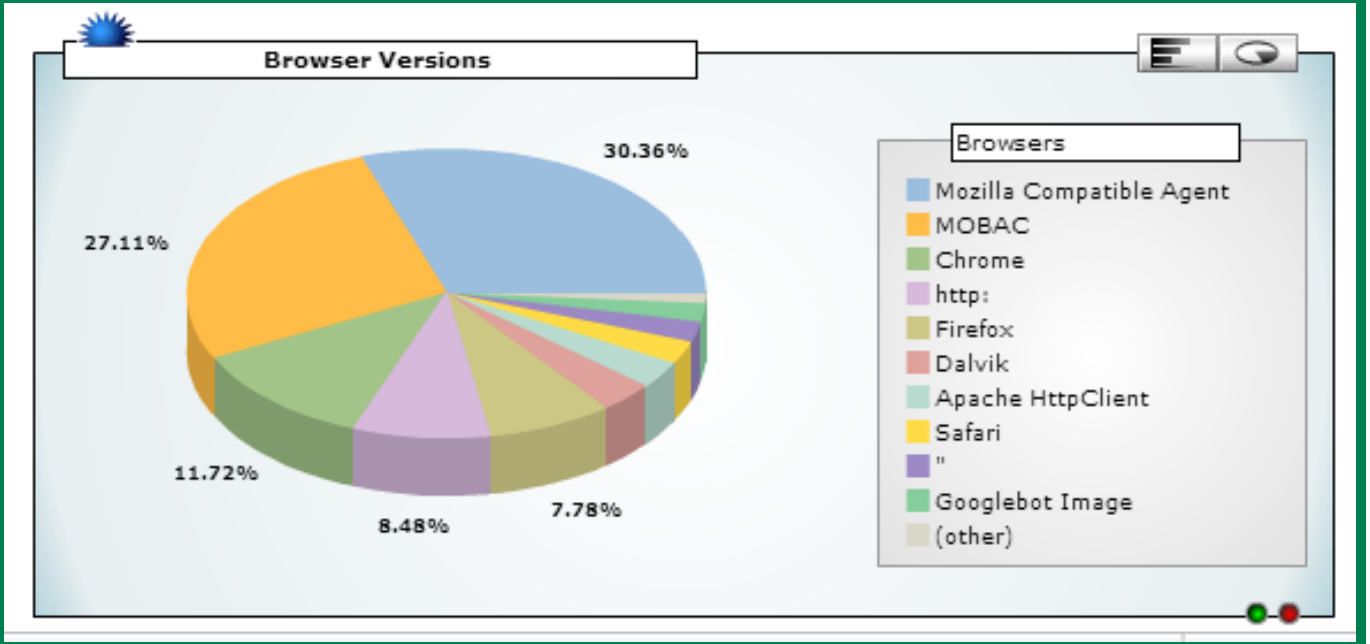
TNM: MOBAC

- MOBAC is already the #2 consumer of TNM basemap (by browser)!
  - 17-25APR



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TNM on Mobile: what was learned?

- Developers and Users love our data!
  - Getting more feedback on our map data
  - More people are getting access to our data
- Android environment is very fast and Agile!
  - Small development teams and organizations
  - …From around the world!
  - Chaotic and quick!
- Role of Government and Private sector

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Follow up actions…

- "Spreading the word"
  - Presentations
  - Technical Announcement
  - …essentially, a multi-faceted marketing campaign
- Working toward deploying data in iOS
  - MotionX GPS
  - Galileo Offline Maps (iOS) news release helping their users more easily access USGS data
- Collaboration with other Federal partners
  - Meeting with NGA's lead on mobile development

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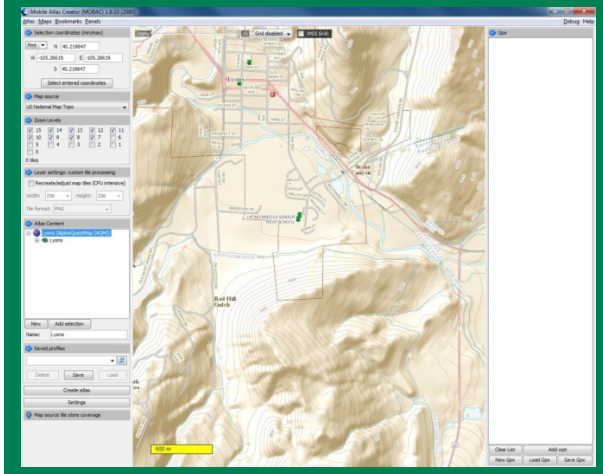
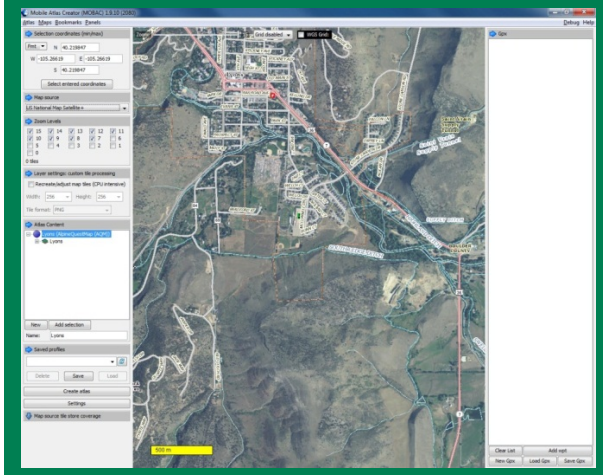
Questions? Thoughts?





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