

# DIGITAL MAPPING TECHNIQUES 2013

The following was presented at DMT'13  
(June 2-5, 2013 - Colorado Geological Survey and Colorado School of Mines  
Golden, CO)

The contents of this document are provisional

See Presentations and Proceedings  
from the DMT Meetings (1997-2013)

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



# USGS *TNM* on Mobile

Brian Fox

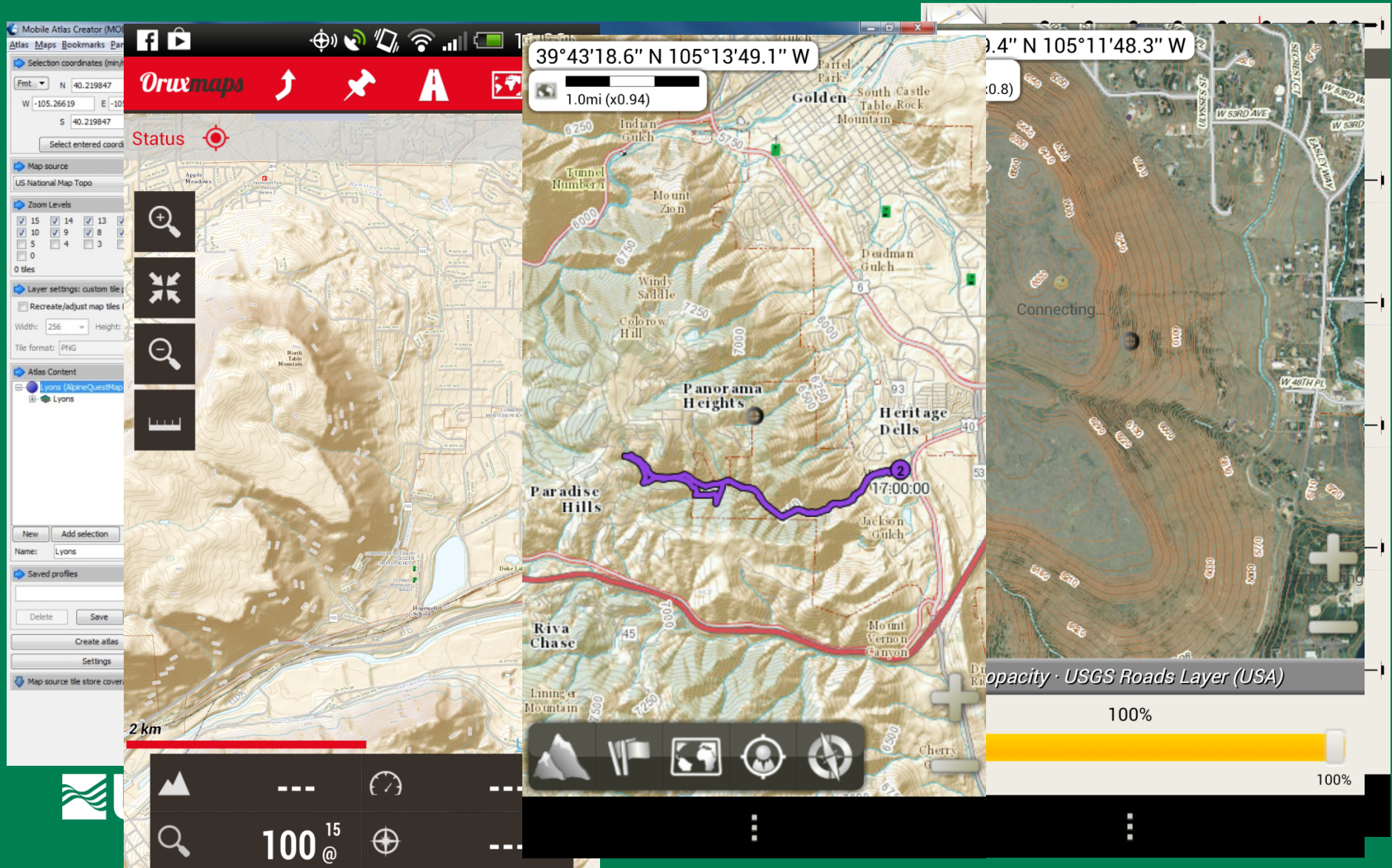
USGS – National Geospatial Technical  
Operations Center (NGTOC)



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

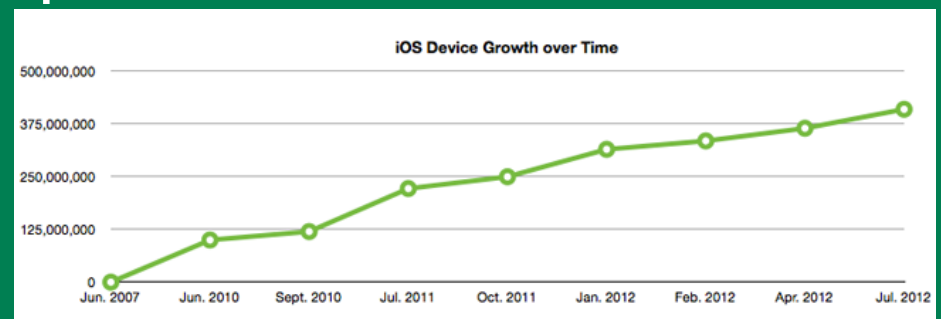
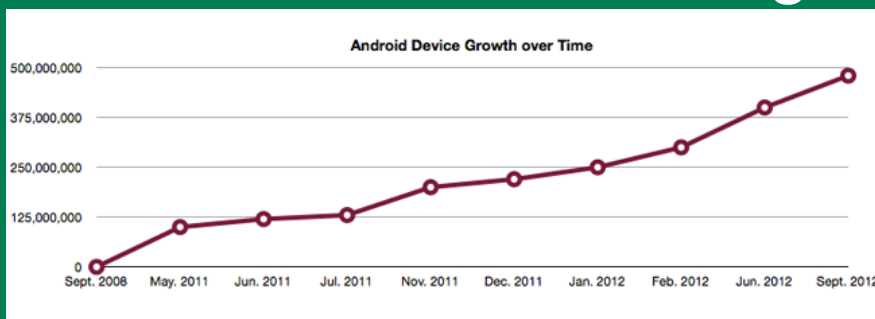


# USGS TNM on Mobile Devices!



# 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."



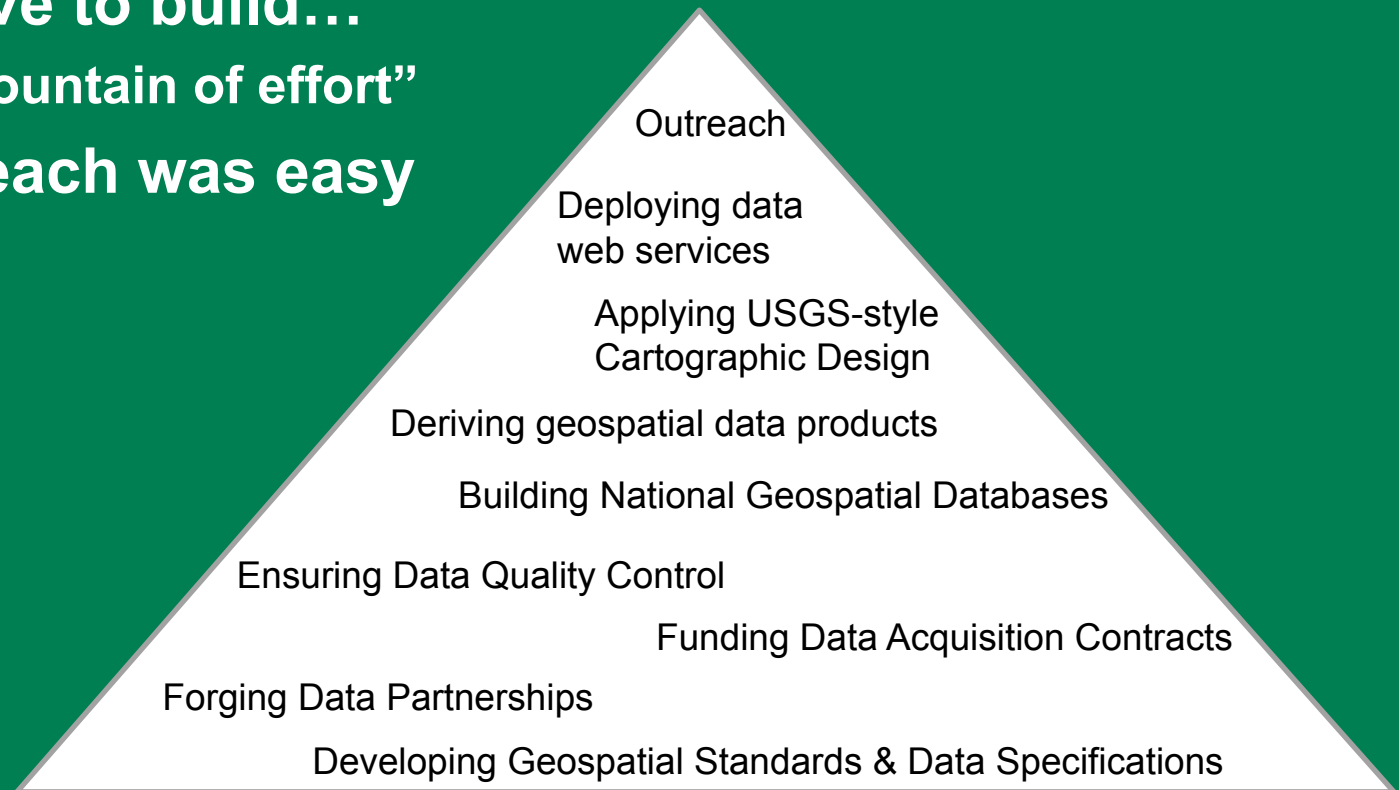


# Strategic Thoughts...

- 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

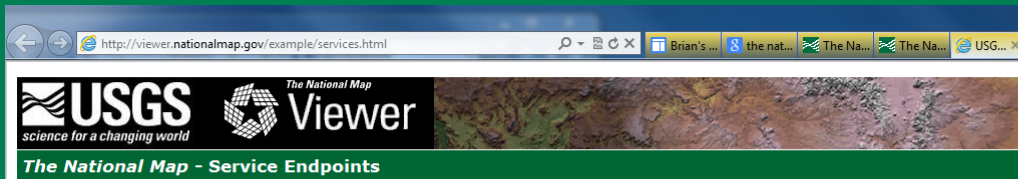
# USGS *TNM* on Mobile

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





# USGS TNM on Mobile



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

## Background Maps

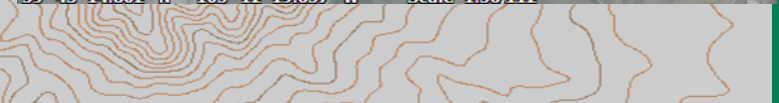
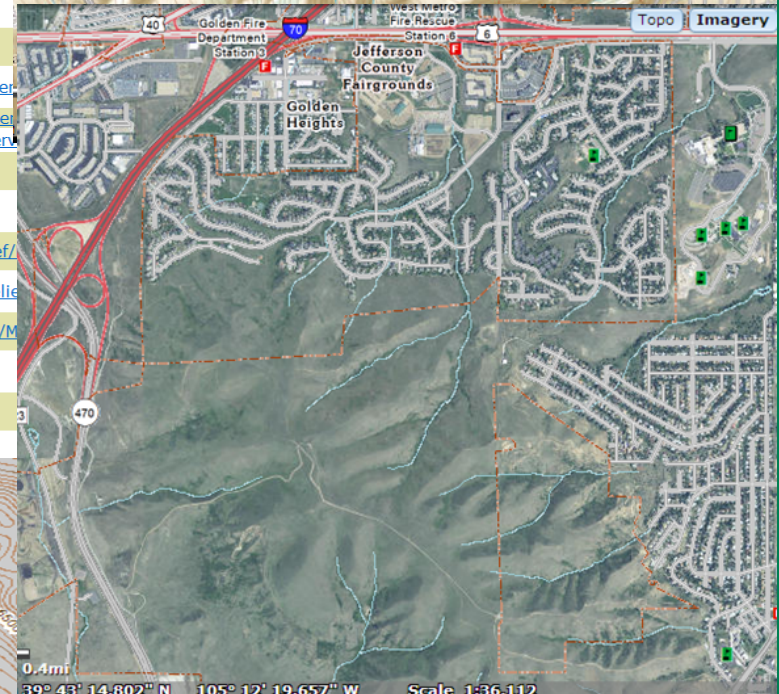
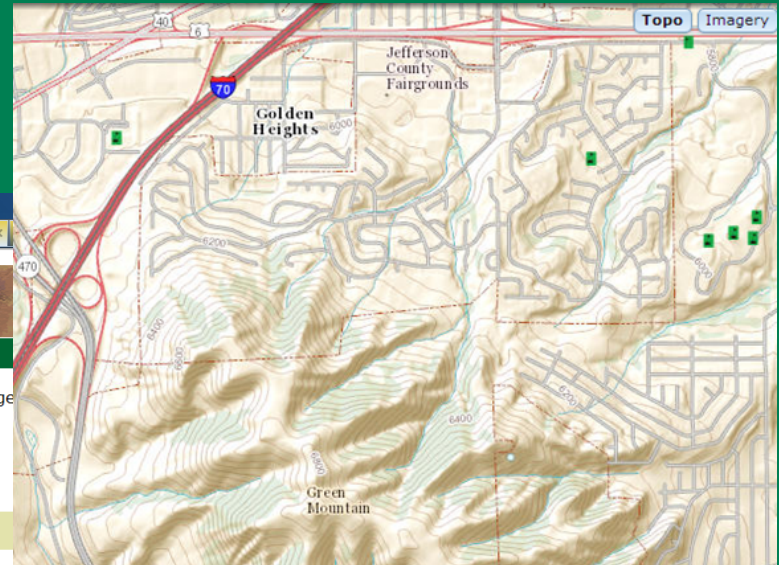
Name	Type	URL
USGS Topo Base Map - Primary Tile Cache	tiled	<a href="http://basemap.nationalmap.gov/ArcGIS/rest/services/USGSTopo/MapServer">http://basemap.nationalmap.gov/ArcGIS/rest/services/USGSTopo/MapServer</a>
USGS Topo Base Map - Below 18K Scale Dynamic	dynamic	<a href="http://services.nationalmap.gov/ArcGIS/rest/services/USGSTopoLarge/MapServer">http://s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

## Base Data Layers

Name	Type
US Topo	dynamic
Geographic Names (GNIS)	dynamic
Structures	dynamic
Transportation	dynamic



- Other Featured Data
- User Added Content
- Favorites

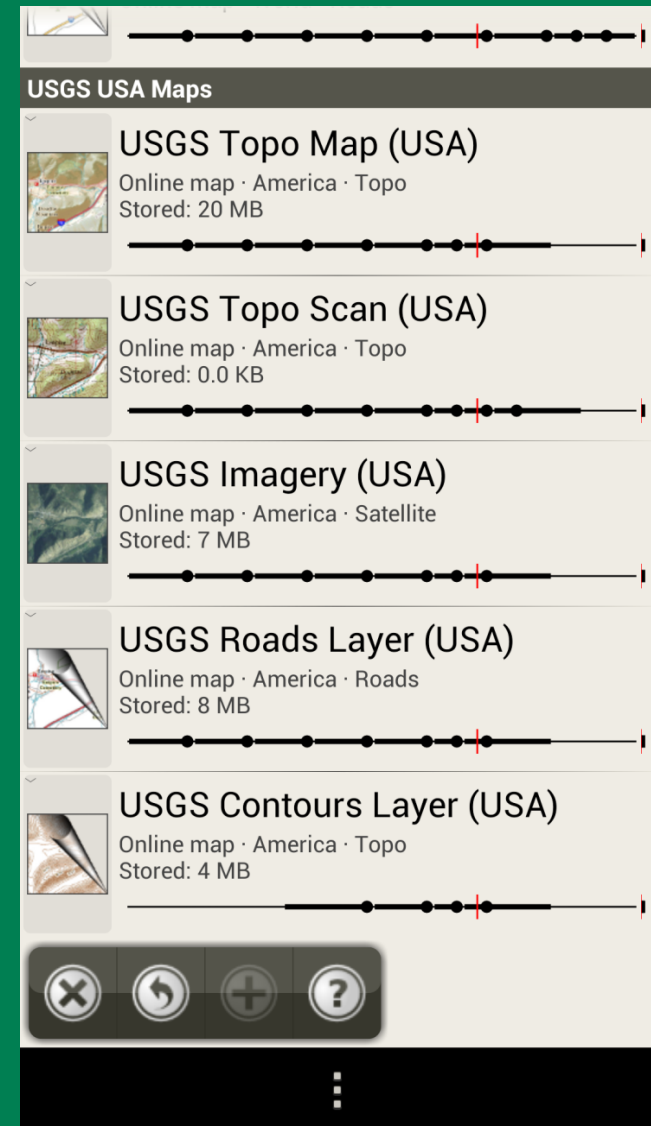
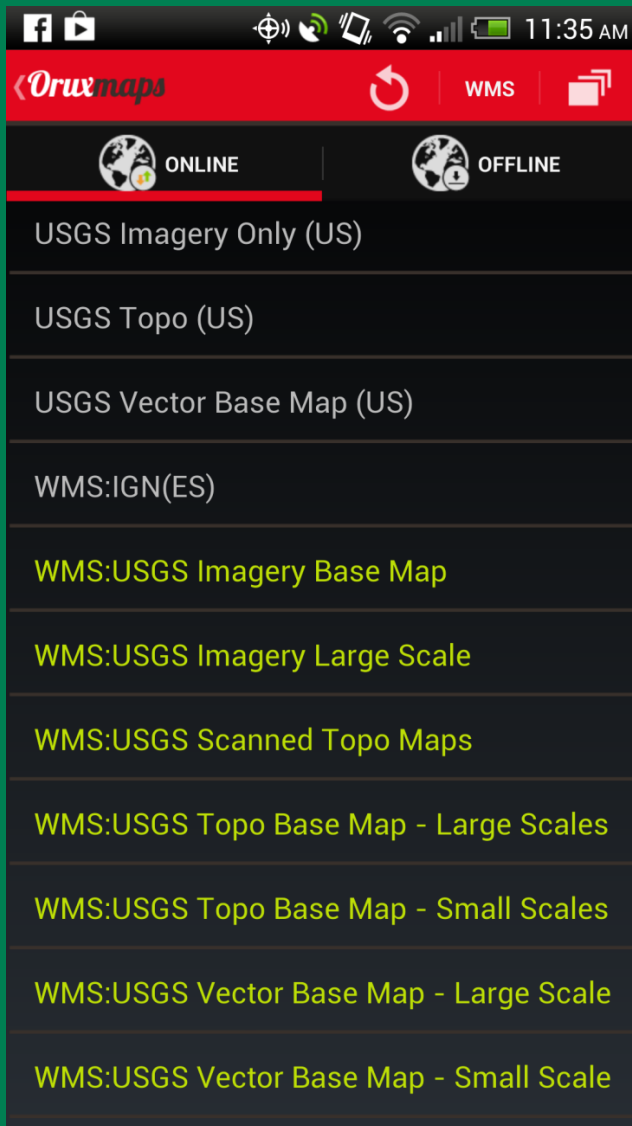


# USGS *TNM* on Mobile

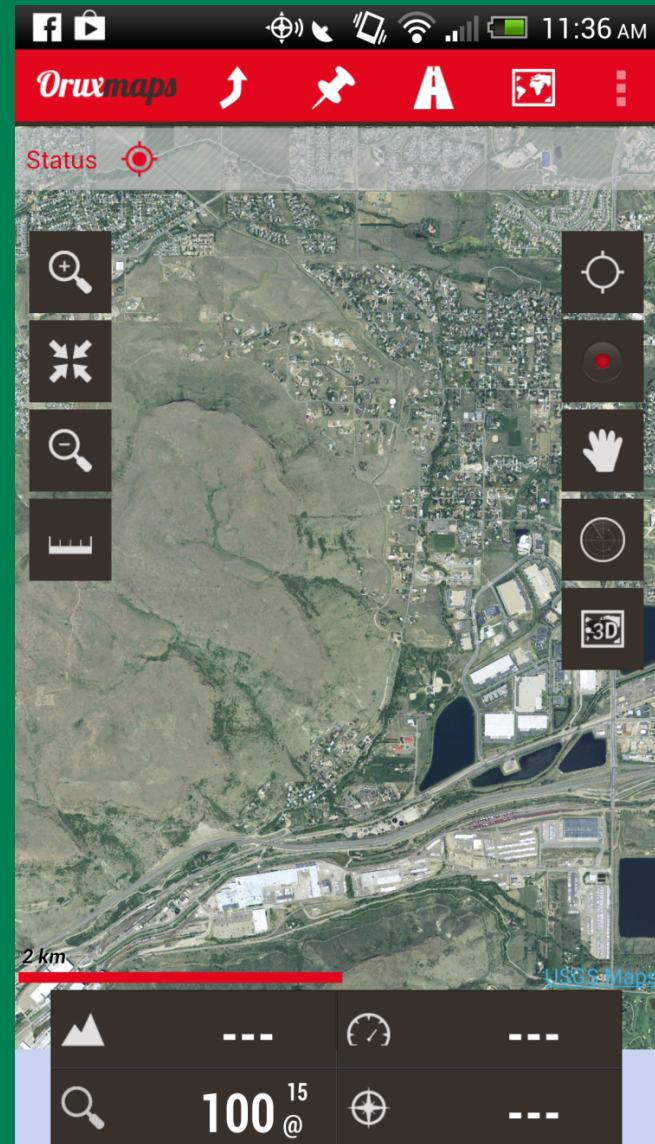
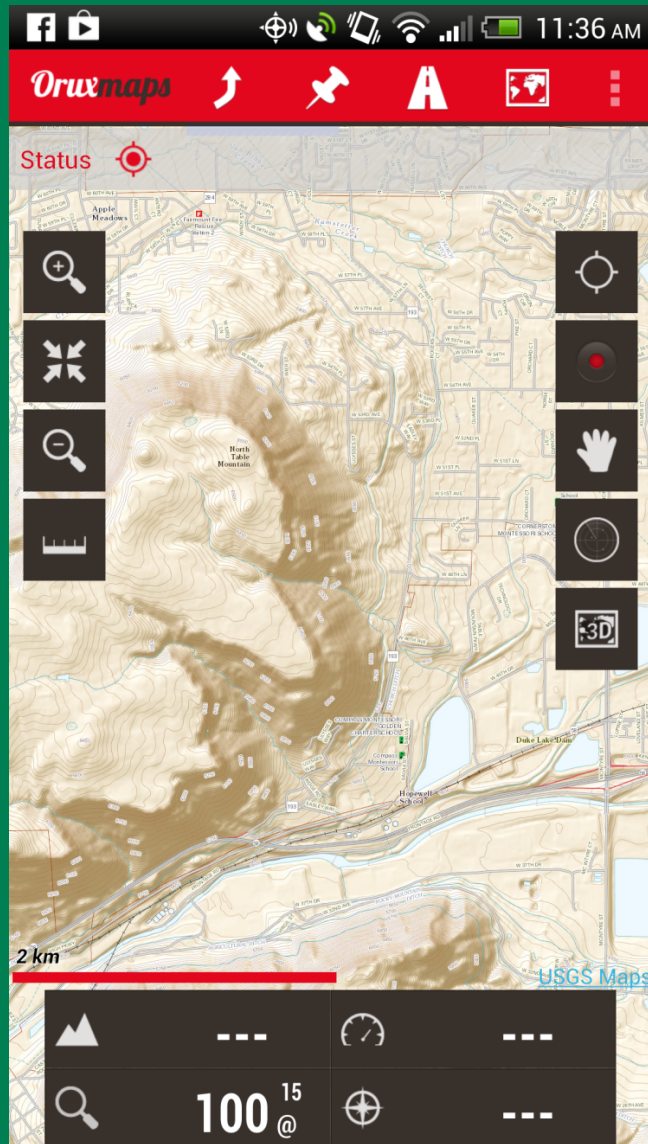
- **What was accomplished:**
  - **TNM on two Android applications**
  - **TNM on Mobile Atlas Creator (MOBAC)**
    - “Many birds with one stone” ...
  - **Provided MotionX GPS/Nike+ with our TNM map tiles and “raw data” (iOS)**
    - **Interested in hosting our data**



# USGS *TNM* on Android...

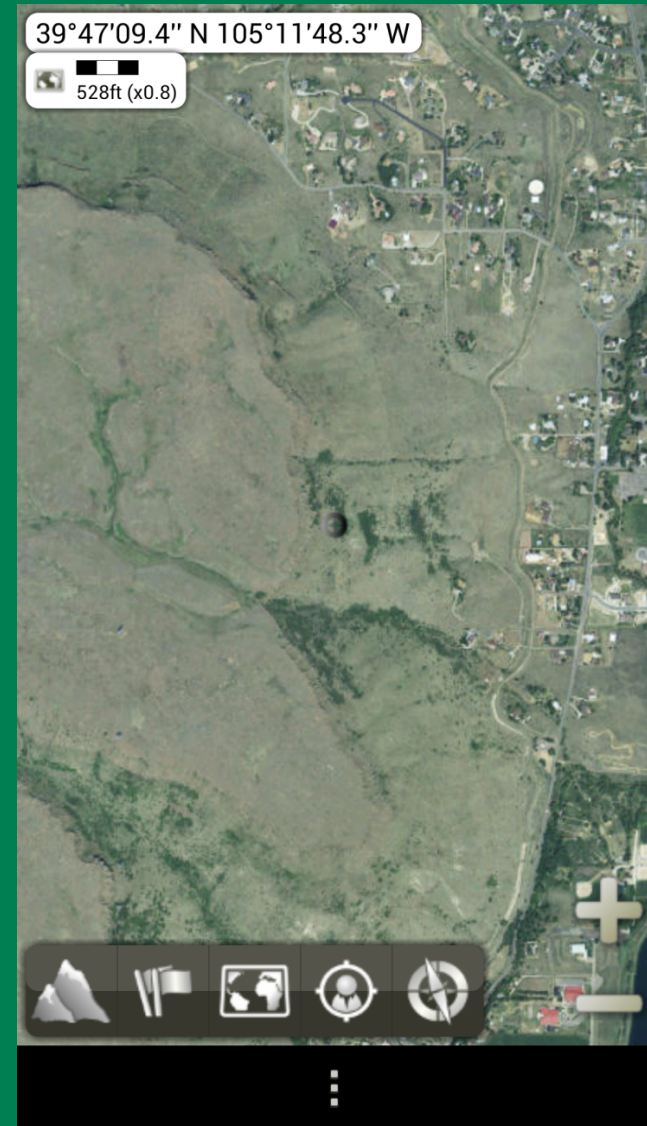
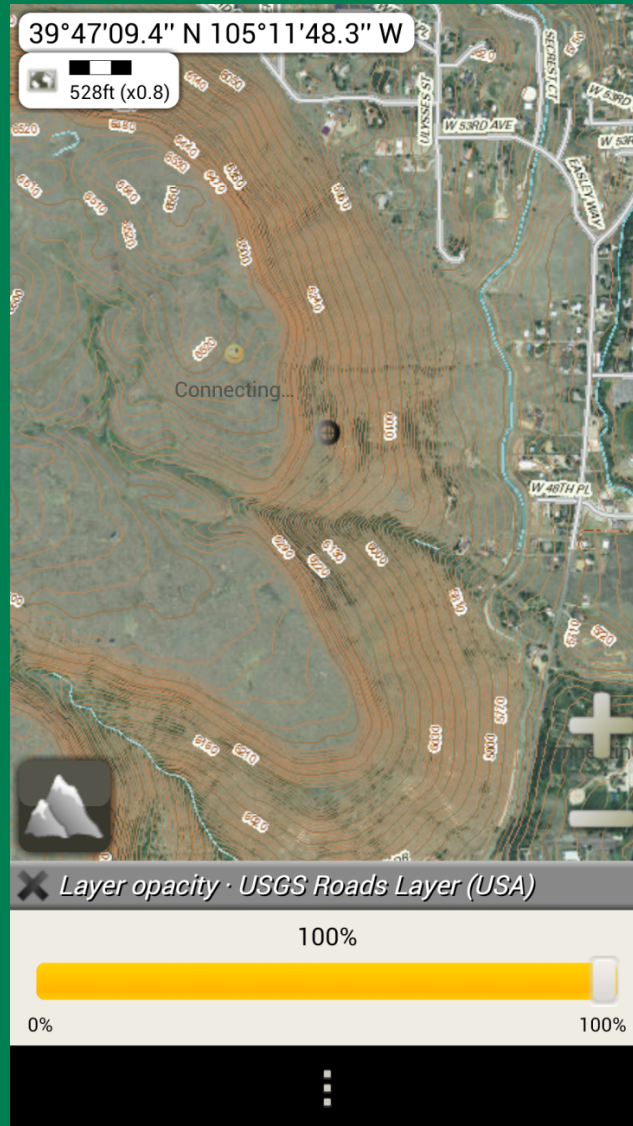


# TNM on OruxMaps

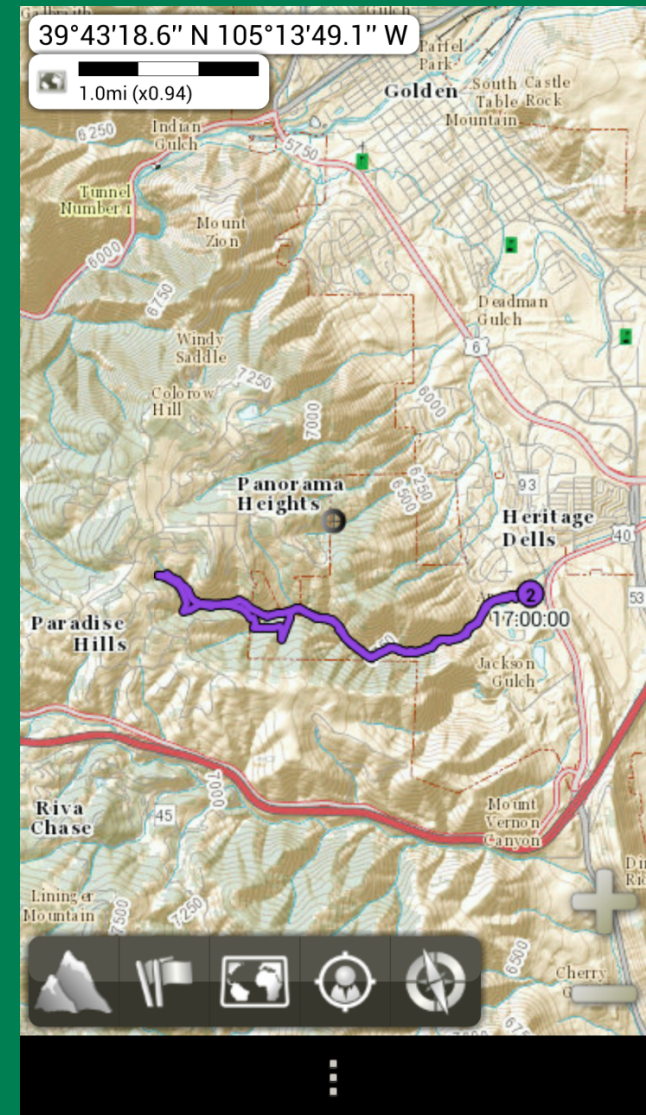
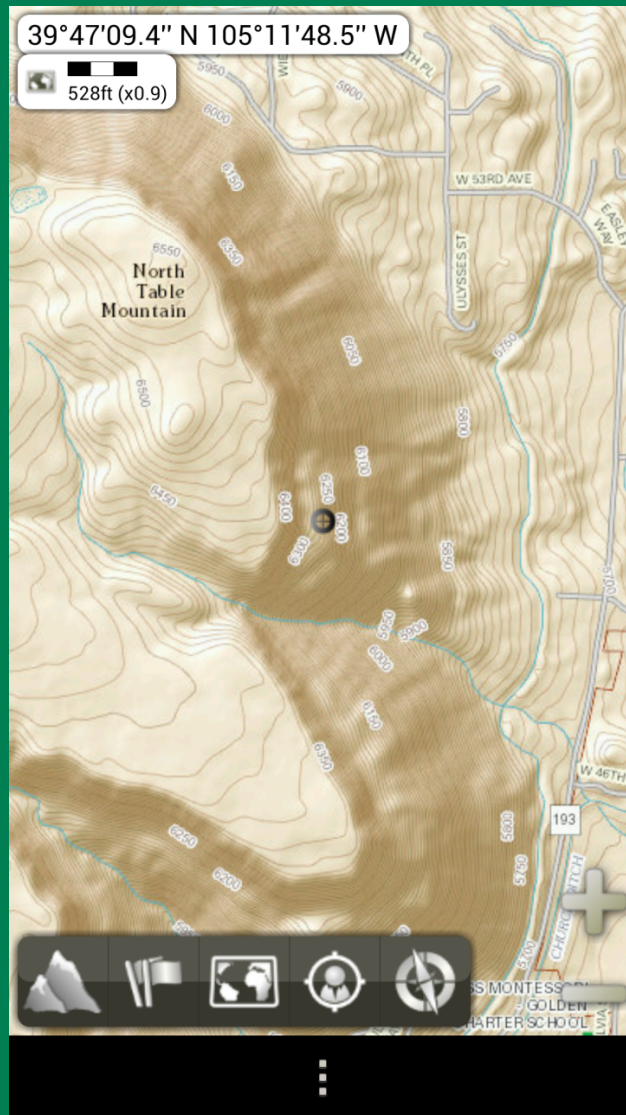




# TNM on AlpineQuest

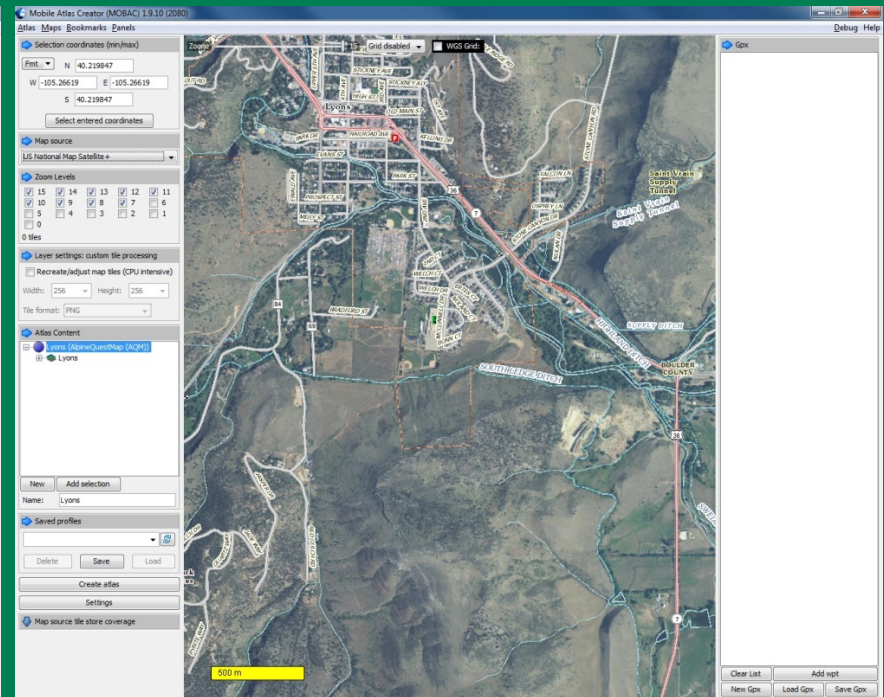
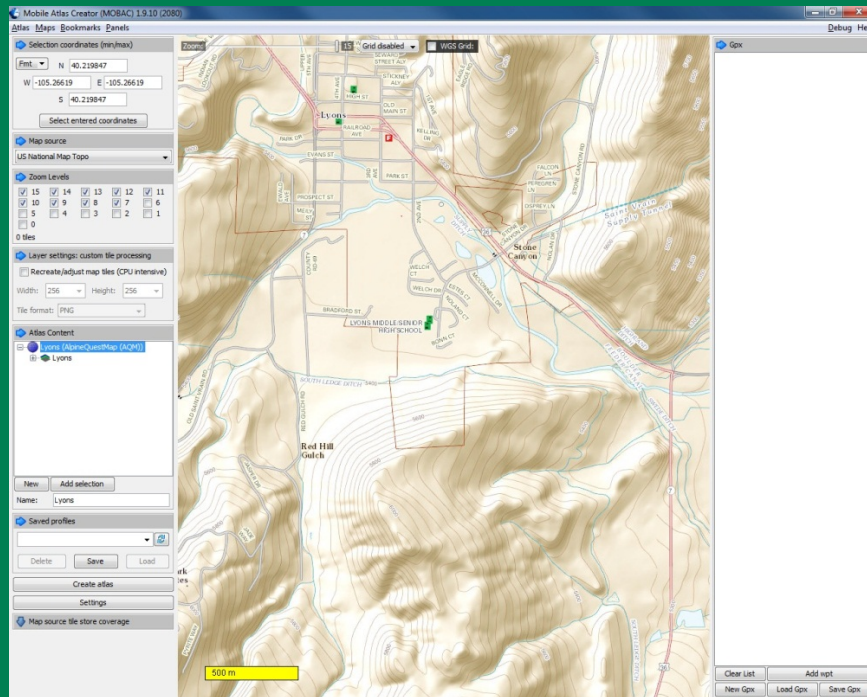


# TNM on AlpineQuest





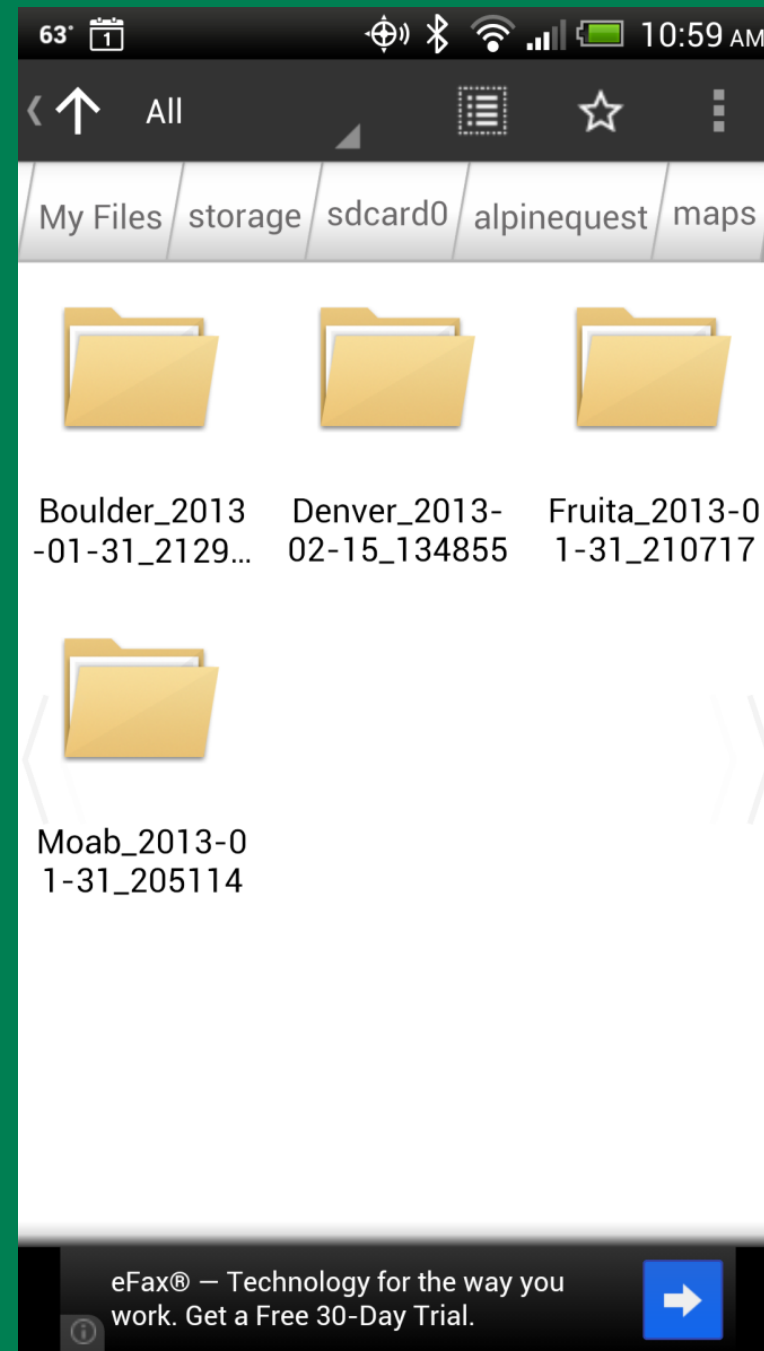
# TNM: MOBAC





# TNM: MOBAC

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

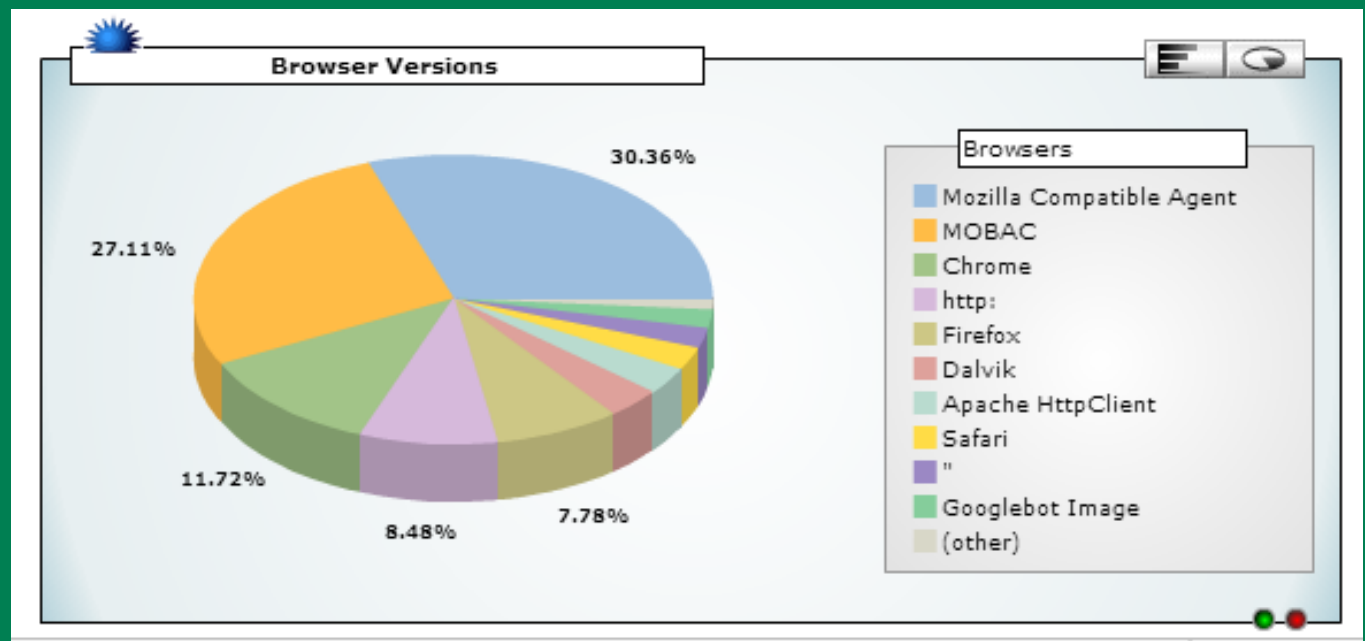


# ***TNM: MOBAC... 30+ apps supported!***

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

# TNM: MOBAC

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





# ***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**

# 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

# Questions? Thoughts?

