



Civil Air Patrol



National Cell Phone Forensics Team

Maj Jerad Hoff
9 August 2019

ONE CIVIL AIR PATROL, EXCELLING IN SERVICE TO OUR NATION AND OUR MEMBERS!



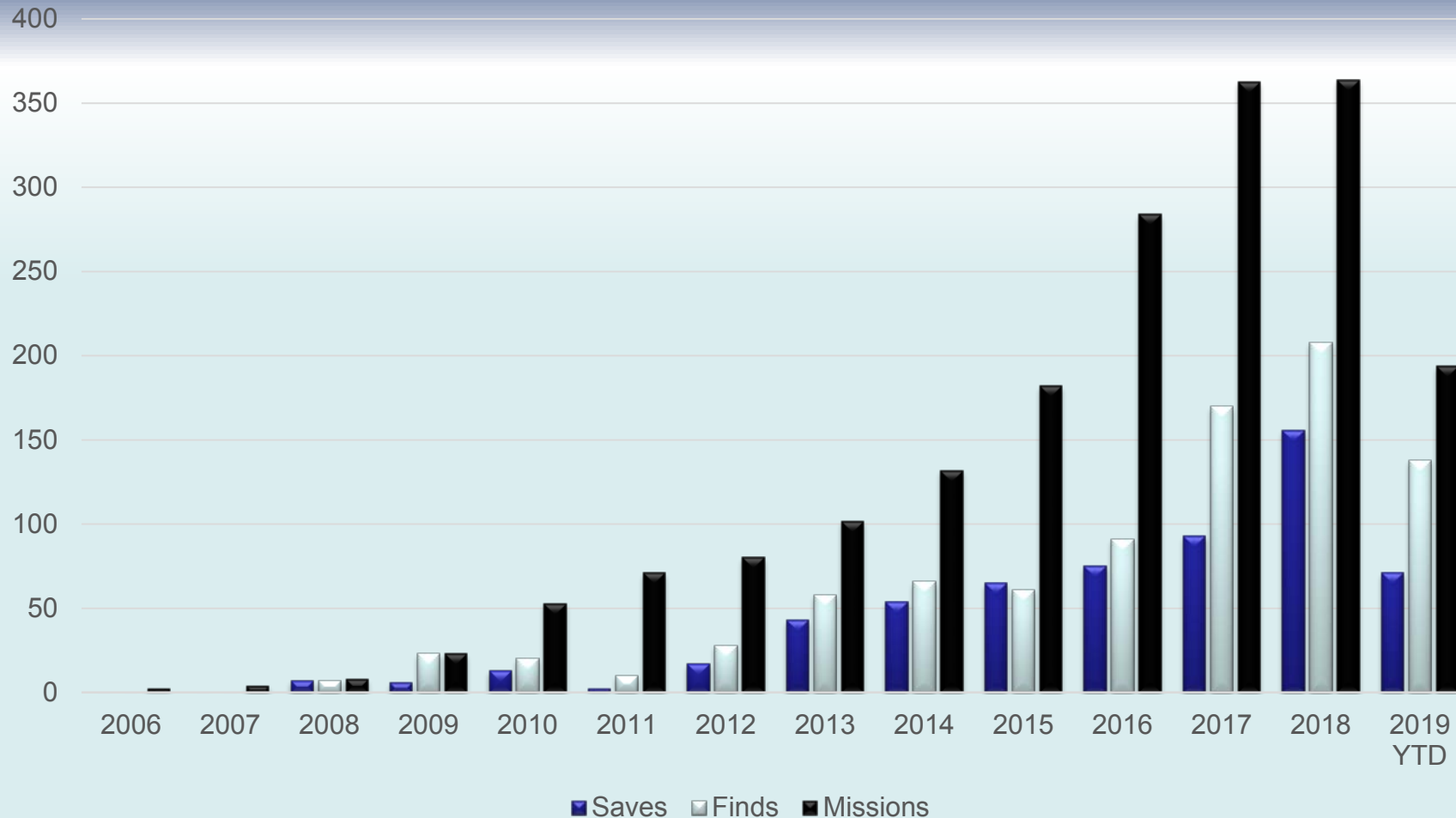
Air Force Rescue Coordination Center & Civil Air Patrol Cell Phone Forensics

- CAP has been carrying out cell phone forensics missions for AFRCC since 2006
- AFRCC/CAP provides cell phone forensics support for search and rescue missions similar to assigning CAP air/ground teams and other military resources
- Started as a last-resort tool for locating missing persons and overdue aircraft, but is now a primary resource
- Many agencies are requesting cell phone forensics exclusively (no other federal assets requested)





Statistics

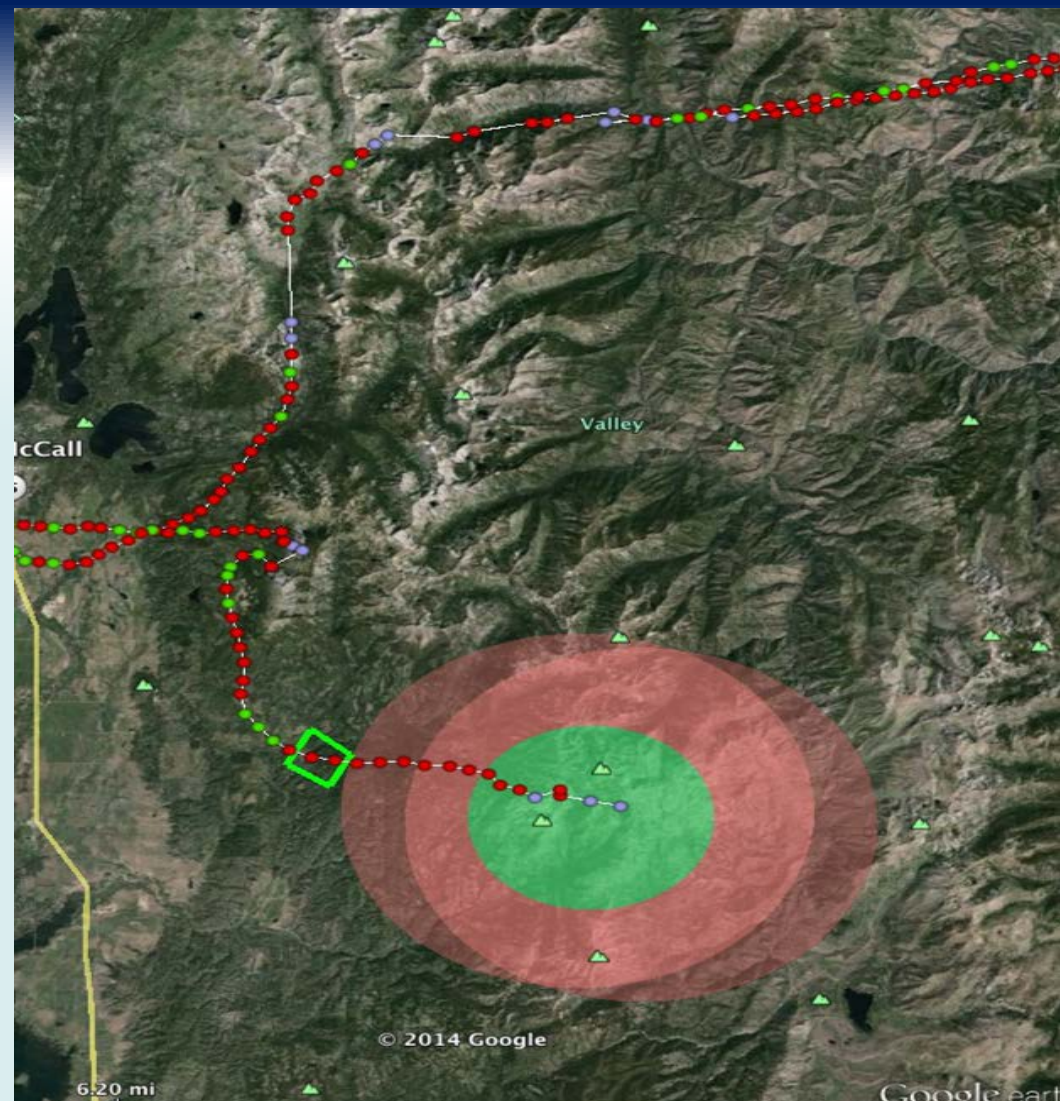


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Cell Phone Analysis & Other Clues: Radar, ADS-B, ELTs, etc.

- Cell phones can provide real time and historical data
- Phones are small and often survive harsh situations
- Smart phones changed the game
- Phones are prevalent and highly likely to be on a missing aircraft or missing person
- Proven over time



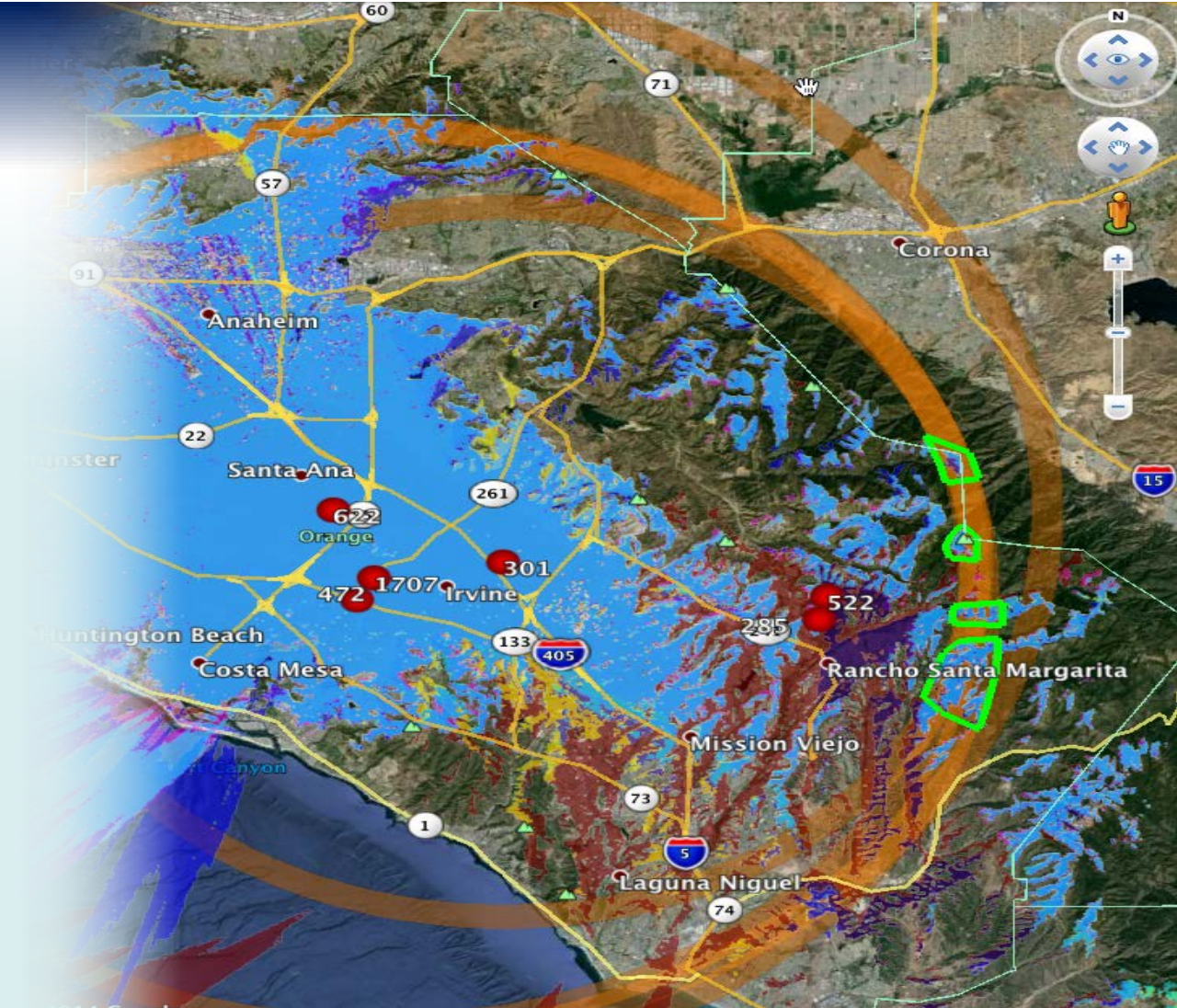


Capabilities

Collect

Analyze

Present



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Tools

Process Tools

- Automatic Log Creation and Team Notification (automated phone call) triggered by WMIRS mission entry
- Heavy use of off-the-shelf enterprise collaboration tools:
 - Google Suite
 - Slack



Tools

Customized in-house analysis tools

- Communicator
 - Monitor phone on/off status
 - Seamless team communication with the objective
 - Works regardless of carrier or roaming
- Geo-locate phones that are on and cooperative (specially formed links that provide location data)



Tools

Presentation Tools

- Analyzed data in Google Earth
- Direct teams to a specific location with Map2Target
- Screen sharing via GoToMeeting/Slack/Hangout
- Standardized static presentations incorporating all available data (cell and radar, using Microsoft PowerPoint)



Communicator

View media sent by the objective

Jerad Hoff
Have the searchers located you? 📍 sent about an hour ago JH

Jerad Hoff
I did you your position, I'm letting the searchers know now. 📍 sent about an hour ago JH

Jerad Hoff
The searchers know where you are and are headed your way. 📍 sent about an hour ago JH

Target
970- [redacted]
No. I'm here on a good trail. A creek is to my right & lizard head to my right at 3:00. I'm heading down this trail near the creek. Almost out of battery. 📍 📎 Download attachment: IMG_0774.jpg received 28 minutes ago

Justin Ogden
Copy all - I'm on with the Sheriff now relaying your info & coordinates from s sent 23 minutes ago

Multiple team members communicate with the target and appear as "one voice"



458- [redacted]
who9 is this 🗿

🕒 received about 3 hours ago

John Schofield

This is Air Force Search and Rescue, are you OK. 🗿

🕒 sent about 3 hours ago



458- [redacted]
yes just didn't know who this was 🗿

🕒 received about 3 hours ago



458- [redacted]
this is Andrew i was lost last night iam okay now 🗿

🕒 received about 3 hours ago

John Schofield

That is great, glad your OK. 🗿

🕒 sent about 3 hours ago



458- [redacted]
yes thank you all for your time an effort can i keep this number in case it happens again 🗿

🕒 received about 3 hours ago

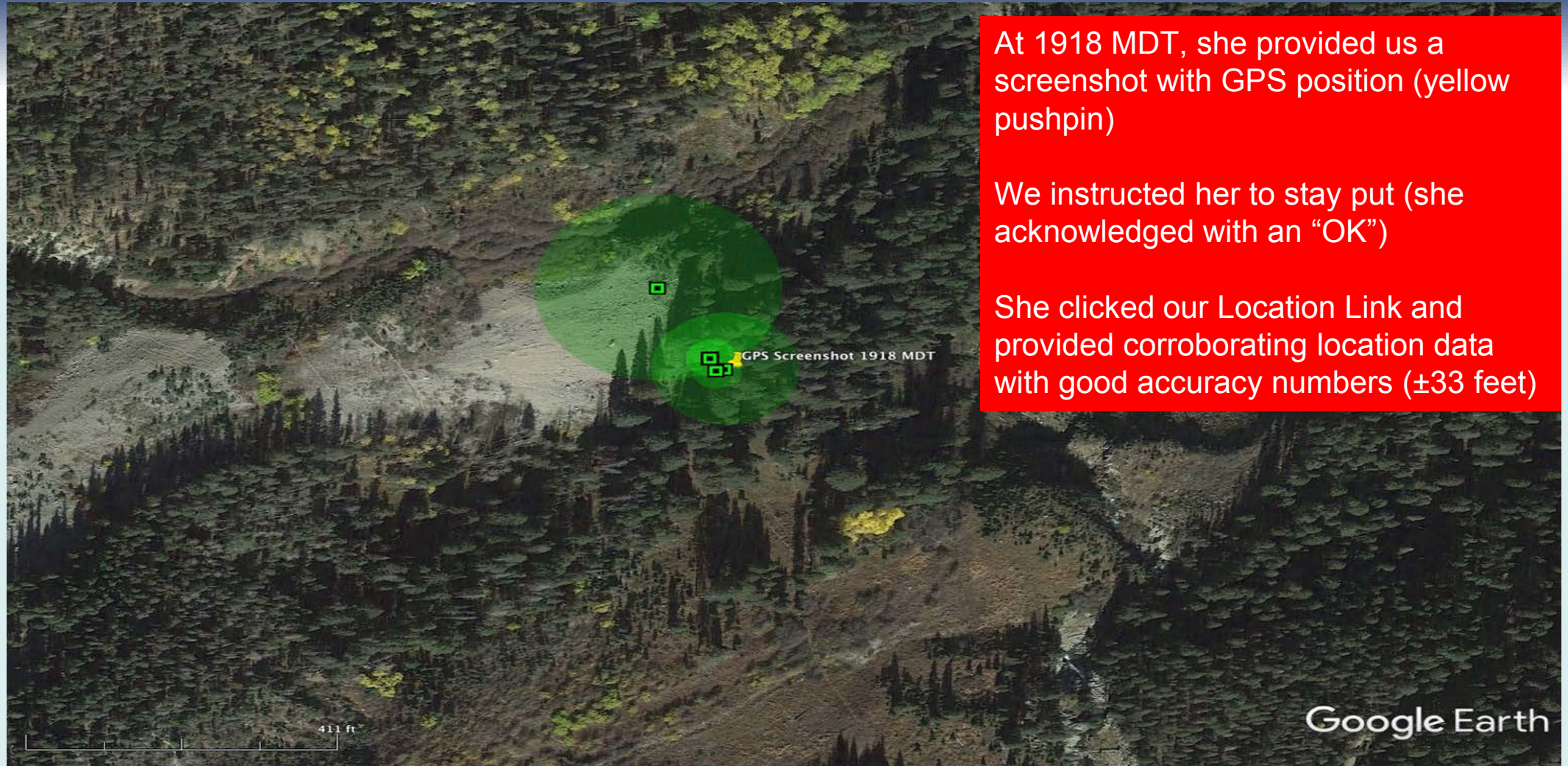


Jerad Hoff 20:09

It's almost like it's a positive yelp review... "Found me when I got lost, would use again!"



Location Link



At 1918 MDT, she provided us a screenshot with GPS position (yellow pushpin)

We instructed her to stay put (she acknowledged with an “OK”)

She clicked our Location Link and provided corroborating location data with good accuracy numbers (± 33 feet)

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Map2Target

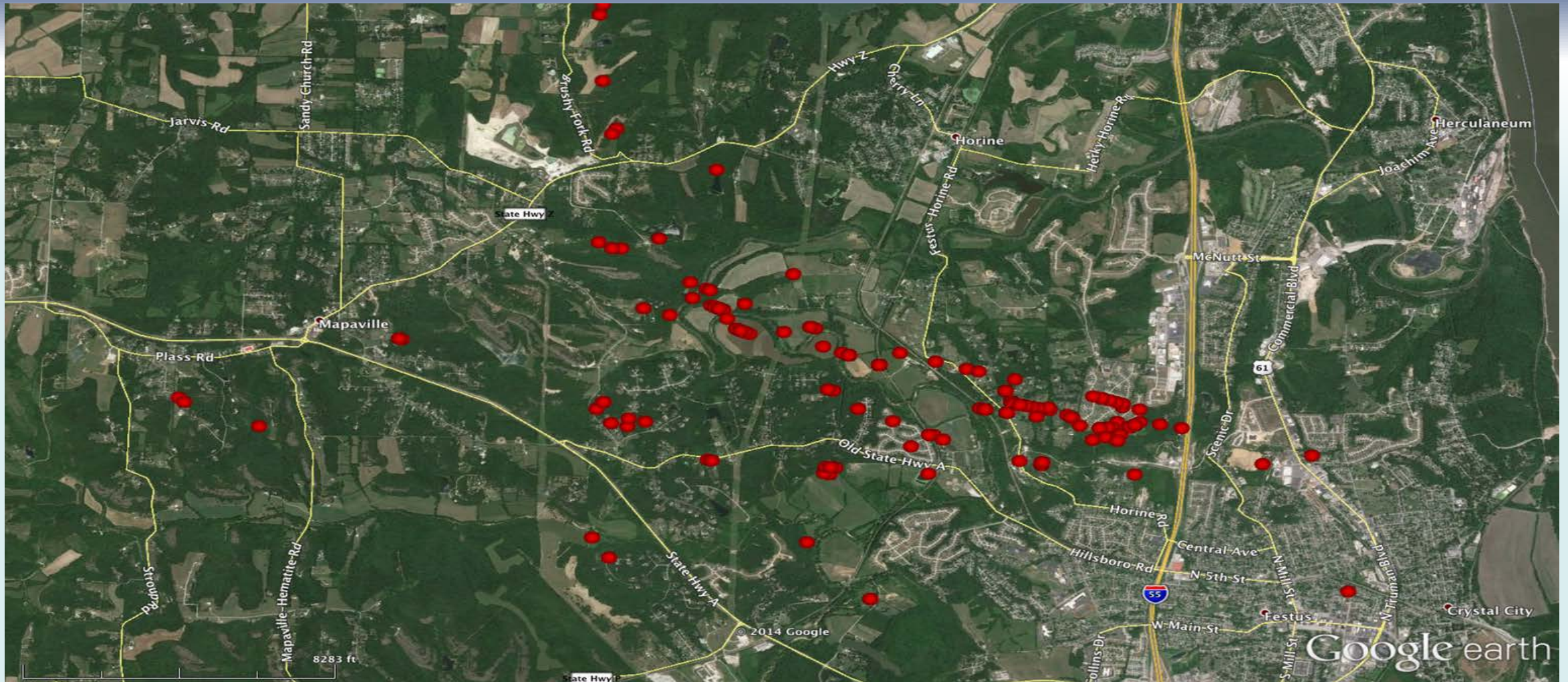


Map	Zoom	Location Data	Help
Target Location (red) Change Coordinate Format			
Target location accuracy: ±16 feet			
46.83170° N, 121.72740° W			
46° 49.902' N, 121° 43.644' W			
46° 49' 54.1" N, 121° 43' 38.6" W			
10T 597053m E, 5187248m N			
My Location (yellow)			
My location accuracy: ±12703 feet			
37.36375° N, 79.28975° W			
37° 21.825' N, 79° 17.385' W			
37° 21' 49.5" N, 79° 17' 23.1" W			
17S 651449m E, 4136598m N			
Path To Target (orange)			
Distance to target: 2240.13 miles			
Bearing to target: 300.6°			

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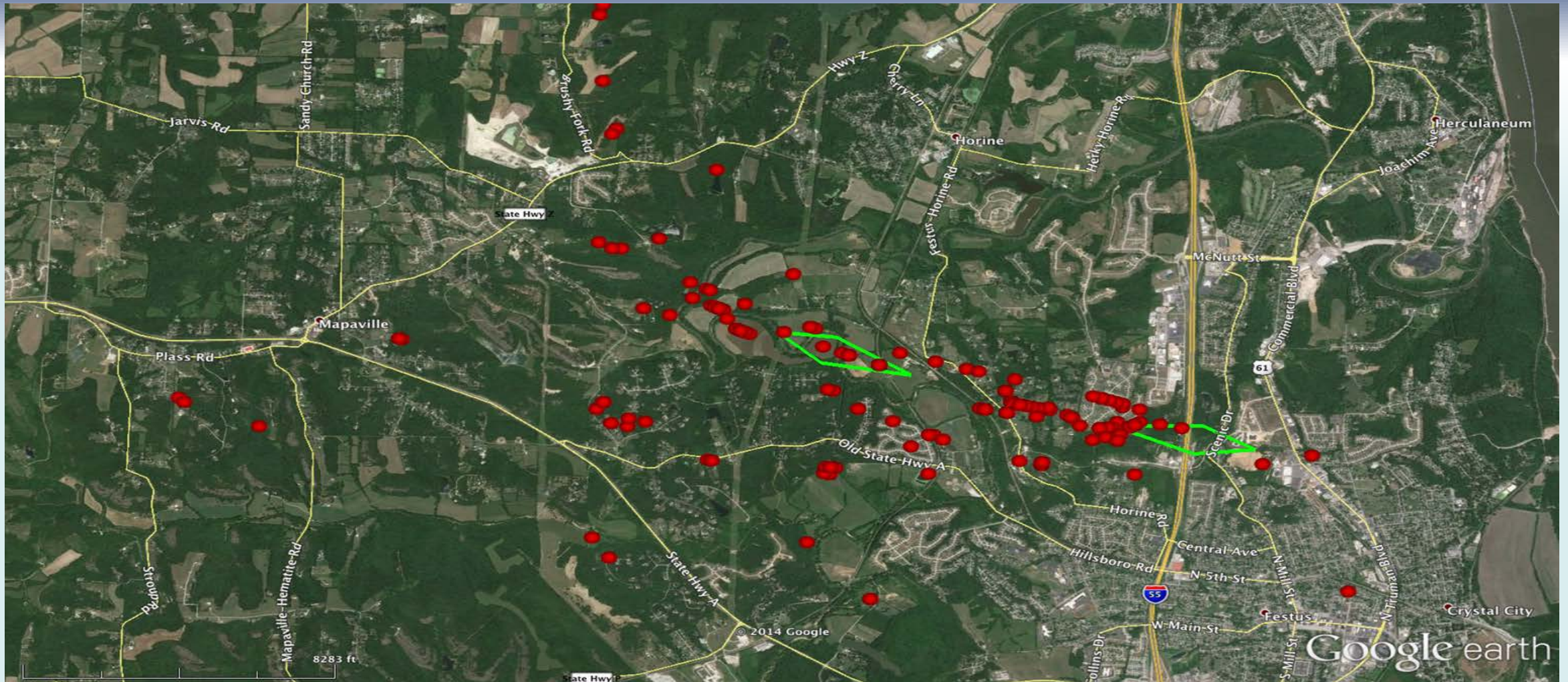
Analysis



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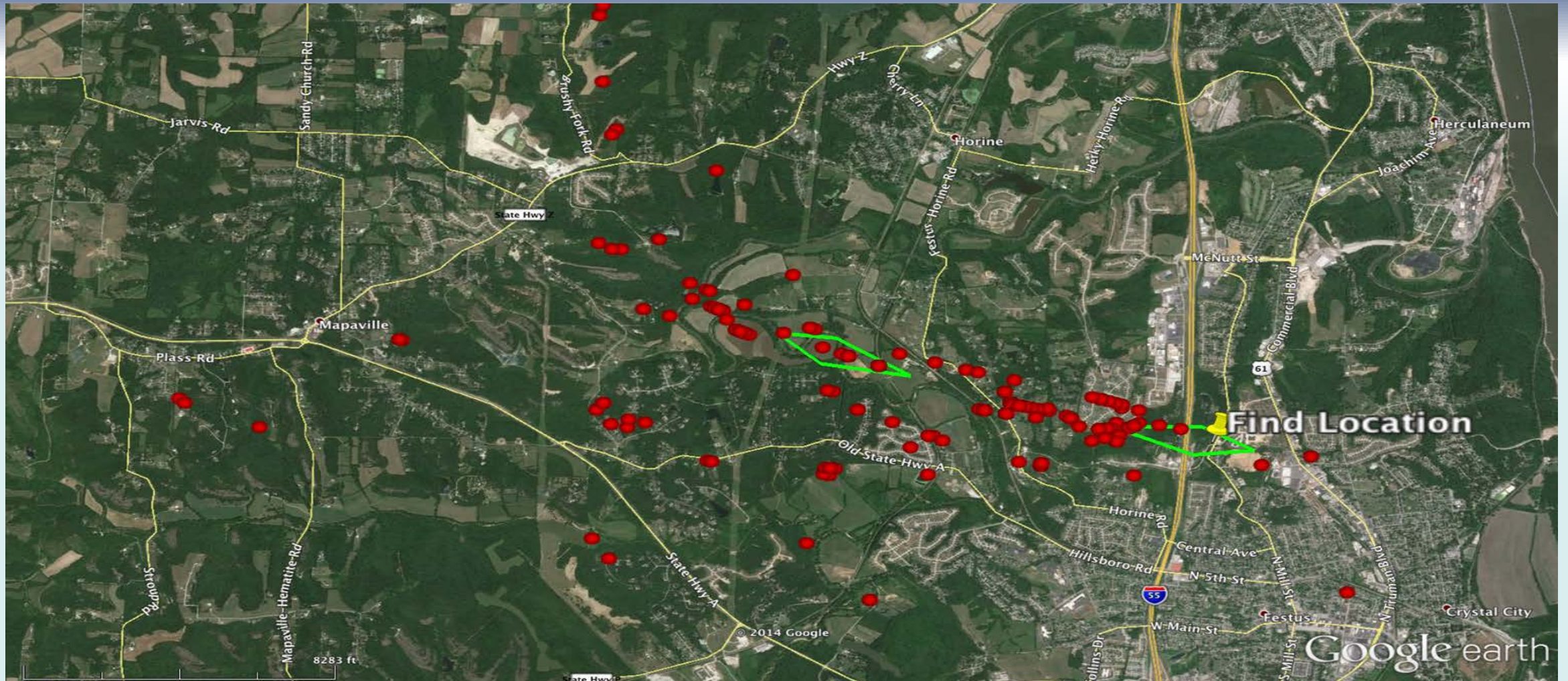
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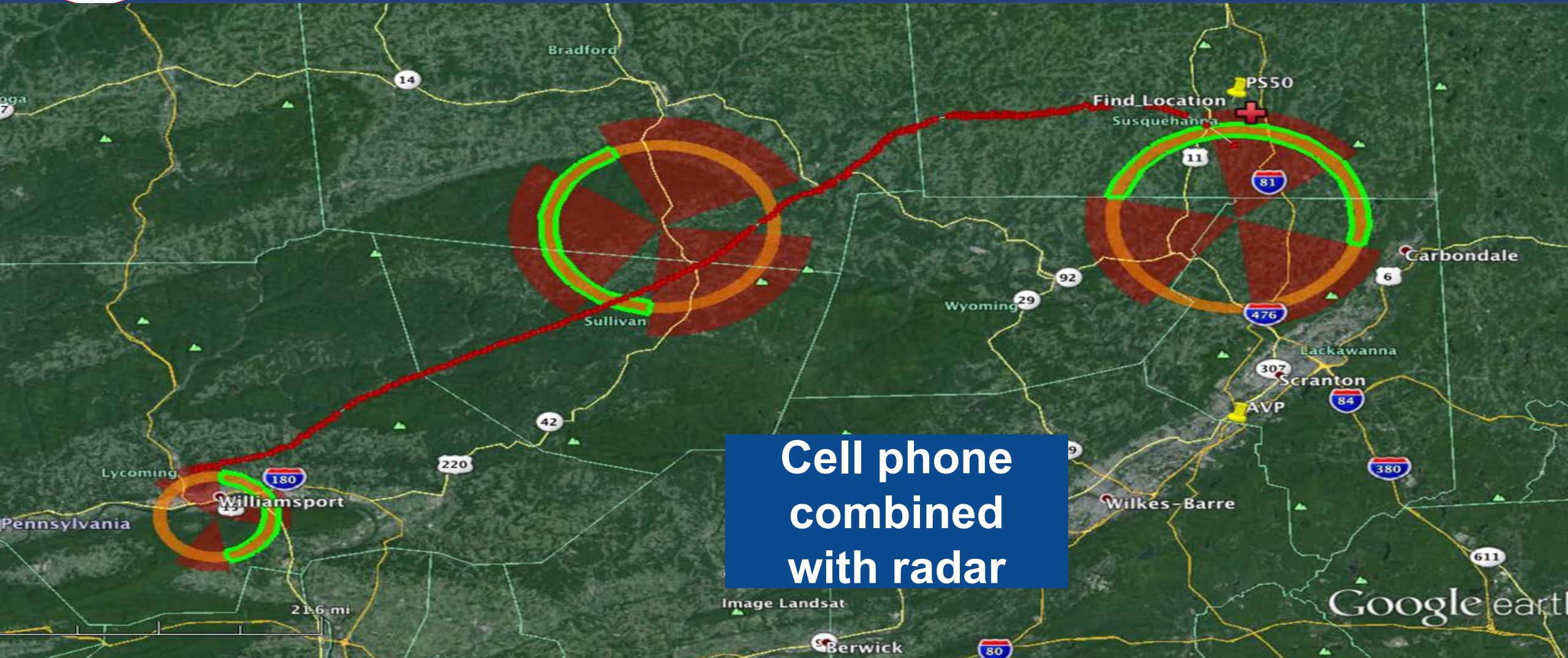


Combining Data Results in Likely Areas

- Combining distance, sector, coverage and other clues is often helpful in a search
- Data provided by Apple and Google becoming more useful and accessible
- Review of the likely area within Google Earth
- Following mission was family of four missing for two days, located within hours after the Cell Phone Forensics Team was requested.
 - Search spanned the 500 mile drive from Grand Forks, ND to Ekalaka, MT
 - AT&T, Sprint, Verizon, and Google all were sent requests for data



Combining Efforts



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Non-Mission Events

- Maj Justin Ogden traveled to Verizon Security Assistance Team HQ to meet with the group supporting the Cell Phone Team's requests for Verizon data
 - Further solidified our best relationship with a partner on our cell missions
- Maj Ogden met with T-Mobile Director for Legal Compliance
 - Opened the door to immediate change, new data, and better support for future missions
- Maj Ogden previously met with the AT&T National Compliance Center Director
 - Ensured all compliance officers understood our needs and purpose



Non-Mission Events

- AFRCC and NHQ integrated into Slack, the Cell Team's chat collaboration tool
 - Slack ties in with our mission automation
 - Allows for instant information exchange within the Cell Team, to AFRCC, and to invited external customers
- Improved collaboration with Google and Apple
 - The team has used their support on several missions in the past year
 - This is clearly a tool that will continue to be useful moving forward



Things to do in a search

- Generate data
 - Get the victim to dial 911
 - Place calls and send text messages to the victim's phone regularly (log it!) – note the number of rings until the phone picks up
- Understand what the accuracy of information is when handling raw data



The Team

- Maj Justin Ogden (Team Founder/Lead)
- Col Brian Ready
- Maj Jerad Hoff
- Maj John Schofield
- Capt Margot Myers (PIO)
- Two trainees in progress
- Two trainees in the pipeline



Ogden



Ready



Hoff



Schofield

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Questions?

