



Intro to CACTUS

AZWG Mission Manager App
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CACTUS is a Mission Management web site to supplement WMIRS

CACTUS FEATURES

- Browser based web app that implements a broader more flexible mission management software to supplement WMIRS.
- Supports many ICS forms and CAP forms.
- Supports multiple operational periods.
- Supports multiple command posts and communication bases.
- Nightly imports data from CAPWATCH.
- Imports sorties from WMIRS.
- Exports end-of-mission forms as pdf for upload to WMIRS.
- OPS QUALS Search.

CACTUS FEATURES

- Automatically generates General Mission Briefing.
- Automatically generates Wing Commander's snapshot for all active missions.
- Automatically generates weekly SITREP for Wing Staff.
- Automatically generates IC snapshot for events in specific mission.
- Automatically generates detailed sortie task briefing as pdf / email.
- Automatically generates SMS to mission staff to alert important events such as Radio Messages (CAPF110) or Unit Log entries (ICS214). Enables key mission staff to monitor mission via mobile device. Radio messages trigger workflow that updates sortie status and information.

CACTUS FEATURES

- Track CAP Aircraft & COV via sensors such as ADSB, Garmin InReach, SPOT, DAART gateway and Mobile Device.
- Plot ELT search Lines-of-Position.
- Image metadata editor.
- Generates CAPF104b from image metadata.
- TAK integration (CAPSIM).
- SMS/MMS integration.

Incident Commander's SITREP Dashboard

Download PDF

Return to the [Mission Main Menu](#)

MISSION DASHBOARD

MISSION: **21-M-0080A**

Last Refreshed: 23:26 ZULU

CURRENT TIME: ZULU

NOTHING TO SEE HERE!



THIS PAGE IS INTENTIONALLY BLANK

Return to the [Mission Main Menu](#)

This Mission Dashboard is the Incident Commander's snapshot view into the mission SITREP. This page may be empty, if nothing is in progress and there are no urgent issues to address. This page may show upto 6 optional rowsets including:

1. ICS204 - Overdue Sorties
2. CAPF110 - Non-routine precedence radio messages
3. ICS214 - MSO Messages
4. ICS204 - Active Sorties
5. ICS233 - Active Tasks
6. ICS214 - Previous hour's Log entries

Server-side Compute Time = 50 ms

Add Facilities to a Mission

MISSION FACILITIES LIST

MISSION: 21-T-TEST

Last Refreshed: 18:57 ZULU

Return to the [Mission Main](#)

Available Facilities List

Click on a action button to Add facility to mission 21-T-TEST

| Region | Wing | Command Name | Action |
|--------|------|------------------------|------------------------------------|
| SWR | AZ | Arizona Area Command | <input type="button" value="Add"/> |
| SWR | AZ | Cactus Virtual Command | <input type="button" value="Add"/> |
| SWR | AZ | Riddle Command (PRC) | <input type="button" value="Add"/> |
| SWR | SWR | SWR Virtual Command | <input type="button" value="Add"/> |

Facilities Assigned to Mission 21-T-TEST

Click on a action button to Remove facility from mission 21-T-TEST

| Region | Wing | Command Name | Action |
|--------|------|--|---------------------------------------|
| SWR | AZ | SWR - AZ - Redrock Command (virtual) | <input type="button" value="Remove"/> |
| SWR | AZ | SWR - AZ - Tango Command (TUS) | <input type="button" value="Remove"/> |
| SWR | NM | SWR - NM - New Mexico Wing Virtual ICP | <input type="button" value="Remove"/> |

SORTIE BRIEFING

Essential Information

Generated: 2024-01-26 15:22:16 ZULU

Virtual Command Post CAPF 104b

TASKING : AZ_TEST / A0299

TASK 003 DESCRIPTION:Avenger Search Creeping Line **LOCATION:** az
Missing Aircraft WWII Avenger
Creeping Line Search 2.5 Mile Legs 1/2 Mile Tracks Spacing - 1000 AGL

Creeping Line FROM:

N33 48 02.53 / W109 40 34.70

Creeping Line TO

33° 53.198'N / 109° 32.212'W

TASK 001 DESCRIPTION:TEST **LOCATION:**

Pilot Briefing - TEST TEST TEST ,

New DATA 1

NOTE #1: More info

TASK 005 DESCRIPTION:G-22 Fire, Spring Ridge, Grid PHX 190D **LOCATION:**

G-22 Fire, Spring Ridge, Grid PHX 190D

The tasking is to fly the areas noted in a manner to construct a photo mosaic of the burn areas, flown similar to a contour search in mountainous or canyon areas. Preferably the scanner is AP, but for training purposes an MS is OK. A sample of the photos should be uploaded to the Wing Google drive for "imagery", instructions attached.

* If during the sortie, a smoke/fire condition is observed, report to ATC with coordinates if believed to be an incipient fire..

Location

CAP Grid PHX 190d / b

Custom Way Points for Search Area

WAYPOINT: 34 6.45 / 110 34.73

WAYPOINT: 34 7.90 / 110 36.05

WAYPOINT: 34 8.13 / 110 36.69

WAYPOINT: 34 6.26 / 110 35.24

SORTIE BRIEFING

| Name | Description | File Name |
|---|---------------------------|--|
| Photo UPLOAD Instructions | Photo UPLOAD Instructions | Loading Operation Smoke Detector Photos to GoogleDrive.pdf |
| G22 Detail Waypoints | G22 Detail 1 | G22 Fire Detail 1.jpg |
| Fire Details WayPoints | Fire Details WayPoints | G22 Fire Detail 2.jpg |
| G22 Overview | G22 Overview | G22 Fire Detail Overview.jpg |
| Zoom 1 Fire Detail | Zoom 1 Fire Detail | G22 Fire Detail Zoom.jpg |
| Zoom 2 Fire Detail | Zoom 2 Fire Detail | G22 Fire Detail Zoom2.jpg |
| Missing Aircraft WWII Avenger | Creeping Line PHX 222 | Creeping Line WWII Avenger .jpg |

SORTIE: AZ_TEST / A0299

| Sortie Date | Callsign / Registration / HomeBase | Depart / AOR / Destination | ETD | ETA |
|-------------|------------------------------------|----------------------------|------|-----|
| 2024-01-13 | CAP299 / / | KXYZ / / KEIEIO | 0500 | |

this is a CAPSIM test "sortie" edit

| | | | |
|--|---------------------------|----------------|------|
| Ricker, Joel M (622254) - MP | mike.ricker@azwg.org | (602) 478-2378 | TEXT |
| Dusard, Christopher R (478422) - MO | chris.dusard@azwg.cap.gov | (602) 206-7597 | TEXT |
| Combellick, Michael Paul (202127) - MS | paul.combellick@azwg.org | (480) 290-4550 | TEXT |

MISSION STAFF CONTACTS

| Position Title | CAPID | First Name | Last Name | Email Address | Cell Phone | TEXT |
|----------------|--------|------------|------------|--------------------------|----------------|------|
| BRIEFER | 202127 | Michael | Combellick | paul.combellick@azwg.org | (480) 290-4550 | TEXT |
| FRO | 202127 | Michael | Combellick | paul.combellick@azwg.org | (480) 290-4550 | TEXT |
| IC | 202127 | Michael | Combellick | paul.combellick@azwg.org | (480) 290-4550 | TEXT |
| AOBD | 491324 | James | Space | jspace@q.com | (480) 284-9924 | TEXT |

SORTIE COMMUNICATIONS PLAN

| Type | TDFM Channel | Function | Designator/Channel | Notes |
|---------------|--------------|--|--------------------|---|
| VHF-FM Analog | 28 | Phoenix Area Departure and Arrival Radio Channel | R18 | Wheels Up / ETA, Maintain communications every 30 minutes |
| VHF-FM Analog | | CAPSIM | OTHER | |

SORTIE BRIEFING

| ICS 215A - SAFETY PLAN | | |
|------------------------|---|--|
| AREA | HAZARD | MITIGATION |
| MAJOR HAZARDS & RISKS | Traffic, Slip and Fall, Shocks | Watch for all Traffic and stay clear of Moving and running aircraft, Vehicles Logistic support equipment. Lookout for Slips, Trips & Fall Hazards around work area and airfield wear appropriate Safety Equipment. Be aware of Shock Hazards, "RF" around radio antenna (stay clear) guy wires, electrical generators, etc. USE BUDDY SYSTEM working in Hazardous Environments. Work as Teams during Ground Operations, pay attention to Weather, Terrain, Critters in the Desert. Maintain proper Nutrition & Hydration. Use sterile cockpit procedures in vehicles & aircraft. Use Crew Resource Management. |
| AIRCREW | Fatigue, Dehydration, Busy Airspace | Monitor Duty Day Cycle, Monitor Aircrew Rest, Vigilance in busy Airspace, Communicate with Mission Base & ATC, Give PIREPS to ATC. File Flight Plan, Knowledge of local procedures & airports. Personal Limitations of Crew / Aircraft, Icing. |
| GROUND TEAMS | Hazards | Watch where you step when dismounting Vehicles. Maintain Hydrations & Nutrition. Sterile Cockpit Procedures on Vehicles. Warn Driver of any Hazards on Sorties. |
| ALTITUDE | Effects of Altitude, Dehydration, and Fatigue | Be observant for effects of Altitude, Drink Plenty of Water, Nutrition before Sorties, DO NOT EXCEED DUTY DAY. |
| AVIATION WEATHER | Adverse Weather | Monitor Aviation WX via G1000, FSS, Foreflight, etc. |
| COMMS FAILURE | Lost Communications with Mission Base / ATC | Monitor radio equipment, use lost communications procedures, have a back-up plan. |
| TFRs | Avoid TFRs | Monitor Aviation WX via G1000, FSS, Foreflight, NWS, NOAA Radio, etc. |
| STANDARD ORDERS | | 1. Maintain Control and accountability of all Team Members at all times. 2. Review Site Evacuation Plans and Procedures. 3. Keep Facilities Clean. 4. Maintain Situational Awareness over Changing Weather Conditions. 5. Be aware of Reptiles: Snakes, Insects/Scorpions and other Dangerous Animals. |
| WATCH OUT SITUATIONS | | 0. Extreme Weather - especially temperatures exceeding 40C (104F). 1. Stress 2. Dehydration 3. Distress 4. Fatigue 5. Concerns over Lifting/Overworking: Individuals not used to Lifting..USE TWO MAN METHOD. 6. Flight Line Movements CALL 911 FOR ALL MEDICAL EMERGENCIES **** REPORT ALL MISHAPS TO SAFETY OFFICER |

[CAPF 104b](#)

AZWG Photo Editor Tool

Select a photo file (.jpg)

Rotate Photo to align with Map

CAP FORM 104b Photo Metadata Editor

| Source | Latitude | Longitude | Bearing (T) | Action | |
|-----------------------|-------------|--------------|-------------|--|--|
| Original Photo: | | | | | |
| DSC_0145 - Copy.JPG | N33° 59.53' | W111° 22.92' | 162 M | NA | |
| 2021.06.29 15:42:17 z | | | | | |
| Camera Location: | N33° 59.53' | W111° 22.92' | 115 | <input type="button" value="Update Camera"/> | <input type="button" value="Center Target On Camera"/> |
| Target Location: | N33° 59.25' | W111° 22.20' | NA | <input type="button" value="Update Target"/> | <input type="button" value="Center Camera on Target"/> |

Coordinate Format

Decimal Degrees Degrees Decimal Minutes Degrees Minutes Seconds

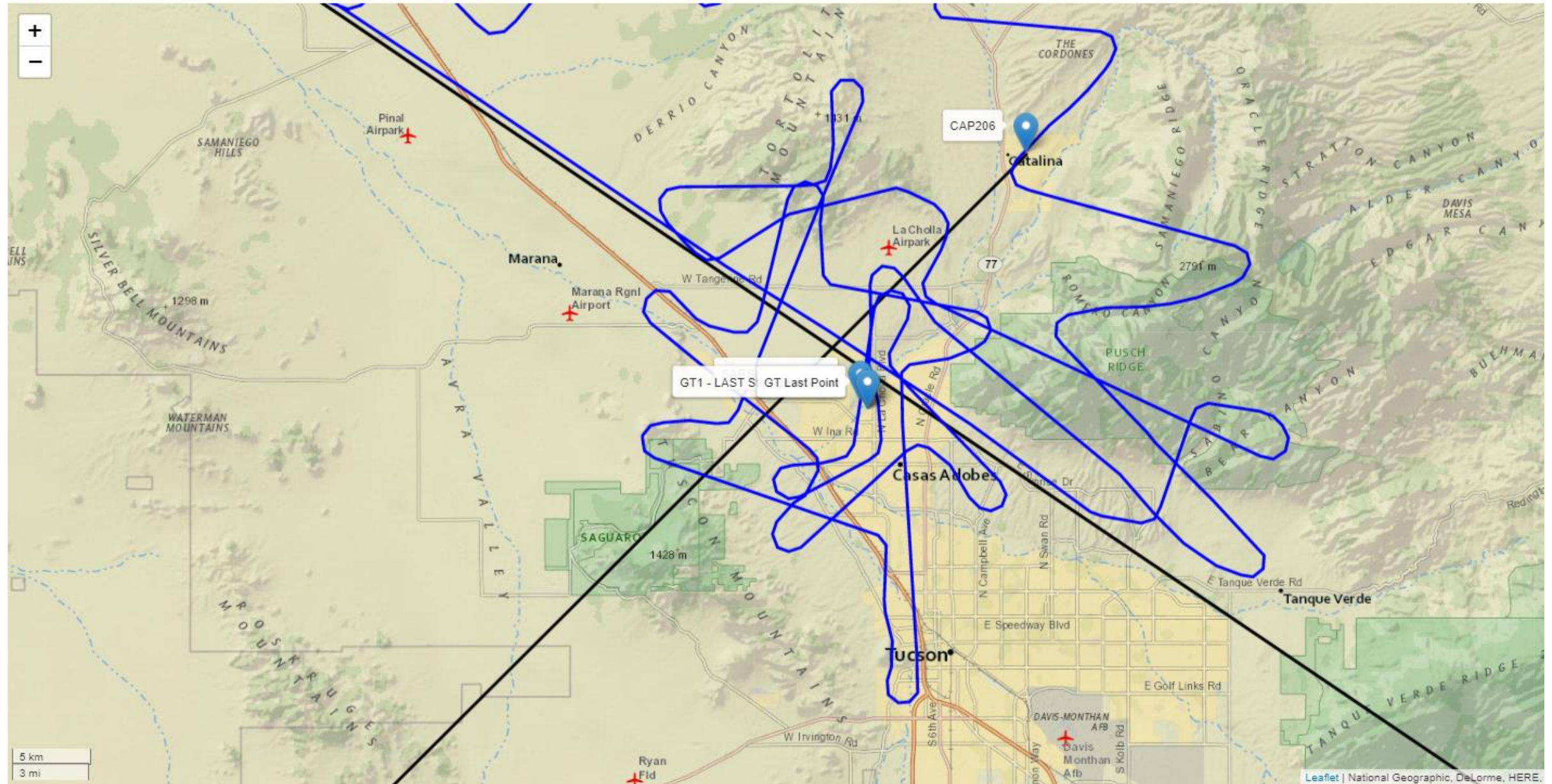
Web based tool to modify photo location metadata

CAPF104b Automation Tool

- Gathers Meta Data from all Photos in Seconds to Expedite the Reporting Process
- Create Google Earth Pro .KML File of Photo Locations
- Offers the ability to Update Meta Data Target Location and Save Metadata back to photo
- CAPF104b Tool can read the meta data from .jpg and .jpeg files but is not currently able to read the meta data from .png files.
- The AP can add .png files to the CAPF104b but will need to manually edit the meta data on the CAPF104b.
- The image files do not get stored in CACTUS. The content of the CAPF104b is not stored in CACTUS. The AP should print to .pdf and upload to WMIRS.

AZ CAP Beacon Hunter Mission: [20-M-0703]

Map

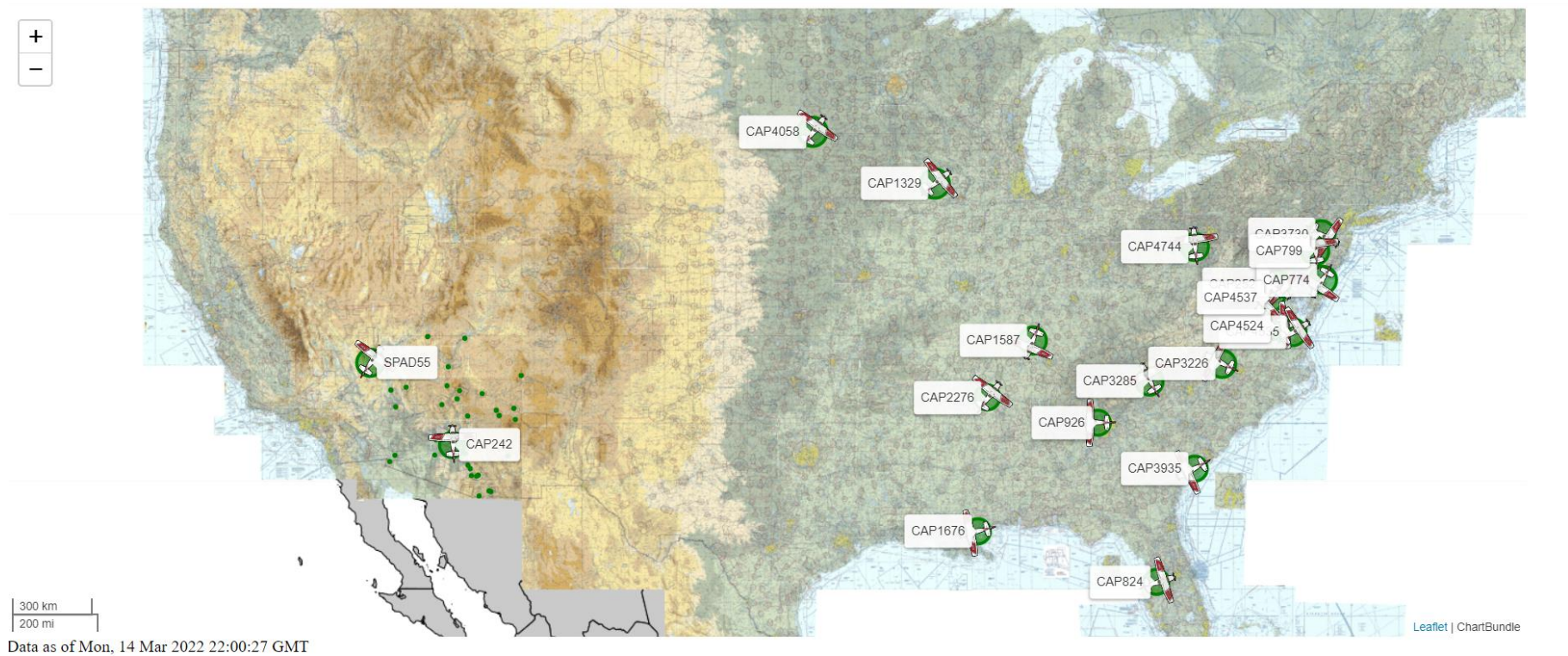


Beacon Hunter – Take Aways

- Web based ELT bearing mapping tool
- Windows, Mac, iOS, Android, Raspberry PI , unlike Foxhunt which only works on iOS devices.
- Data shared between field units and mission staff
- Visible in web app or Google Earth
- Access web app from CACTUS Mission Main Page
- GT / Drone team position reporting

| | | |
|---|--|---|
| ICS 203 Organizational Assignment List | ICS 204 Assignment Status | ICS 205 Radio Communications Plan |
| MISSION MAIN MENU | | |
| MISSION: 20-V-0001 | | |
| Last Refreshed: 07/11/2020 23:50 ZULU | | |
| MISSION STATUS: OPEN | | |
| This is a test mission for training | | |
| Edit Mission Information | | |
| Email Status Report View/Print Status Report | | |
| to track | Activity Information Active Tasks: 04 Completed Tasks: 01 Active Air Sorties: 03 Total Air Sorties: 06 Active Ground Sorties: 01 Total Ground Sorties: 01 Sorties Overdue For Contact: 02 | |
| ARIZONA WING ONLINE RESOURCES | | |
| Aircraft / Ground Team Tracking <small>(SPOT ADFF - Search by Beach)</small> | | |
| AZ CAP Beacon Hunter | | |

CACTUS Aircraft Tracker via ADSB, SPOT, DAART, InReach



Messages: (most recent at the top)

| Date | Unit | Call Sign | Message | Source |
|---------------------|--------|-----------|---|-------------|
| 2022-03-14T21:11:53 | N542CP | CAP242 | CAP242/N542CP (C82S) departed Ryan Fld (RYN) at 02:10PM MST | FlightAware |
| 2022-03-14T21:11:53 | N542CP | CAP242 | CAP242/N542CP (C82S) departed Ryan Fld (RYN) at 02:10PM MST | FlightAware |

Google Earth Pro – Aircraft Tracks

The screenshot displays the Google Earth Pro interface with a map of Arizona. The left sidebar shows a 'Places' list with several folders expanded, including 'AZ CAP Aircraft Tracker' and 'AZ CAP Aircraft Tracks'. The 'AZ CAP Aircraft Tracks' folder is checked, and its sub-items are also checked. The map shows several aircraft tracks in blue, with labels for various aircraft and spots, including CAP24, CAP242, CAP279, CAP216 SPOT#2, CAP216 SPOT#3, CAP216 SPOT#7, CAP265, CAP216, CAP255, and CAP279. The map also shows major cities like Phoenix, Tucson, and Flagstaff, and various national forests and reservations. The bottom right corner of the map area contains the text: 'Data SIO, NOAA, U.S. Navy, NGA, GEBCO Image Landsat / Copernicus'.

CACTUS v3 KPIs as of Sept 2024

- V1 released Aug 2013 – electronic “Whiteboard” e.g CAPF107
- V2 released Feb 2014 -- name changed to CACTUS
- V3 released July 2021 – CACTUS moved to Azure Cloud.
- V3 In use by 337 members of AZWG and 75 members of NMWG.
 - >240 Missions
 - >380 Operational Periods
 - >1900 staff in ICS203
 - >2500 sorties in ICS204
 - >11000 entries in Unit Log (ICS214)
 - >16000 radio messages in CAPF110

Deployed in Microsoft Azure Cloud In West US

- System Admin can adjust the capacity dynamically to adjust for mission activity.
- No physical hardware or OS to manage.
- Redundant database engine.

QUESTIONS?

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