

## **GISS Introductory Class**

### **Air Operations Map - How To**

#### **Description**

The purpose of the *Air Operations Map* is to provide Air Operations staff with enough detail to aid in locating key features on an incident.

#### **Target Audience**

Air Operation staff (pilots, Air Operations Branch Director, Air Tactical Group Supervisor, helicopter managers), aviation dispatchers and air space managers.

#### **Objective**

By the end of this lesson the student will prepare an incident Air Operations Map using GSTOP standards.

**GSTOP Reference:** Chapter 6, *Map Products*

#### **Method of Work**

1. Prepare the data
2. Symbolize the data
3. Keep the map simple, but show everything that is required

#### **Guidelines:**

- Standard ICS symbology
- Minimal clutter on map

#### **Required Elements:**

- Scale bar
- Title, including incident name and valid date
- Authorship
- North indicator
- Date and time produced
- Symbol legend
- Source statement
- Latitude/Longitude reference
- Datum
- Incident Perimeter
- Division/Branch breaks and labels
- Elevation shaded relief and key landmarks
- Aviation hazards
- Water sources
- Helispots

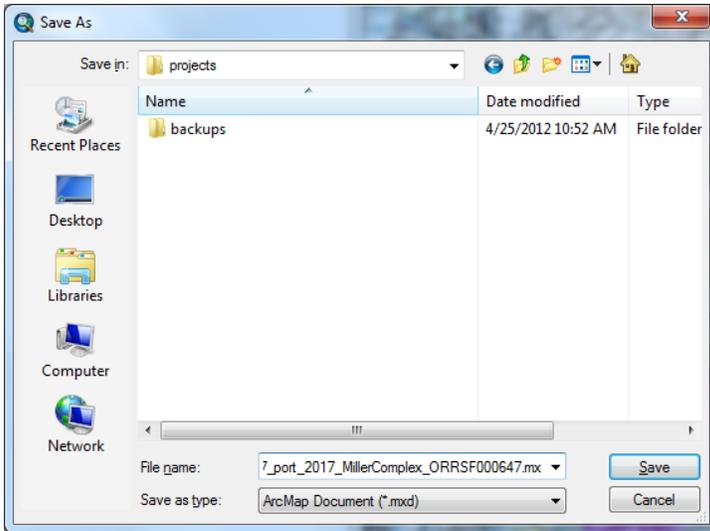
#### **Optional Elements:**

- Temporary Flight Restriction (TFR) boundary

- Military Training Routes
- Table showing latitude and longitude of key locations

**How To Steps:**

1. Open a New ArcMap document and **Save As**.
  - a. Save the Map Document (.mxd) directly under the Projects directory: **Projects**, following GIS Standard Operating Procedures.

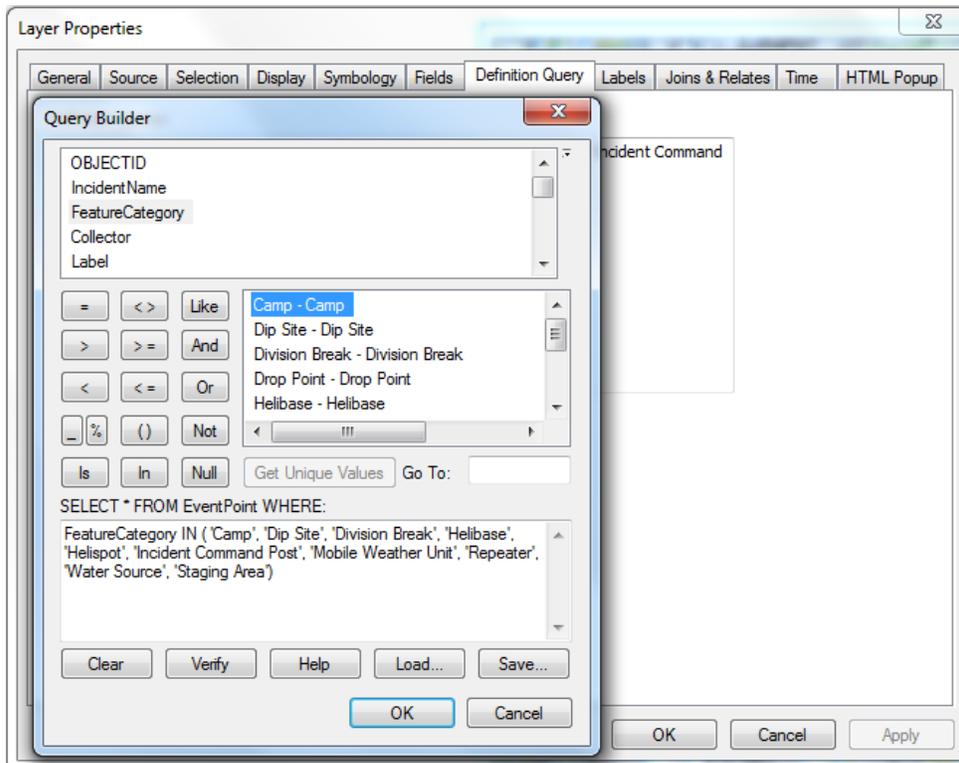


2. Add the  Incident Event Features Classes and symbolize using the Event Layers

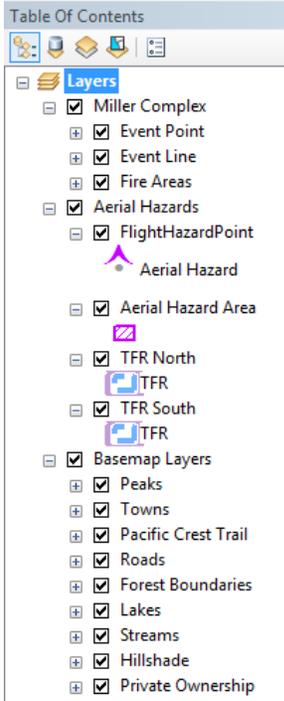
 **Layers**

- Miller Complex
  - Event Point
  - Event Line
  - Event Areas

3. Remove all unnecessary Event Points, such as Drop Points, using a **Layer Properties Definition Query**.

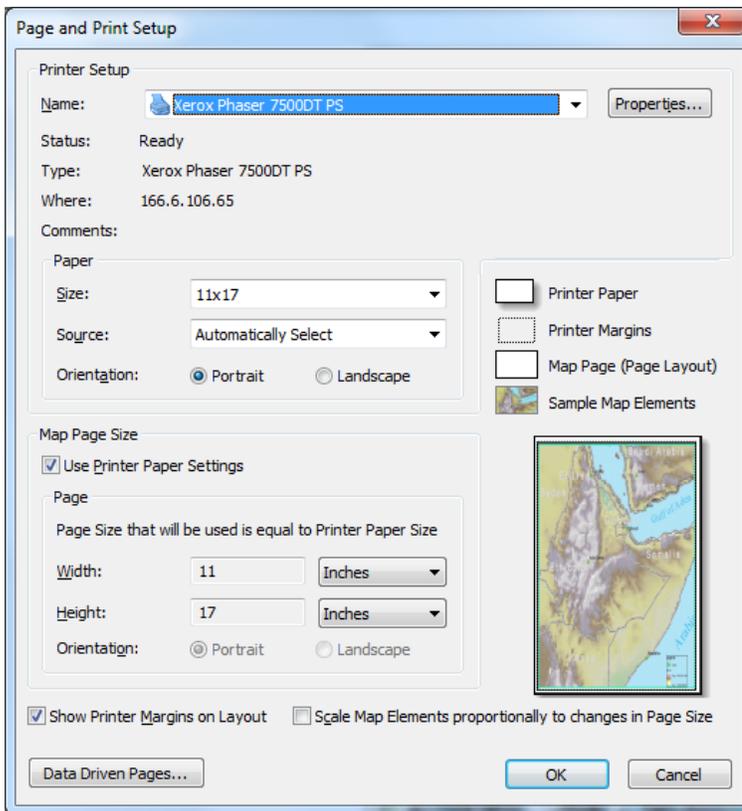


4. **Add Data**  and symbolize other geospatial data such as:
- Lines – roads, trails, streams, and aerial hazards
  - Polygons – hydrography, ownership, administrative boundaries, aerial hazards, and restricted or avoidance areas
  - Points – summits, towns, hydrography, structures, and aerial hazards
  - Rasters – hillshade and/or DRG



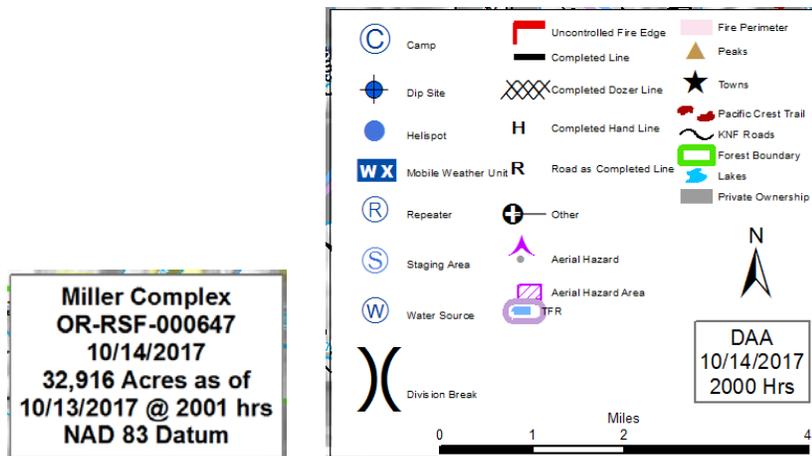
5. Set up map elements and page layout.

- a. Open **Page and Print Setup** to choose the appropriate page size (11"x 17" or E) and orientation (portrait or landscape)



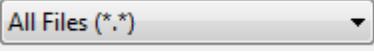
- b. Multi-page pilot lap maps (tile set) will be needed if the incident has expanded to the point where it will not fit on one 11”x 17” page. Refer to Multi-page IAP How To for directions on creating a Multi-page map. These maps are printed front to back allowing the pilot to set the map on his lap and flip it to see each half of the map.
- c. Change to a Pilot or Air Operations Template. From the Layout View, click on the **Change Layout Button**  on the Layout Toolbar  and browse to your saved templates and **Open**. Update map template with incident information and move map elements to most appropriate locations on the layout.
- d. Reference GSTOP page 69 to make sure you have included the required items (STANDL SGD): (Use Dynamic Text if possible, especially if your map is Multi-page)

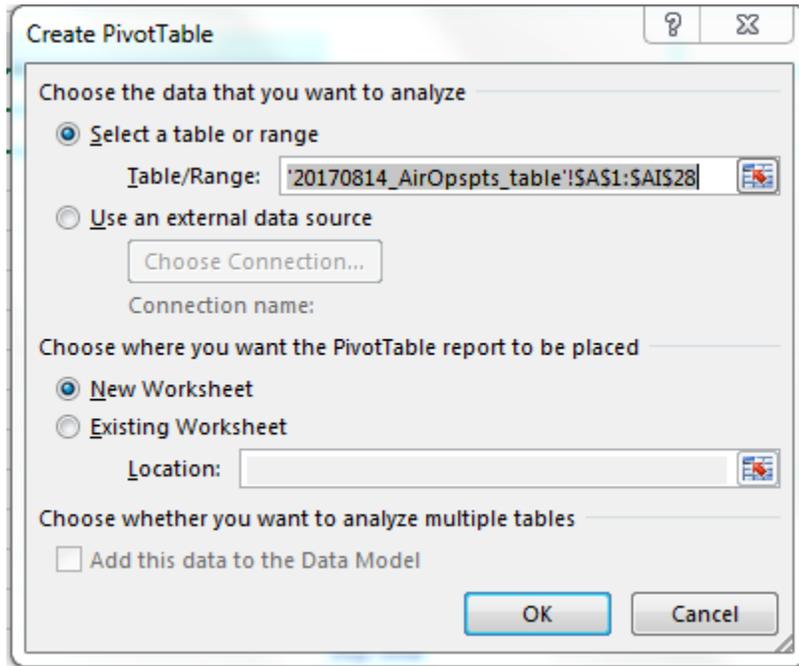
- Scale bar
- Title: Incident Name & Number, operational period date
- Author
- North Arrow
- Date and time the map was produced
- Legend or map Key, legend elements placed to not obstruct critical features
- Source of incident data, and approximate acres (if requested by the Situation Unit). Only show features that are on the map in the legend by checking this box in the **Legend Properties** and **Items** to remove unused symbols from the legend.
- Only show classes that are visible in the current map extent
- Graticule / Grid of Latitude/Longitude in degrees & decimal minutes
- Datum of the graticule



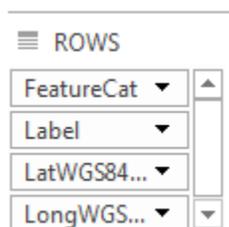
- 6. **Save** the .mxd and then **Save A Copy** in the appropriate folder: *Projects/yyyyymmdd* following GIS Standard Operating Procedures.

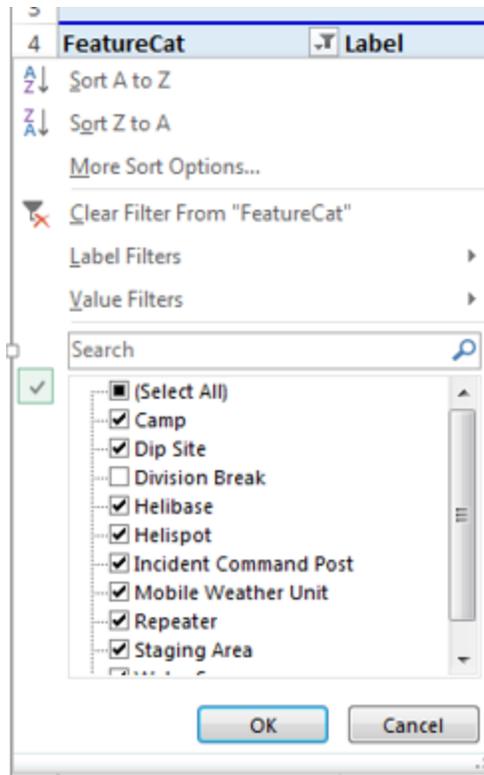


- b. **Export** all records to a .dbf saved into the documents folder: *incident\_data/exports/yyyyymmdd* following GIS Standard Operating Procedures.
- c. **Open** the exported table in MS Excel. Change the File Type to All Files to see the dbf,  .
- d. Click any cell with data in it and **Insert Pivot Table** in a new worksheet.



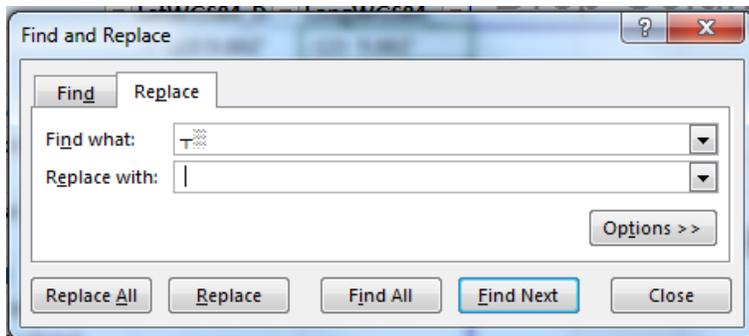
- e. Open **Pivot Table Options** and on the **Display** Tab, check on  **Classic PivotTable layout (enables dragging of fields in the grid)**
- f. Drag and drop FeatureCat, Label, LatWGS84\_D, LongWGS84\_ as Rows. Turn off any unnecessary points and turn off subtotals for each row.

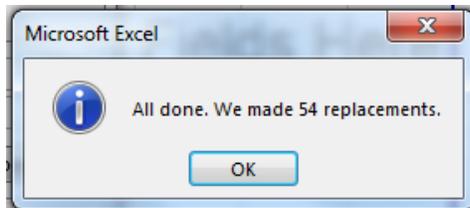




✓ Subtotal "Label" to Subtotal "Label"

- g. ArcMap inserts a degree symbol Lat/Long cells those not translate to Excel and is replaced with different characters that must be replaced. Select one set of the characters and copy them, and open **Find and Replace**. In the **Replace** tab, paste in the characters in the *Find What:* and replace with a blank space (one click on the space bar) or with a degree symbol by holding down ALT and typing 0176 and **Replace All**. It will give you a results window with how many were found and replaced.





- h. Copy all the data cells in the Pivot Table and paste them into a new worksheet as values only.

3					Drop Column Fields Here	
4	FeatureCat	.T Label	LatWGS84_D	LongWGS84		
5	Camp	(blank)	42 1.147'	-123 9.662'		
6	Dip Site	Azalea Dip	41 58.207'	-123 18.036'		
7		Echo Dip	41 56.190'	-123 10.400'		
8		Lily Dip	41 55.280'	-123 11.150'		
9		Lonesome Dip	41 56.976'	-123 17.839'		
10		Miller Dip	42 3.867'	-123 18.195'		
11	Helibase	Cave Junction	40 6.000'	-123 41.002'		
12	Helispot	Applecore	42 3.394'	-123 7.007'	Drop Value Fields Here	
13		DP-12	41 58.365'	-123 12.339'		
14		H-10	42 0.630'	-123 9.120'		
15		H-15	42 1.349'	-123 13.786'		
16		H-60	42 0.593'	-123 16.817'		
17		H-80	41 58.104'	-123 1.372'		
18		H-86	41 57.803'	-123 0.704'		
19		H-90	41 56.705'	-123 0.735'		
20		Hamilton	42 14.054'	-123 3.704'		
21		Slaughter HS	41 57.230'	-123 4.710'		
22	ICP	Incident Command Pos	42 14.058'	-123 3.943'		
23	Mobile Weather Unit	RAWS-19	42 3.152'	-123 1.952'		
24	Repeater	CMD 1	42 11.785'	-123 9.089'		
25		CMD 2	42 1.206'	-123 15.681'		
26		CMD 3	41 56.363'	-123 9.880'		
27	Staging Area	S-170	41 58.710'	-123 1.816'		
28	Water Source	(blank)	42 0.509'	-123 9.227'		
29			42 0.525'	-123 11.895'		
30	Grand Total					

	A	B	C	D
1	FeatureCat	Label	LatWGS84_D	LongWGS84
2	Camp	(blank)	42 1.147'	-123 9.662'
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23		CMD 3	41 56.363'	-123 9.880'
24	Staging Area	S-170	41 58.710'	-123 1.816'
25	Water Source	(blank)	42 0.509'	-123 9.227'
26			42 0.525'	-123 11.895'

- i. Format the cells and change the column names for inserting into the Layout in ArcMap.

Point Type	Point Name	Latitude	Longitude
Camp		42 1.147'	-123 9.662'
Dip Site	Azalea Dip	41 58.207'	-123 18.036'
Dip Site	Echo Dip	41 56.190'	-123 10.400'
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