

Decision Support Center (DSC) Standard Operating Procedures

Contents

Executive Summary	1
Decision Support Center Roles, Responsibilities, and Qualification Requirements	3
DSC Lead	3
Fire Behavior Analyst (FBAN)	3
Geospatial Analyst	3
GIS Specialist	4
Strategic Operational Planners	4
Air Resource Advisors	4
DSC Activation Procedures	5
DSC Logistics Need	5
DSC Work Requests and Prioritization	5
Fire Behavior Analysis Requests	5
Prioritization of Requests	5
Ordering and Coding of Time	6
Appendix A: Organization Chart	7
Appendix B: FBAN Operations	Error! Bookmark not defined.
Appendix C: WFDSS Operations – Fire Behavior and Decision Documentation Specialists	Error! Bookmark not defined.
Appendix D: GIS operations	Error! Bookmark not defined.

Approved by:

_____ Date: _____

GMAC, Chair _____

Executive Summary

The Decision Support Center (DSC) can be utilized in preparation for and during periods of high fire activity in support of a specific GACC's Coordinating Group, Incident Management Teams (IMTs) and local units. The co-location of Wildland Fire Decision Support System (WFDSS) technical experts, fire behavior specialists, strategic operational planners and GIS specialists makes it possible to assist with incident prioritization, resource allocation, and offers a common point of contact for all fire managers within the geographic area.

The purpose of the DSC is to provide a broad range of decision support and risk management products to a wide spectrum of users, facilitating critical decision support in relatively short time frames. Examples include fire behavior analysis, WFDSS decision support, wildfire assessments and GMAC prioritization. This allows for critical decision support in relatively short time frames. The DSC will:

- Work for the Geographic Area Editor (GAE) and GMAC group.
- Provide fire behavior predictions, incident fire behavior analyses, and maps of fire activity for the geographical area coordination group.
- Ensure consistency with guidelines of each Agency by working with Regional Agency contacts on policies and procedures.
- Initiate analysis on the request of local units for emerging incidents without regard to Agency.
- Provide analysis, as requested, for Federal Management Assistance Grants (FMAG).
- Provide general WFDSS documentation expertise, as requested by local units.
- Support the geographical area coordination group or GMAC, as requested, including assistance with prioritization of incidents.

Products and Support: The DCS can provide the following:

- ✓ Fire behavior analyses and interpretation support for local units, incidents, Incident Management Teams, Area Command, (Fire Spread Probability (FSPro), Near Term Fire Behavior, FARSITE, Short Term Fire Behavior, Flammap etc.)
- ✓ WFDSS Decision support, including Decision Documentation assistance;
- ✓ Values Inventory (VI) and Values at Risk (VAR) assessment;
- ✓ Short and long term assessment and strategic planning;
- ✓ Fire Behavior and Fuel Condition Outlooks and Advisories;
- ✓ On scene or virtual support from Missoula.

The DSC works for the Geographic Area Editors (GAE) and area Coordination Group and is managed by an assigned Decision Support Lead who has broad knowledge of Decision Support tools (as available, a Geographic Area Editor). Staffing will scale up and down based on the Preparedness Level and the number and complexity of active incidents burning in the Geographic Area. When fully engaged, the group will likely include the DSC Lead, an FBAN,

two (or more) Geospatial Analysts (GSAN), two (or more) Strategic Operations Planners (SOPLs), two (or more) Long Term Analyst (LTAN), a WFDSS decision documentation technical specialist, an ARA (Air Resource Advisor(s), and a GIS specialist(s). The DSC Lead will coordinate with the GMAC (or Agency representative during periods of less fire activity) and assign work among the group. The intent of the SOPL position is to provide direct, on-site support to those Agencies incurring incident activity. The SOPLs and/or WFDSS Decision Drivers could be strategically located throughout the GACC. Any of the other analyst positions may be placed strategically within the GACC.

The DSC is expected to interface with GACC Coordination Center (CC) personnel on a regular basis, particularly Intelligence and Weather. The DSC Lead will work with CC personnel to create products and consistent outputs, recognizing that as CC capacity is reached, there could be a need for additional staffing in the DSC.

DRAFT

Decision Support Center Roles, Responsibilities, and Qualification Requirements

The following position descriptions are intended to be a guide of the role these standard fire qualifications may fill within the DSC. These may change depending on these needs of the specific fire season, GACC or local unit needs.

(Depending on workload, one person may fill more than one role)

DSC Lead

- Reports to the MAC Chair (when activated) and/or the GAEs. In situations when the GAE is not functioning as the DSC lead, there should be close coordination with the GAE's within the GACC and the assigned DSC lead.
- Coordinates policies and procedures with the Regional WFDSS/Analyst for each Agency.
- Supervises the rest of the DSC group.
- Coordinates staffing and ordering of resources for the entire DSC group
- Responsible for coordinating requests from incidents, assigning tasks, and overseeing timely delivery of products.
- Coordinates data needs and products with CC staff.
- Recommended skills: broad knowledge of decision support tools (Geographic Area Editor, if possible), strategic fire operations, and ability to lead a team effectively.

Fire Behavior Analyst (FBAN)

- Produce or update fire behavior advisories.
- Provide short-term weather and fire potential overview for GMAC.
- Gathers input and intelligence on fire behavior from FBANs/LTANs in the field or with IMTs. Coordinates and disseminates information among field and/or IMT FBANs/LTANs to insure information is being shared regarding fire behavior conditions.
- Prepares a daily fire behavior/fire potential forecast for the GACC supporting .
- Reviews and provides feedback to fire behavior specialists on products, as needed.
- Recommended skills: red card qualified FBAN or LTAN.
- Review and update NWCG pocket cards.
- Trainees are encouraged, but any products they produce need to be reviewed by an experienced fire behavior specialist or a fully qualified LTAN/FBAN

Support Fire Analyst

- This position may be activated at any time workload demands.
- Responsible for completing specific technical analyses utilizing a range of fire behavior models, including BEHAVE, FARSITE, FLAMMAP, FSPRO, STFB, NTFB and others.
- This position needs to have oversight by a fully qualified analyst.
- Responsible for completing appropriate documentation for every fire behavior analysis and filing each analysis.

- Recommended skills: red card qualified FBAN, LTAN, or GSAN or other THSP for WFDSS. Fire Behavior Specialist qualification in WFDSS is required. Must demonstrate competency with fire behavior models (e.g., FARSITE (NTFB) and FSPRO).

GIS Specialist

- Coordinates with the Fire Analyst and Fire Behavior Specialist to produce products for the GMAC, incidents, and Agencies (as requested).
- Provides data to update websites, web pages, and ftp sites.
- Completes tasks according to work priorities; files products in appropriate folders and notes updates.
- Recommended skills: red card qualified GISS.

Strategic Operational Planners

It has been highly successful to have roving SOPL's connected to the DSC in the field to support emerging type III fires. Longer term incidents such as type I/II should likely have SOPL's assigned to the incident if possible.

- Provides Federal Agencies with support in documenting fire decisions in WFDSS.
- Keeps track of decisions and notifies DSC Lead of fires that may need a decision or an updated decision.
- Assists with the development of MAP's, coordinates meetings with the appropriate personnel – stake holders, IMT's, local units etc.
- Summarizes fires to describe long-term implications.
- Coordinate with Fire Behavior Specialist to ensure products are available for Decision documentation.
- Recommended skills: experienced with WFDSS decisions and assisting others through the process. Ability to work with multiple Federal Agency requirements for decision-making.

Air Resource Advisors

- Reports directly to the DSC lead.
- Should coordinate closely with the regular regional program leads for air quality and state air quality agencies.
- Provide specific smoke modeling forecast for incidents
- Short duration and/or emerging incidents can be supported virtually from the DSC. Long duration fires or complex incidents should be supported with an on-site ARA.
- Typically, type III fires can be supported by one of the regular USFS air quality specialist virtually.
- Disseminate this information out to the IMT's ie: PIO's, Plans, and other personnel who are interacting or engaging with the publics through various meetings etc.
- The ARA and fire behavior analyst should be in close coordination so the fire behavior projections can be included in the smoke forecast.

DSC Activation Procedures

Activation will occur at the request of the GMAC or at any time one of the Agencies within the GACC reaches capacity on producing decision support related products. The Geographic Area Editor for each federal agency is key in determining when capacity has been reached. This capacity is normally reached at a PL 3 or 4. Generally, it is highly recommended to activate the DSC when a MAC group is activated.

DSC Logistics Need

The DSC can be staffed with a wide range on numbers of personal and be on site or virtual. Therefore, the workspace is flexible. However, the ideal situation is co-located with the GMAC and CC plus the ability to accommodate up to 12 people.

- Computer workspace for up to 12 personnel (desk, power, internet access for multi-agency employees).
- 3 phones, at least one with speakerphone capabilities and webcam
- Color Printer.
- Plotter (if available).
- Copy machine (availability @ CC or other office may work).
- Office supplies (pens, highlighters, staplers, 3 hole punch, copy paper, sticky notes, writing tablets).
- MAC/CC phone list.
- Functionality to display information on a large screen such as a large screen TV and/or hook up to a projector.

DSC Work Requests and Prioritization

Fire Behavior Analysis Requests

Generally, the GAE is aware of requests for fire analyses on incidents within their respective GACC. This is due to close coordination with the local units and/or contact with the regional duty officer. The GAE will task the DSC to fulfill requests. If the GAE is not already assigned to the DSC, then they will contact the DSC lead.

When a request for an analysis is submitted in WFDSS, there is no automated way to alert the Fire Behavior Specialists that a request exists. If a local Fire Behavior Specialist is not available, the local incident needs to contact the DSC Lead or Fire Behavior Specialist to ask for assistance. The DSC will monitor fire behavior requests in WFDSS and keep track of analysis needs.

If an incident is expected to be long duration and/or needs extensive analysis for management of the fire, it is generally recommended to have a local analyst. The DSC Lead may assist in finding a qualified analyst to work locally. Generally, if a fire is managed by a Type 1 or 2 IMT, local analyst capabilities are recommended (i.e., the analysis should be done by someone at the incident, not at the DSC). However, during times of high fire activity across the nation, this may not be possible due to resource shortages.

Prioritization of Requests

The DSC Lead will coordinate requests with the Jurisdictional Agencies. Approval of the prioritized list will be done by the GMAC group. The prioritization may include but not be limited to the following considerations:

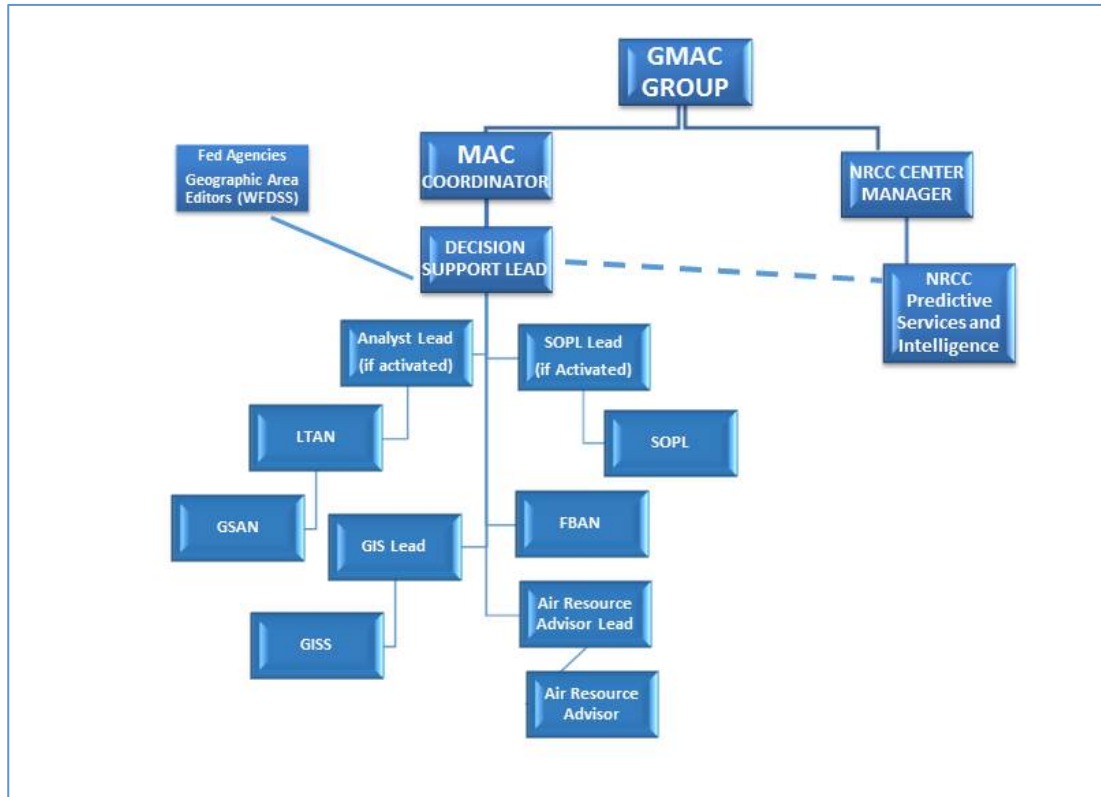
- Emergent fires
- Fires in proximity to identified values
- Fires without obvious natural barriers
- Fires with long-term potential
- Politically or sensitive fires
- Fires with potential for high costs

Ordering and Coding of Time

All resource orders for staffing the DSC will be coordinated through the DSC Lead. All DSC resources will be ordered on the CC or USFS RO support code. In order to deal with short surges of workload, virtual analysts may be utilized. These virtual analysts will report to the DSC Lead and their assignments will be managed in conjunction with the other on-site analysts.

DRAFT

Appendix A: Organization Chart



Forest Service

[Document title]

DRAFT

[Name]

[Date]

The intent of this Standard Operation Procedure outline is to provide a starting point or considerations for Regional Staffs to initiate the discussion to stand up a Decision Support Center. As of April 02, 2020, this is a draft guide, it is our intent to pass this guide to the Region for further development. The guide should be considered a fluid document, one that can be added or updated as needed and not become static over time. Please share this information with the other Geographic Area Editors (GAE's) within respective Regional Geographical Area in addition to the other GAE's in other Areas. Additionally, if updates or other considerations are included please share that information with the above discussed audiences but also with the Wildland Fire Management Research, Development and Application (WFM RD&A) group.

DRAFT

Standard Operating Procedures for Functional Areas of a Decision Support Center (DSC)

Contents

1. Standard Operating Procedures for DSC lead	11
2. Standard Operating Procedures for Analysis Group.....	13
3. Standard Operating Procedures for FBAN Group.....	13
4. Standard Operating Procedures for SOPL	13
5. GISS Standard Operating Procedures	14
6. ARA Standard Operating Procedures	29
<i>Appendix 1. Helpful Links: Setup and User Accounts.....</i>	<i>31</i>

DRAFT

1. Standard Operating Procedures for DSC lead

The following represents a general flow to the day. The times listed are a general guide. The specific times changed over the course of the nearly two months the DSC was activated.

1. 0600 – 0700
 - Arrive at DSC, gather situational awareness of weather/fire behavior/update on incidents. See section in Appendix on helpful links. It is helpful to have a full time monitor/projector with PC to be able to display current incidents, fire wx and NFDRS information. Utilize a WFDSS group for critical incidents in the GACC to pull fire perimeters, analysts, and M.A.P.s.
2. 0700 – 0830
 - Connect with Center Manager and Regional Operations. Find out new or emerging incidents or changes with priorities. Update them on any critical information developed by the DSC. Determine what critical questions need to be addressed by the DSC during the shift. Prepare for DSC briefing by insuring all incident requests (analysis, WFDSS decisions and any special products) are covered.

3. 0830 – 0900 DSC briefing

This briefing is for all staff (on site and virtual) for the DSC. The following was used as an agenda and should be confined to no more than 30 mins:

- Roll call DSC Lead
- Regional overview DSC Lead
- Fire Wx/Fire behavior FBAN
- Smoke Lead ARA
- GMAC MAC Coordinator
- LTANs Lead LTAN
- SOPLs Lead SOPL
- Round robin

The following breaks down the objectives for each agenda item of the call:

- Roll call DSC Lead
Confirm attendance of all DSC members
 - Regional overview DSC Lead
Provide a general summary and update on MAC priorities, outlook for activity (continued dry wx, increased probability for activity, etc.), updates on feedback from the field, GMAC, etc.
 - Fire Wx/Fire behavior FBAN
Provide a regional overview of fire wx/fire behavior/fire danger for the GACC. Utilize products from predictive services and special products developed such as ERC interactive map, etc.
 - Smoke Lead ARA
Provide an update on outlooks, smoke modeling for incidents, priorities
 - GMAC MAC Coordinator
Update on any emerging issues, product needs
 - LTANs Lead LTAN
A lead LTAN may need to be established during times of high staffing to help with span of control for the DSC. Topics covered should include current analysis, critical issues, needs and priorities
 - SOPLs Lead SOPL
A lead SOPL may need to be established during times of high staffing to help with span of control for the DSC. Topics covered should include current decision work, critical issues, needs and priorities
 - Round robin
4. 0900 – 0930 breakouts for any of the specific sections (LTANs, ARAs, SOPLs) and follow up discussions
 5. 0930 – 1000 Aviation briefing

- This is a briefing for IA resources such as lead plane pilots, air attacks, smokejumpers. This should include a briefing by the predictive services IMET and the FBAN from DSC. The briefing time for both fire wx/FBAN should be 5-7 mins. FBAN topics should include the NFDRS indices to illustrate fire potential across the GACC, highlight critical areas and implications for IA resources.
6. 10:00 – 10:30 Coordination Center Floor briefing
 - The DSC lead and FBAN should attend this briefing
 - FBAN should coordinate with the GACC IMET to provide an overview of current and predicted fire potential across the GACC
 - DSC lead – gather intel on incidents to help prioritize needs and product development. Give a very brief overview of which incidents are currently being supported from DSC.
 7. 10:30 – 13:00
 - This is an open time block. It is recommended to use this time to organize and prioritize information from the morning briefings, assign or update tasks to DSC members and connect with DSC staff to check on progress or help with needs.
 8. 13:00 – 14:30 MAC call
 - The DSC lead, FBAN and GISS should attend this meeting at a minimum. If possible, it may be helpful for the SOPL/LTAN lead (if activated) to attend.
 - DSC Lead - be prepared to give a very brief status update
 - FBAN, along with the predictive services IMET should give a general overview on fire potential with a similar briefing format as the Coordination Center floor meeting
 - GISS – should run the google earth tour. Generally the following products should be pulled together:
 - Fire perimeters,
 - Analysis
 - MAPS
 9. 14:30 – 17:00
 - This is another open block of time. It is recommended to use this time to organize and prioritize the information from briefings, assign or update tasks to DSC members and connect with DSC staff to check on progress or help with needs.
 10. 17:00 – 18:00 IC call
 - The DSC lead should attend this call. This is a call coordinated for the Coordination Center and all the ICs in the GACC. This provides an opportunity for gathering intel and providing updates on DSC services available to support the IMTs. This call may help provide information to the DSC on potential gaps of service the incidents needed.
 - The GISS should drive the google map with the same type of information used for the 1300 MAC call.
 - The FBAN and SOPL also may attend this call for general information gathering and situational awareness from incidents.
 11. 18:00 – 18:30 MAC call
 - This call is utilized to prioritize the incidents. The DSC lead may or may not be requested to attend this call
 12. 18:30 – 20:00
 - Close out and administrative work for the day. It is recommended to use this time to help prioritize support to the incidents based on new priorities from the MAC group from the 1800 MAC call.

2. Standard Operating Procedures for Analysis Group

- The Fire Behavior Specialist Lead responsibilities should be accepted from the outset when the DSC is created. Initially, those responsibilities may be held by the DSC Lead. As soon as an individual is assigned for fire analysis and long term assessment of incidents, the responsibilities should be assigned to that individual. Ideally, the Lead should be fully qualified as LTAN, and also be prepared to lead an expanding group of specialists. Additionally, they should have experience and skill with analysis in the geographic area;
- The Fire Behavior Specialist Lead coordinates analysis support for regional priorities, local units, incident management teams and other entities as assigned by the DSC Lead. This coordination includes efficient distribution of analysis responsibility, mentor/trainee combinations, and other needs as identified. Coordination should include interaction and coordination with fire behavior specialists assigned in other ways; with incident management teams or administrative/local units;
- The Fire Behavior Specialist Lead is responsible for review of analyses, providing feedback and encouraging discussion among analysts to ensure consistency and accuracy of inputs where appropriate, quality of results, and documentation of the analysis work;
- The Fire Behavior Specialist lead is also responsible for tracking assignments, accomplishments, issues, and feedback in behalf of the entire group doing analysis.

3. Standard Operating Procedures for FBAN Group

- Continuous logging of products, briefings, and FBAN output needs to be ongoing throughout the DSC timeline. An outline to capture these should be developed and implemented when the next DSC is stood up;
- Documents and briefing products need to be located on the shared DSC drive immediately;
- Listing accessed url's and data sites for continuity of products and shared intelligence gathering;
- If the DSC FBAN is supporting other incidents, additional FBANS may need to be considered to manage workload.

4. Standard Operating Procedures for SOPL

- Provide oversight to decision documentation - assess the needs to develop or update decision documentation;
- Evaluate the consistency of decision documents at the forest and/or the regional level to provide consistency/continuity to the documentation additionally provide recommendations or feedback for improvements as needed to the DSC lead and/or the Regional contact as appropriate;
- Work with IBA or finance section chiefs to assess actual cost projections for the decision.
- Coordinate workload with the DSC lead, and LTAN support or LTAN Lead (if stood up) clearly identify the analysis needs to support the decision documentation;
- Prioritize workload for LTAN's supporting the decision documentation or SOPLs working for the DSC either in place or virtually;
- If the DSC and fire activity supports the workload consider ordering additional SOPLs or SOPLt to assist with workload or to provide a different exposure to trainees;
- When possible plan to spend time in the field to conduct face to face meetings, data/information gathering and presentation of MAPS developed for the decision;
- Document, Document and Document information updated by yourself or the SOPL group; assistance provided, issues encountered, successes, areas for improvement - keep a unit log or diary of events throughout your duration for either replacement SOPLs or future coordination events;
 - This information needs to be stored in a cloud like environment so it is easy to find, and the documentation can be maintained after demob and for future reference;
- Identify the key stakeholders who need to be part of the decision process, coordinate face to face meetings which are the best or use virtual tools to help with coordination of expectations and decision intent. Stakeholders include but not limited to: local unit representatives (fire, line officers, actings etc), and IMT personnel.

5. GISS Standard Operating Procedures

A. Setup and Establish User Accounts

1. A NIFC AGOL user account is necessary for publishing Hosted Feature Layers for use in Web Maps and Web Mapping Applications used to navigate incidents during IC calls and Briefings. Obtain an account prior to incident, use the **Request a NEW Account** link on the **Home** page at <http://nifc.maps.arcgis.com/home/index.html>
2. Have an FTP client installed, preferably **WinSCP**. Request access to the relevant GACC directory with **write** access including the **gacc_support** and **<year>_MAC** directories.
3. Establish a wireless network connection. Typically this will be a Guest USFS (**FS-Auth_guest**) account using your email address as the username and a password will be emailed to you once the account is created. The connection may be squirrely especially peak morning and evening times so it may take a few logins to establish.
4. A WFDSS account will be required for obtaining current incident data and uploading IR perimeters. Request a new account if needed from the Wildland Fire Decision Support System. https://wfdss.usgs.gov/wfdss_proto/faces/jsp/login/WFDSSLogin.jsp
5. A FAMWEB account will be required to download SIT-209 reports to add to the **<year>_MAC** folder in ftp each night. If you need an account choose **Ctrl + FAMWEB Logon Request** (window is a pop up) and fill in form accordingly. If you need help see additional **Creating_A_Famweb_User_account** document in Appendix. In my Folders, create shortcut to IMSR AutoSIT Reports for quick access.
6. Bookmark these sites:
Fire Data in Google Earth - Remote Sensing Applications Center (RSAC) for MODIS and VIIRS Fire Detection data <https://fsapps.nwcg.gov/googleearth.php>
National Infrared Operations – Download NIROPS CDE KML <https://fsapps.nwcg.gov/nirops/>
FSGeodata Clearinghouse – Download National Datasets <https://data.fs.usda.gov/geodata/edw/datasets.php>
7. You will want to set up a file structure on local disk for easy navigation and download/upload of files. Preference will vary among individuals but a standard for GIS files should be identified at the start of the incident in the GIS Data folder.
Example: Incident Data Name

B. Data Collection

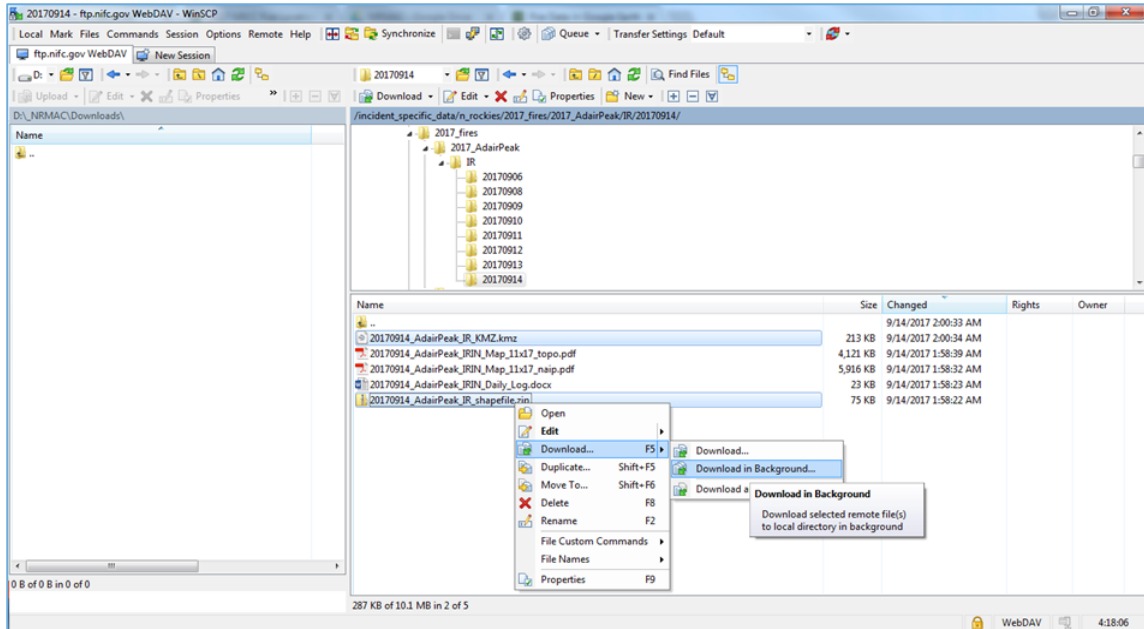
Collect data from sources to update feature classes in relevant GACC Fire Locations Update Map, Google Earth files, and Incident documents

1. Daily IR data is collected and stored in the **<year>_fires**. Download in background the **.kmz** and **shapefile.zip** files from **<year>_<incident>, IR, <date**

Lessons Learned:

*Not all fires will receive nightly IR data so just download what was taken the night before **EXCEPT** when first loading data into the IR perimeter feature class.*

I like to download files into a download folder created in the MAC folder created for incident then extract each .zip into an IR>incident specific>today folder. The kml files moved to a KML folder.



2. Download Fire Data in Google Earth.
 - a. Select the Modis tab and download Fire Detections (MODIS): Current. Move to a Modis folder
 - b. Select the VIIRS tab and download Fire Detections (VIIRS 375m): Current. Move to a VIIRS folder

KML

Fire Detections (MODIS): [Current](#) | [Animation](#) | [Historical](#)
 Fire Radiative Power (MODIS): [Current](#) | [Animation](#) | [Historical](#)
 Large Incidents: [Current](#) | [Historical](#)
 Fire Weather: [Current](#)
 AFM KML Bundle: [Current](#)

KML

Fire Detections (VIIRS 750m): [Current](#) | [Animation](#) | [Historical](#)
 Fire Detections (VIIRS 375m): [Current](#) | [Animation](#) | [Historical](#)
 Fire Radiative Power (VIIRS 750m): [Current](#) | [Animation](#) | [Historical](#)
 Large Incidents: [Current](#) | [Historical](#)
 Fire Weather: [Current](#)
 AFM KML Bundle: [Current](#)

3. Download WFDSS emerging incidents (KMZ) and recent incidents (perimeter and KMZ)
 Log in to WFDSS and select the Incidents tab. Select Edit Filter to create an Emerging Incidents filter for future use.

- Discovery Date of Incident = Incidents discovered in last 2 days
- Controlled Date of Incident = Any controlled date
- Contained Date of Incident = Any contained date
- Out Date of Incident = Fires that are not out
- Geographic Areas>>GACC of Interest
- Jurisdictional Agency = Select all agencies
- Incident type = Wildfire

Save Filter

Name it **Emerging Incidents**

This will now be readily available in the dropdown list of **Filters** to select.

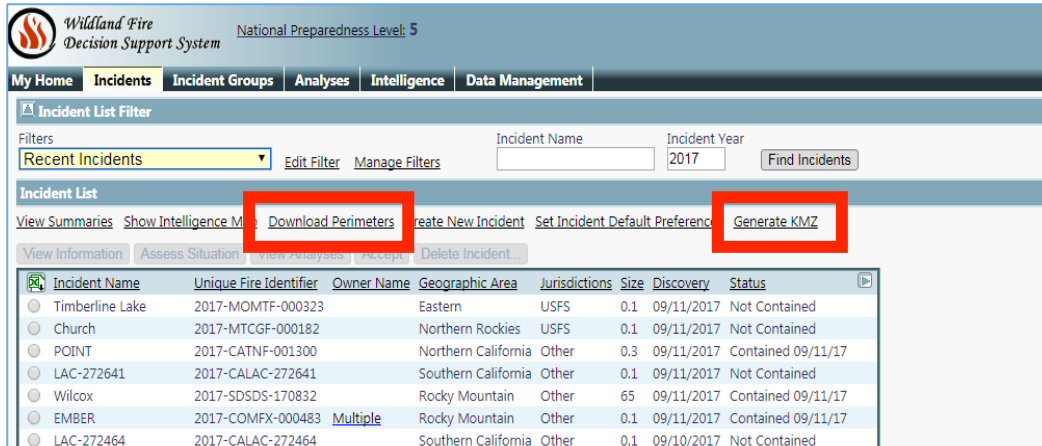
Choose **Generate KMZ** and give the file a **Label**, this will be the name of the kmz.

Click on **My Home>My Activities** and wait until the status says **Completed** to download the kmz. Move the kmz files into the KML folder.

Lessons Learned:

*The **My Activities** page usually does not refresh and will say **In Process** even if it is done. Click the **Reload** icon on your browser or press **F5**. I have also encountered where files fail several times to package for download but keep trying and eventually they complete.*

Go back to the Incidents tab and Download Perimeters. Move perimeters into a shapefile folder. Give the file a **Label**, choose **Most Recent Perimeter**, and **Select all** Source Types and **Submit Request**.

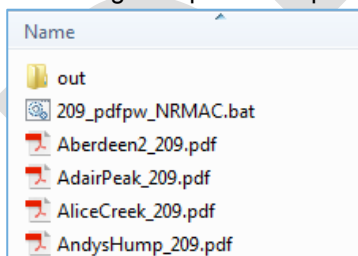


4. Collect any other ancillary data needed for your maps or additional files from WFDSS. An example would be past fire perimeters for the area in the current year. I downloaded a spreadsheet of all fires in the GACC for 2017 which contained the coordinates.
5. In the evenings, download updated Incident Action Plans (IAP) from NIFC ftp gac_support, <year>, <incident> folder and save to your computer in an IAP folder.
6. In the Nifc ftp <year>_fires, <incidentname>, GIS, products folder look for the most current OPS map and save to your computer in an OPS folder
7. In the evenings, log into FAMWEB, National Fire and Aviation Management>Sit-209>209 tab>Reports>My Folders>Shortcut to IMSR (AutoSIT) Report. Select Click Here to bring up the list of current days 209 reports. Scroll down to the respective GACC reports and search for reports from current date. Click on the name of the incident and wait for the report to appear. Right click on report>save as>incidentname_209 into a 209 folder. Close and select next report until all new reports have been saved. You should have a 209_pdfpw_MAC.bat file in the same 209 folder that will create an out folder with copies of all the 209s that are now password protected. Make sure to delete the out folder before running the batch file again.
8. Be sure to save updated Priorities document when the email is received.

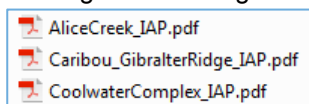
C. Data Processing

Once all data has been collected it needs to be processed.

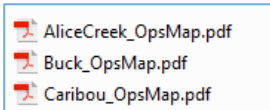
1. Process the 209 reports by running the 209_pdfpw_MAC.bat file. An out folder will be created containing new password protected 209 PDF reports.



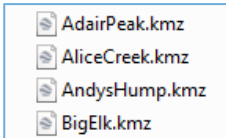
2. Rename the IAP maps to the IncidentName_IAP format. This way the new files will overwrite the existing files in Google or One Drive and in FTP



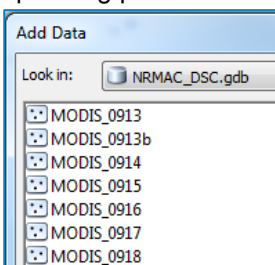
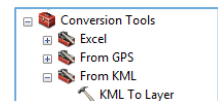
3. Rename the OPs maps to the IncidentName_OpsMap format. This way the new files will overwrite the existing files in Google or One Drive and in FTP.



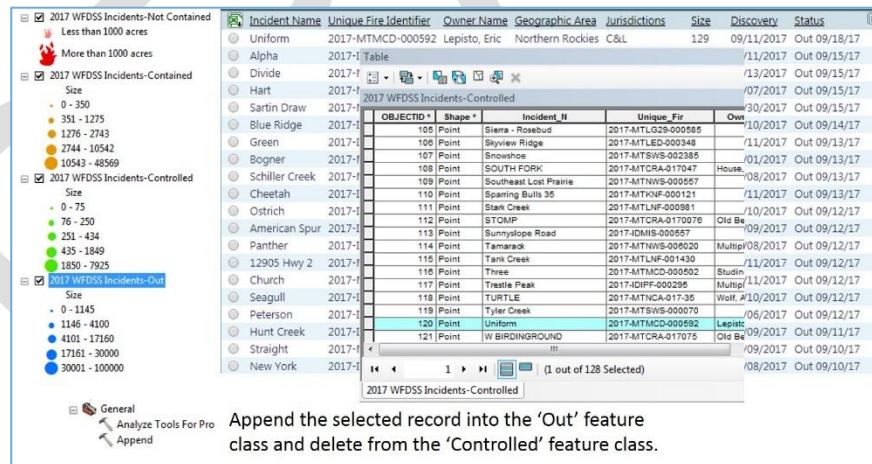
- In the KMZ folder, rename the Incident kmz files to just the incident name. This way the new files will overwrite the existing files in Google or One Drive.



- In ArcMap use the KML to Layer tool to create a daily feature class of the MODIS, VIIRS, WFDSS Emerging incidents and bring into the Incident File Geodatabase Events points. Not done in this example but is standard operating procedure.



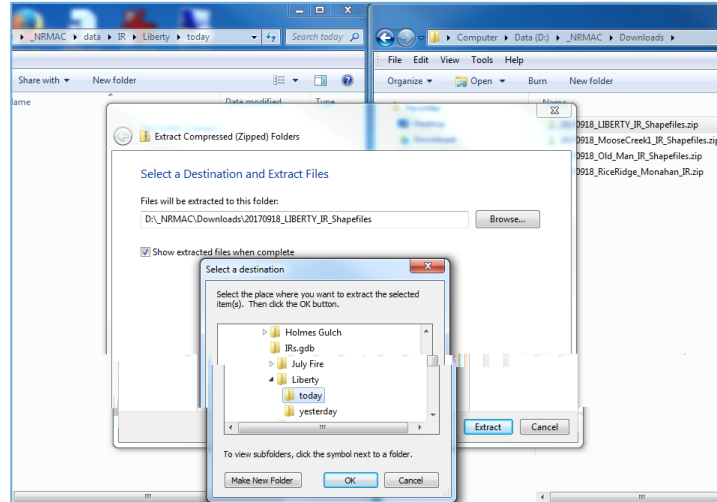
- Process any additional ancillary data collected as needed.
 - For the WFDSS spreadsheet I created an XY Event layer and exported to a feature class. Since I wanted to display Graduated Symbols by Acre size and different colors based on the fire status, I created 4 feature classes that I updated as the status of a fire changed. WFDSS Incidents-Not Contained, WFDSS Incidents-Contained, WFDSS Incidents-Controlled, WFDSS Incidents-Out.



- I downloaded current wildfire locations from the Canadian Wildland Fire Information System website since there were fires of concern threatening the US border.
- I added National Forest boundaries from the FSGeodata Clearinghouse. There are also many useful downloadable datasets if needed.

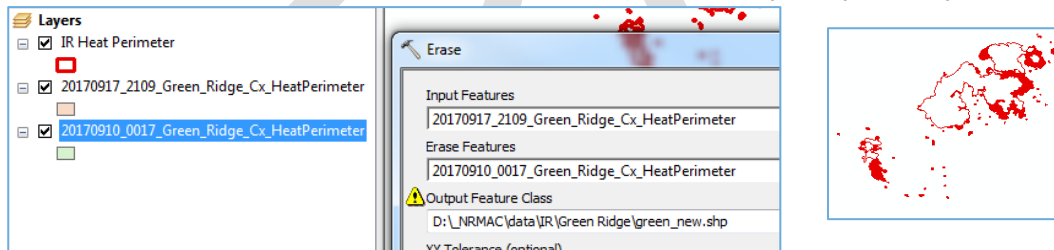
7. The IR Data

- a. With the zip file extracted, there will be several files for each incident. Typically you should load each of the files into the daily File Geodatabase, but this incident was setup differently. I merged all the Heat Perimeters into 1 file, the Isolated Heat points into 1 file, the Intense Heat into 1 file, and the Scattered Heat into 1 file. You want to make sure you have a manageable file system.



Lessons learned

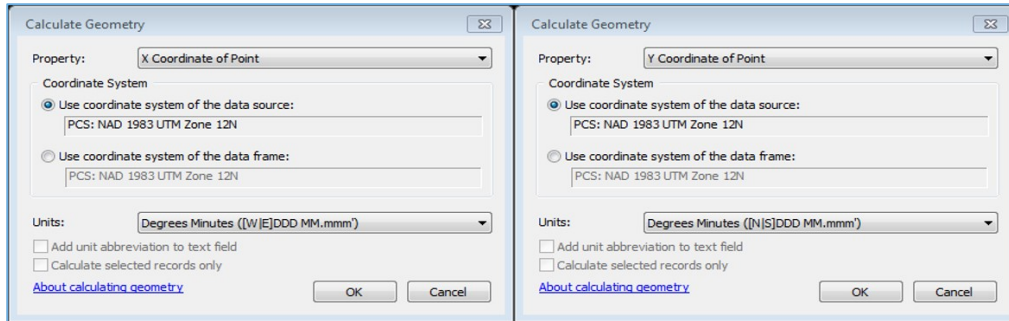
- Not all data collected will be in the same projection or share the same schema. It is best to Append the data with Schema Type set to NO_TEST then export the file to a feature class in the Incident File Geodatabase ex: IR_HeatIsolated_0919.
- I also add a Name Field and Acres or X and Y for points. I then select all records for each incident and merge them if it is a polygon so that I have 1 record for each fire.
- I created an additional layer using the Erase Analysis tool to display the area where the perimeter had increased since the last IR was taken. Thus the today and yesterday folders in each incident.



- I created a field in the Heat Perimeter feature class that contains a link to the incidents <year>_MAC location for access to the incident documents. Initially the link was tied to the planning areas, however as the situation grew and areas overlapped that process became ineffective.

IR Heat Perimeter		
Name	ftp_link	GIS Acres
Adair Peak	http://ftp.nifc.gov/incident_specific_data/n_rookies/2017_fires/2017_MAC/Adair%20Peak/	4034.2
Alioe Creek	http://ftp.nifc.gov/incident_specific_data/n_rookies/2017_fires/2017_MAC/Alioe_Creek/	28862.1
Andys Hump	http://ftp.nifc.gov/incident_specific_data/n_rookies/2017_fires/2017_MAC/Andys_Hump/	1435.524

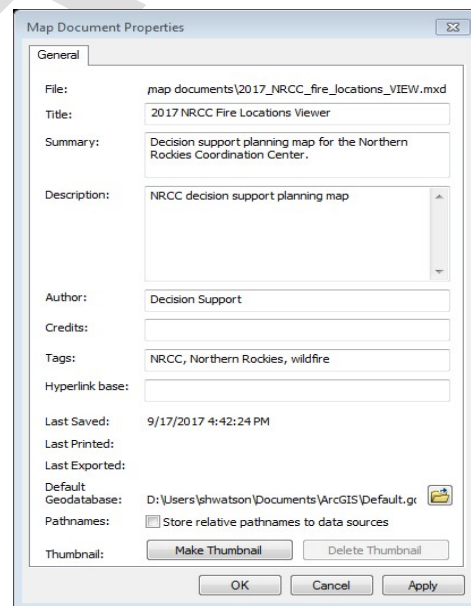
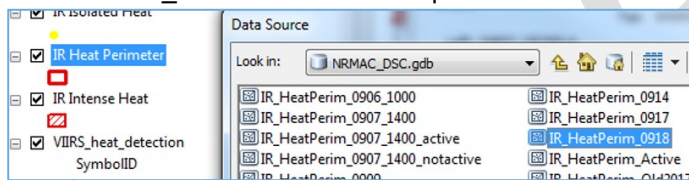
- I found it easiest to bring the new Heat Perimeters into ArcMap with the latest one and appended them. I started an Edit session and selected all features at the incident and unselected the record that had the attributes populated. I selected to merge the multiple features. I reselected the incident features and pasted the name and link information into the new perimeter and deleted the old perimeter record. Once all the perimeters were updated I recalculated the acreage.
- For the X and Y fields in the Isolated Heat points, it was recommended to use Decimal Minutes.



8. Create shapefiles of the final IR daily feature classes. Export each IR feature class to a shapefile and then zip the file and save to the GISS folder in google or one drive. These IR files are used by the GSAN and LTANs for analysis like FSPro. These files CANNOT be in Web Mercator.
9. Update any additional datasets as needed

D. Data Uploading

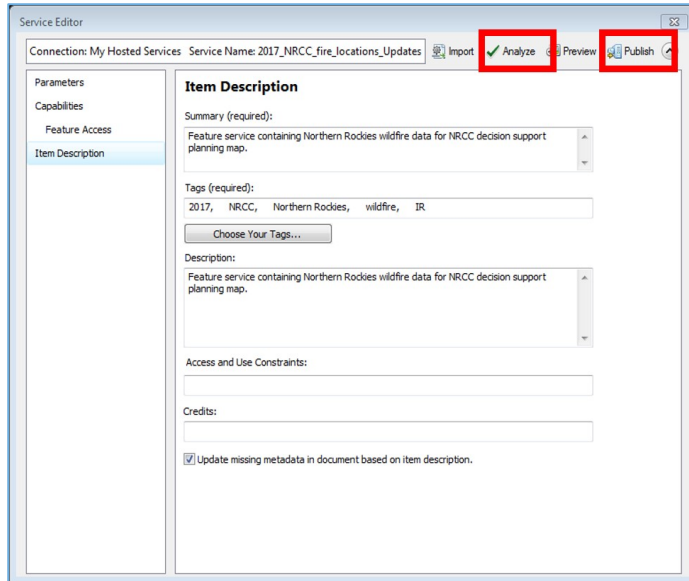
1. Copy the Incident KMZ files into the KMZ folder on the google or one drive.
2. Copy the IAP documents into the IAP folder in the google or one drive. In the NIFC ftp <year>_MAC, <IncidentName> folder copy the corresponding IAP document.
3. Copy the corresponding password protected 209 reports from the Out folder into the NIFC ftp <year>_MAC, <IncidentName> folder.
4. Copy the Ops Maps into the NIFC ftp <year>_MAC, <IncidentName> folder.
5. Replace daily Incident Priorities document on google or one drive.
6. Open the Main map document and change the data sources to the new corresponding feature class_currentdate. Save Map.



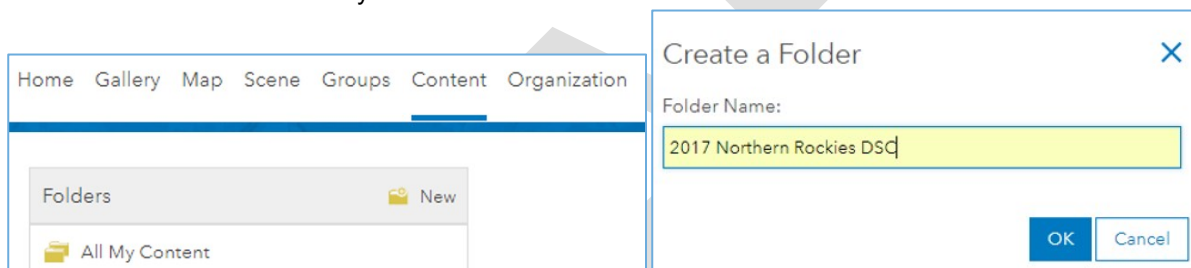
E. ArcGIS Online

From your ArcMap document create a Hosted Feature Layer in NIFC AGOL

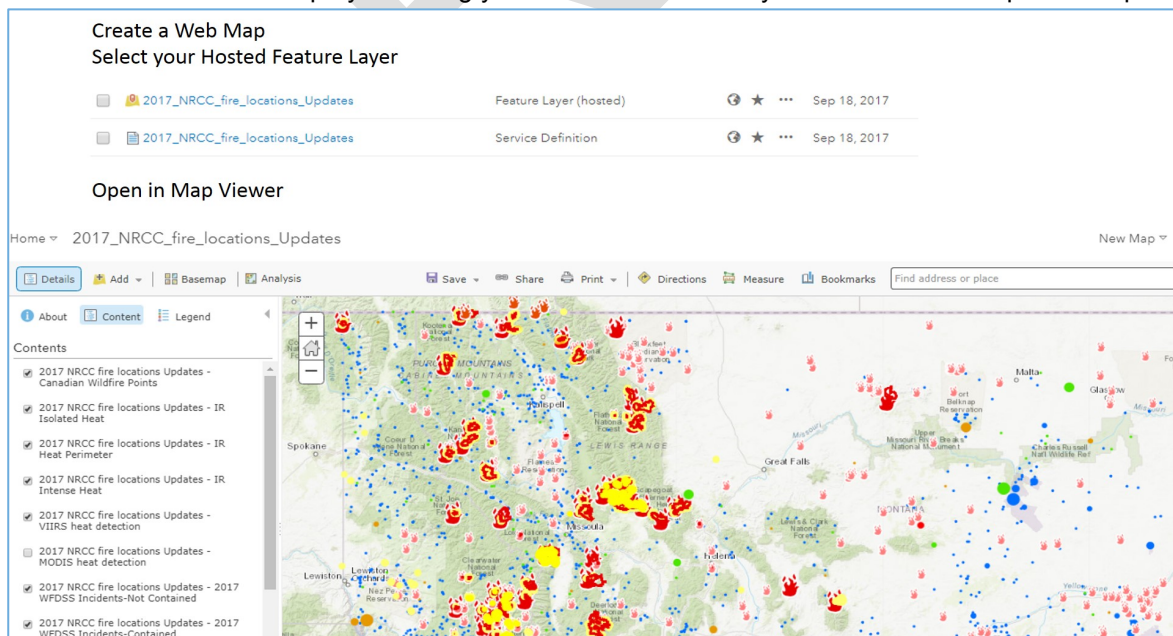
1. Fill in Map Document Properties and Save.
2. Sign in to your NIFC AGOL account
3. Make sure to add useful tags in the Service Editor
4. Analyze and Publish
5. Either Publish or Overwrite existing service if updating to your Hosted Services in NIFC



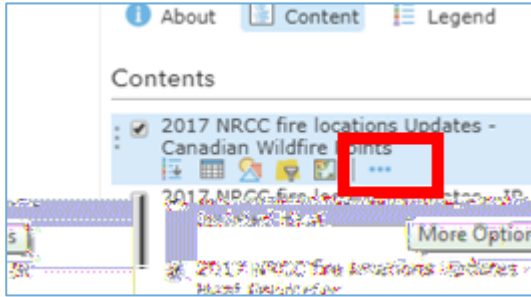
6. Close ArcMap and Save changes
7. Log into AGOL with your NIFC log in and select Content
8. Create a new folder <year>GACC DCS



9. Select your published content and select Move to move into your new Incident folder.
10. Create a Web Map by selecting your Hosted Feature Layer and Choose to Open in Map Viewer



11. Create labels and Configure Pop-ups. With Content selected> select More Options next to the layer to configure

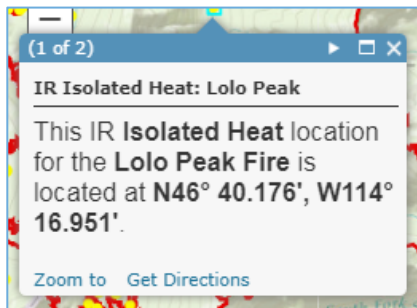


12. Select Configure Pop-up

Either use:

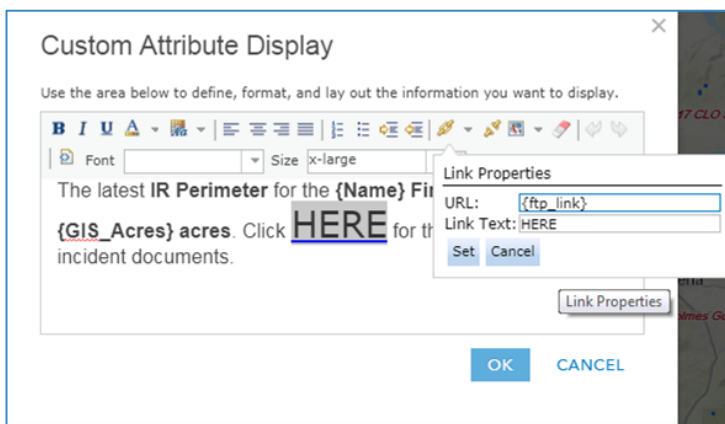
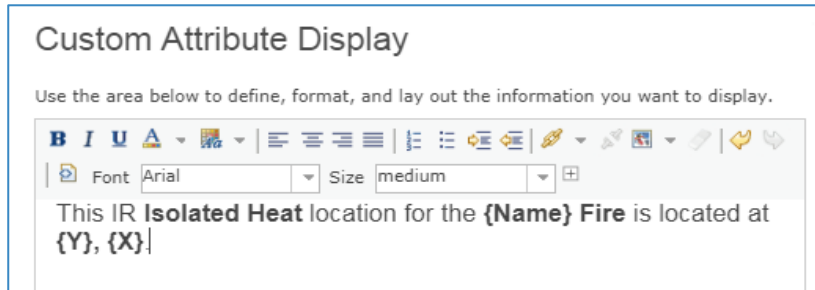
- A list of field attributes >Configure Attributes
- Use a field alias with this option to clean up field names and turn off unnecessary fields
- A custom attribute display (good for describing data)>Configure

Select a font and a medium or large font size. Type in the text you want to display and read from fields using curly braces {}.

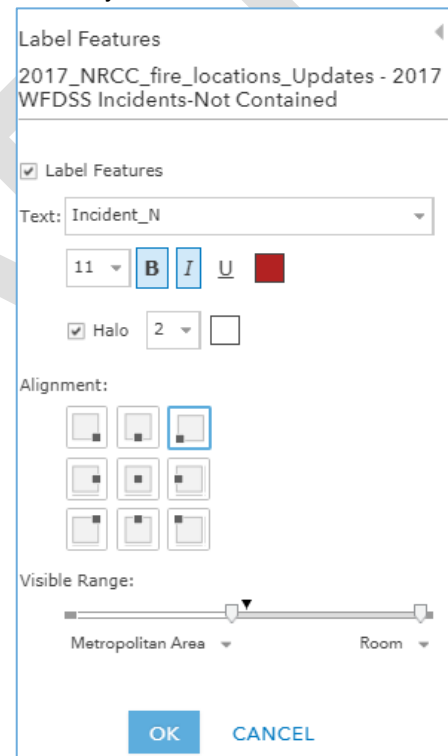


13. Create labels and Configure Pop-ups. If you want to link text to field attributes:

- Highlight the text and choose the Create link icon
- Enter the field name in curly braces {}
- The page will open in a new browser window.



Not all layers need to have labels! Be



sure to set scale range for labels in your map document.

- Select More Options>Create Labels
- A Halo of 2 is a good option
- If the label scale range set in the original map document needs to be adjusted, use the Visible Range slider
- To go back and adjust label settings>More Options>Manage Labels
- Most of your settings from ArcMap will be honored.

***TIP** if you want to label features in a layer based on certain attributes, use an SQL query. Open the Labeling toolbar in ArcMap>Select the Label Manager>Select 'Default' under the layer name>select SQL Query>enter your query. Only those features that meet the criteria will be labeled.

Once you have all the layers enabled for labeling and pop ups configured that you need, Choose Save As Give Web Map a Title, Tags, and Summary

Make sure to give meaning tags so it will be easily searchable.

Save Map

Title:

Tags:
Add tag(s)

Summary:

Save in folder:

Choose Share

- Everyone (not everyone in MAC group has AGOL account)
- NIFC
- Members of these Groups...

Share

Choose who can view this map.
 Your map is currently shared with these people.

Everyone (public)

National Interagency Fire Center

Members of these groups:

- 2017 Northern Rockies MAC DSG 2
- E - MNICS - Archive
- E - MNICS - Mobile Editing
- E - MNICS - Public Information
- E - MNICS - Viewer
- E - MNICS - Working
- NR MAC DCS

Link to this map

Share current map extent

Embed this map

14. Create a Web App

Share current map extent

Embed this map

Create a New Web App

To create a new app with Web AppBuilder, enter a title, tags and summary.

Title:

Tags:
Add tag(s)

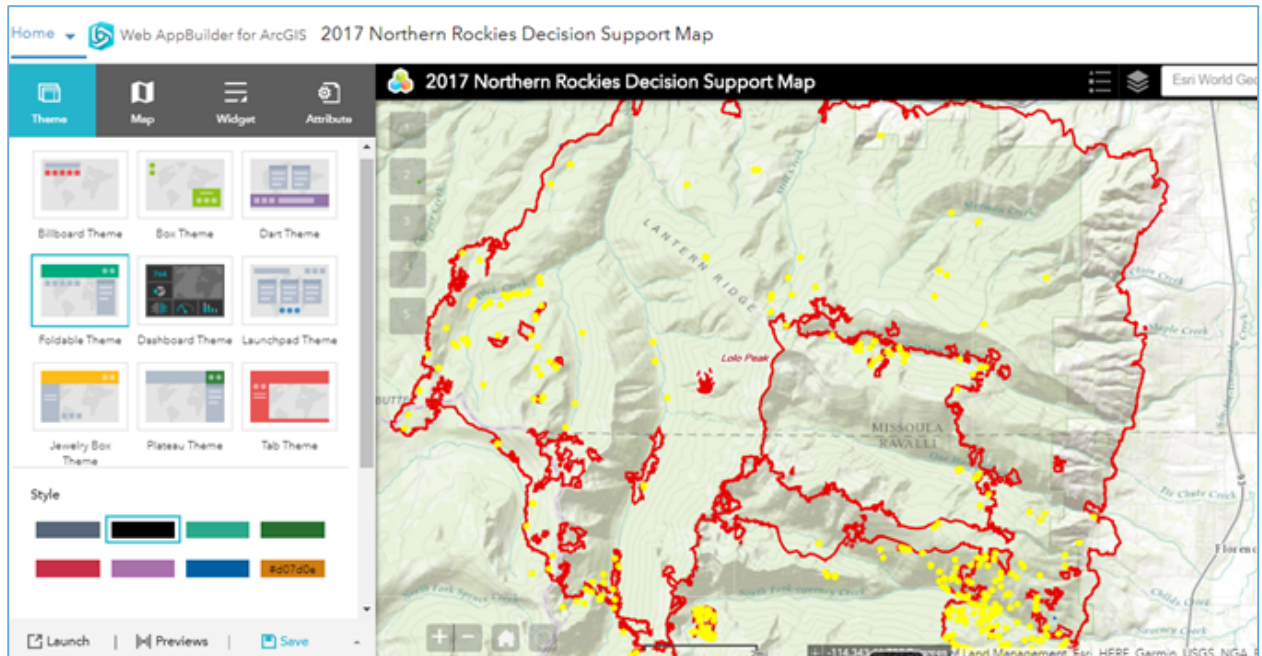
Summary: (Optional)

Save in folder:

Share this app in the same way as the map (Everyone, National Interagency Fire Center)

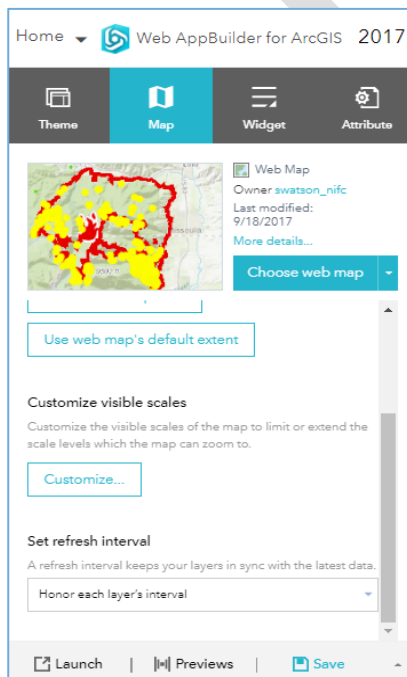
The Theme Tab

- Theme – Pick any, I use Foldable Theme
- Style – Pick any, I use Black
- Layout – Keep mobile devices in mind



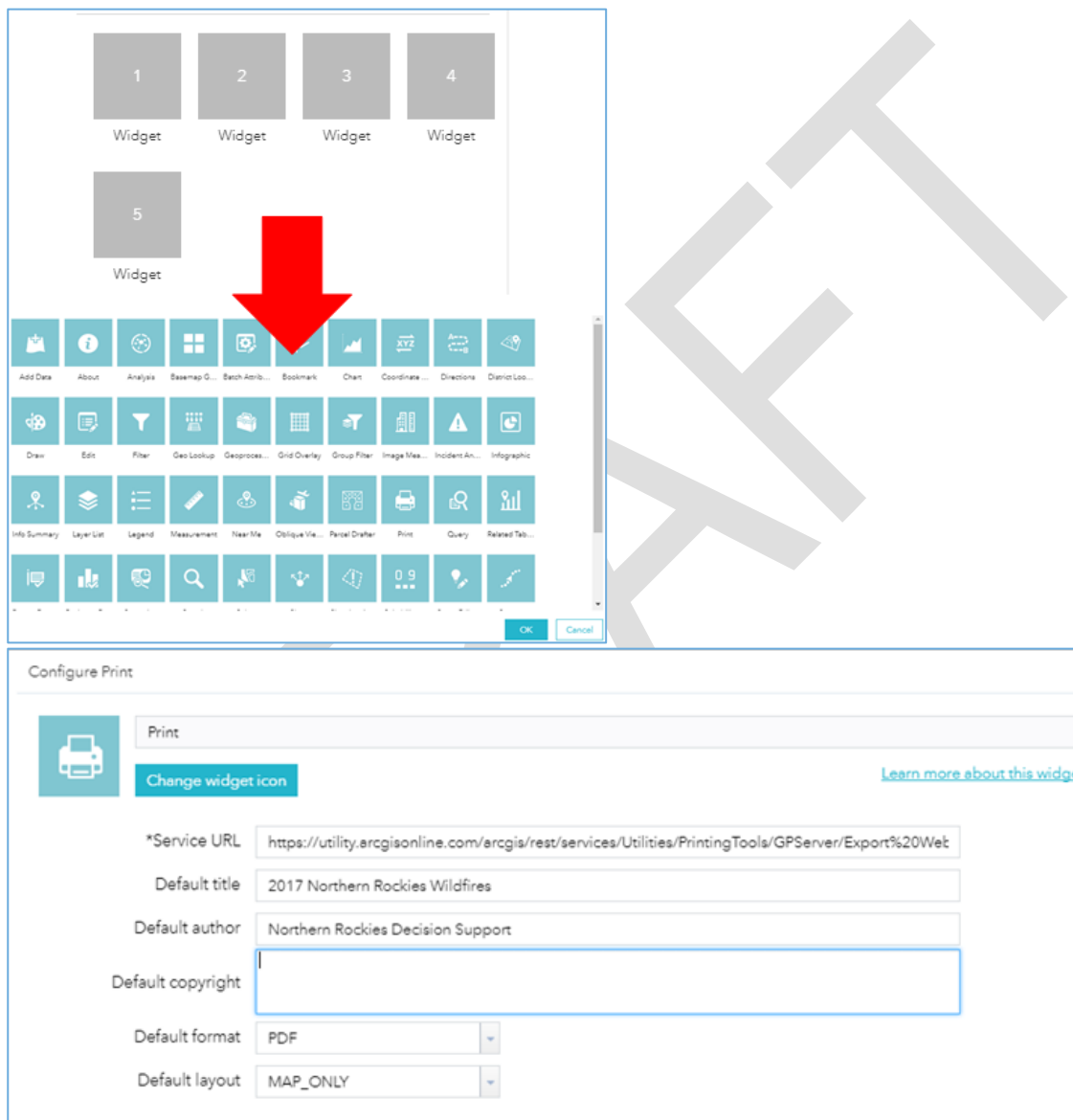
Map Tab

- Choose web map>Edit this map (for any changes you need to make in the web map)
- Set initial extent – Zoom map into a good location and extent>Use current Map view
- Customize visible scales – no need to do this
- Set refresh interval – Honor each layer's interval



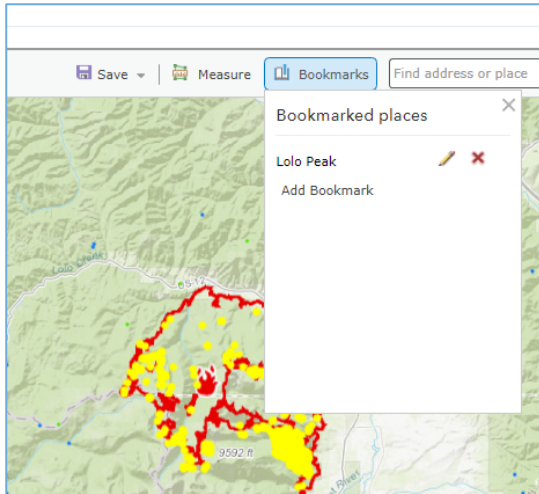
Widgets Tab

- Layer list and Legend are by default already provided
- Template allows 5 widgets
- Select Widget 1 >Select Basemap Gallery>OK>Always synchronize with the Basemap Gallery setting of the organization>OK
- Select next Widget >Bookmark >OK
- Select next Widget >Measurement>OK>select defaults
- Select next Widget>Print>OK>Change Default title and Author, format = PDF, layout = MAP_ONLY



Attribute Tab

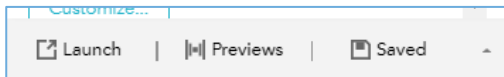
- Can add a custom logo and link to website
- Save
- Go back to Map tab
- Choose web map >Edit this map
- Create Bookmarks
- Zoom to location>Choose Bookmarks>Type name>Enter
- Continue until all bookmarks are created.



Save and close Edit session

Select Previews>select appropriate mobile device compatibility. QR code will be available to scan with your device for testing.

Launch



In AGOL> My Content> Incident Folder

Select the new Web Mapping Application

<input type="checkbox"/>	2017 Northern Rockies Decision Support Map	Web Mapping Application		Sep 18, 2017
<input type="checkbox"/>	2017 Northern Rockies Decision Support Map	Web Map		Sep 18, 2017
<input type="checkbox"/>	2017_NRCC_fire_locations_Updates	Feature Layer (hosted)		Sep 18, 2017
<input type="checkbox"/>	2017_NRCC_fire_locations_Updates	Service Definition		Sep 18, 2017

Select Share to make sure it is shared with Everyone and NIFC

Scroll down to URL and click the Copy button to obtain the link to the App to share

Select View Application

Tools available in application:

- Change Basemaps
- Use Bookmarks for fast zooming
- Use Layer list to turn layers On/Off
- Measurement tool to calculate distance and area
- Print

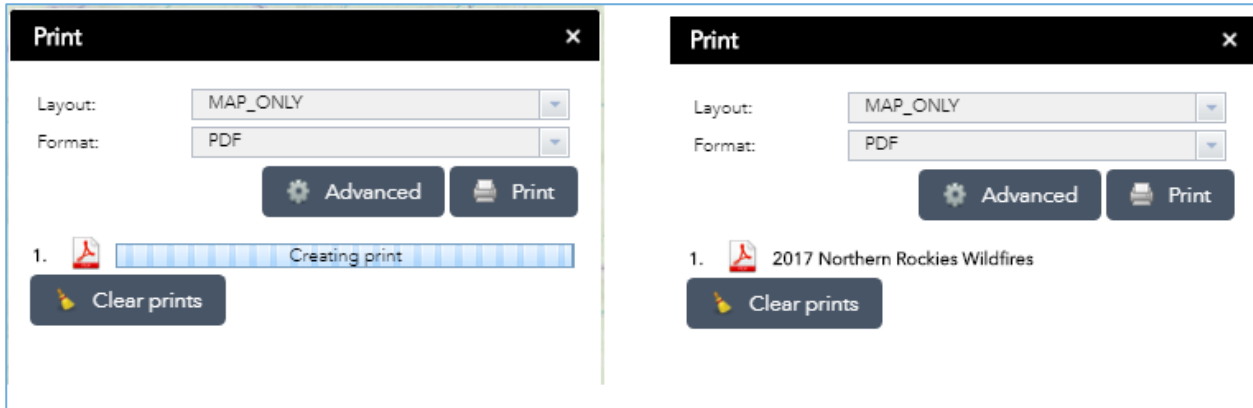
Layout

Map Only or Select from drop down list a different size

Format is defaulted to a Georeferenced PDF (Open in Avenza Maps)

Click on Advanced to adjust DPI for higher resolution (300). Higher resolution = Larger file size

Select Print



Select the PDF it will open in a new tab with a print and download option. Select Download to save to computer. If using a mobile device with Avenza installed, the option to Open with Avenza will appear. When you choose a layout option other than Map Only; Date, Scale, Credits, and limited Legend appear.

F. Meetings

1300 MAC Prioritization Meeting

Connect to MyMeeting and Share Screen.

Connect to overhead projector.

Display incidents in web mapping application as discussions take place.

1700 IC Call

Connect to overhead projector.

Display priority incidents in web mapping application as IC discussions take place.

G. WFDSS Requests

Upload current IR Perimeter

You may be asked to help upload fire perimeters into WFDSS. Before you can upload a new perimeter you should have the shapefile in a ZIP file and in a coordinate system not in Web Mercator, preferably a multipart polygon shapefile.

1. Log into WFDSS and select the Incidents tab
2. Enter Incident name into the Incident Name search box and select Find Incidents
3. Select the Incident
4. Select the View Information button
5. Select the Situation tab
6. Expand the Fire Perimeters to verify the last file date perimeter that was uploaded
7. Select the Menu tab
8. Select the Shape Upload option
9. Shape Label will be the date_IR for Infrared data EX: 0919_IR
10. Shape Type will be Fire Perimeter
11. Effective Date will be the Date that the IR perimeter was collected
12. Effective Time will be the time that the IR perimeter was collected
13. Source Type will be Infrared
14. Select Choose File and browse to your zipped shapefile
15. Choose Upload

A green message will appear stating that your file is queued for upload, if it fails try again using the return button or situation button to go back. Do not use the back option on your browser.

H. Recommendations

A GIS Standard Operating Procedures on Decision Support (DSC) Units be developed for when a DSC is stood up. This will allow standardized criteria used by all the GISS folks that has been reviewed and approved by the DSC Lead in coordination with a GISS Lead at the start of the incident to meet the

business needs of the MAC and used throughout the entire season. These criteria should include (as close to the GIS SOP on Incidents as possible).

Criteria to be identified

- GISS Minimum Expectations
- Knowledge, Skills, and Abilities
- Equipment
- GIS Software
 - ArcGIS for Desktop
 - ArcGIS Online (NIFC AGOL)
- File Naming and Directory Structure
- Documentation
- Minimum Datasets
- Map Symbology
 - Apply Event Layer File Symbology when applicable
- Map Products
 - Map Document
 - File Geodatabase
 - Use the Event Geodatabase and Layer File standards for the IR data. Each day do a copy and paste in Catalog, naming the database with the current date
 - Feature Classes
 - Event Points - load in MODIS, VIIRS, and IR Isolated Heat
 - Event Lines
 - Event Polygons - load new IR data into the file and remove older perimeters. Remove all other IR data since they are not current. You just want the most current perimeter and last night's IR. So you will load Heat perimeters, Cloud cover, Intense Heat, and Scattered Heat.

The first time you use this, add an ftp_link field for the location of the documents you will be storing in ftp. Populate this field as needed.

- Hosted Feature Layer
- Web Map
- Web Mapping Application
- Data Sharing, Backup, and Archiving
- Team Transition

6. ARA Standard Operating Procedures

Forecasting:

An ARA produces a daily smoke forecast for their region. The daily forecast (see examples in Story Map) provides an assessment of fine particulate matter (PM) concentrations at relevant air quality monitors, and forecasts for these points for the previous, current and the next day. The six categories of the Air Quality Index (AQI) are used for assessments and forecasts, ranging from good to hazardous. ARAs also develop a narrative that describes current smoke and air quality conditions, as well as fire activity, and then forecasts for the coming 2 days. Some estimate of air quality for beyond two days is also sometimes provided. Information about cycles of better and worse periods of smoke are provided when possible to help the public plan active periods when air is better and exposure reduction plans when air is worse. Daily smoke forecasts are typically released between 8 and 9 am local time to allow for use by incident PIOs and other collaborating agencies.

Uploading, Disseminating:

Presently ARAs utilize an “Outlook Editor” developed by FS PNW Research Station AirFire Team to support trained ARAs of the WFAQRP. The Editor automatically generates an initial map of their forecast region that ARAs can customize with regard to monitors and fires shown, locations, and labelling. ARAs then use the Editor to input the text narrative, and to develop the forecast for relevant monitor locations for the coming 2 days. The Editor provides a Preview function, and given the preview is acceptable, ARAs then select the “publish” option to generate the smoke forecast. It is then automatically posted to several websites, and several options for file format output (such as pdf) are also generated.

At this point ARAs typically also send a pdf version of their forecast to interested parties, including incident PIOs, IMETs, and others; as well as to others that may be added to email distribution lists (examples include specific individuals, health agencies, regulatory entities, etc.).

Calls:

ARAs typically participate in a variety of teleconferences on any given day. These are often between 8 am and noon, and include customized calls set up with regional health and regulatory agency representatives, regional fire incident coordination meetings, and public information officers. ARAs are called upon to provide updates on air quality conditions, monitor readings, and smoke and air quality forecasts for the coming 2 days. The calls provide an opportunity for ARAs to assess air quality impacts and issues in their area, plan speaking engagements, and deliver short air quality educational segments. ARAs also collect intel on incident meteorology, fuels, fire behavior, local topography, knowledge of local outside activities/special events, and previous day and projected fire activity including strategic firing.

Observations:

A key aspect of the WFAQRP is the use of fine particulate matter (PM_{2.5}) concentration data. EPA has established national air quality standards to protect public health. PM_{2.5} microns in diameter is one of the pollutants for which EPA has established health-based levels of concern and a corresponding Air Quality Index (AQI) PM_{2.5} is the predominate air pollutant associated with wildland fire smoke. ARAs use existing air quality monitor data from state departments of environmental quality, local air quality agencies, and others. In addition, ARAs have access to a cache of non-regulatory monitors that can be deployed quickly (often within 48 hours of request). This cache includes E-Samplers and E-BAM units that provide real time PM_{2.5} concentration values that can then be translated into AQI values. The need for temporary, portable monitors often is determined by the ARA through discussions with local public health agencies, schools, incident leadership, Forest Service or other fire agencies, and other groups. These data are publically available through various portals.

Monitor Maintenance:

The maintenance of temporary monitors that are deployed by ARAs is the responsibility of the ARAs while on assignment. If monitor problem cannot be remedied by the ARA the unit(s) are returned to the appropriate cache holder for repair. When monitors are no longer required the ARAs (or other local personnel so designated) retrieve the equipment and ship it back. Respective cache holders maintain monitors and associated equipment for which they have ownership. Monitors deployed in MT were from

the R1 cache maintained by MTDC, MT DEQ-AQB, FS PNW Research Station AirFire Team, and the National Cache at Rocky Mountain National Cache.

Public Meetings:

Another key aspect of Air Resource Advisor responsibility and opportunity is attendance at and participation in public meetings regarding wildfires and incident operations. Public meetings are often held every 2-3 days when wildfires are active. ARAs are often given the opportunity at these meetings to discuss air quality in the local area, smoke forecasts, local monitor data, as well as help educate about air quality and health and welfare as well as opportunities to reduce exposure to smoke. Some public meetings are streamed online, or are made available via web distribution. It also provides ARAs the opportunity to find out first-hand how fires and smoke are impacting the local area, and to interact with the incident team (commander, planning lead, FBAN, IMET, others) and local officials.

DRAFT

Appendix 1. Helpful Links: Setup and User Accounts

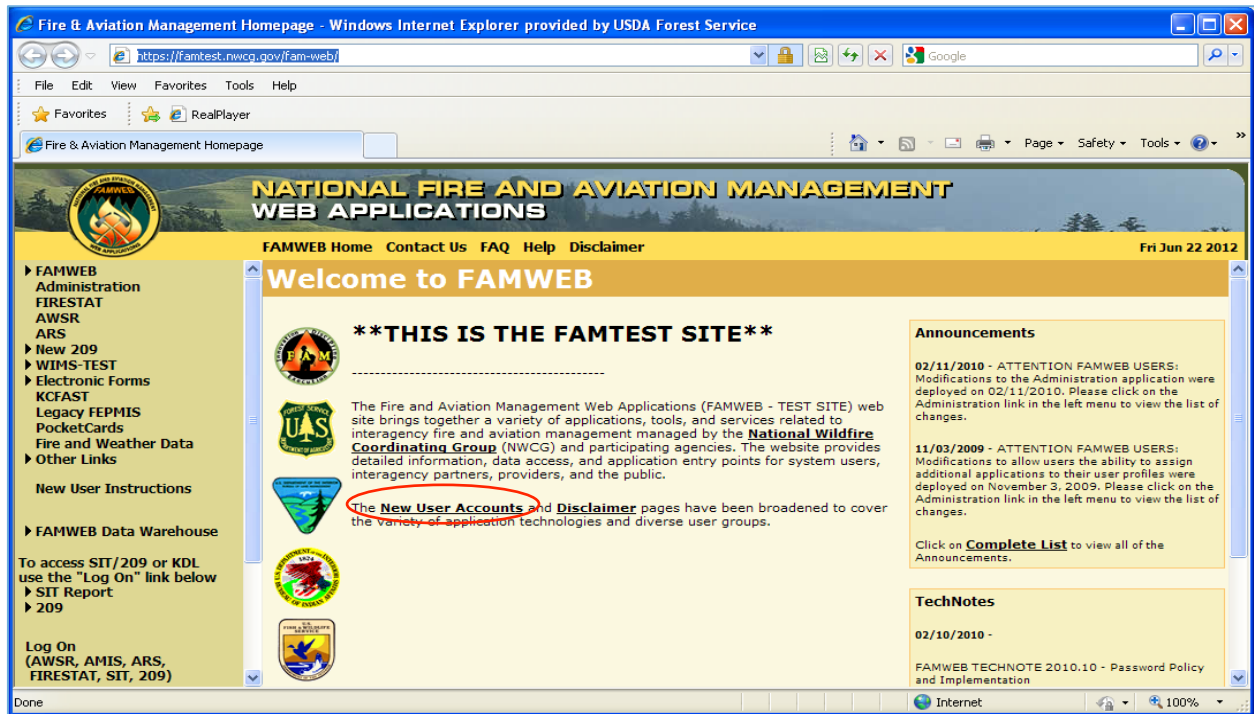
Creating a FAMWEB or FAMTEST User account

It is important to maintain and protect the security of the program. User names and passwords are assigned to individuals, and should be protected. **Not under any circumstance should a user name or password be shared.**

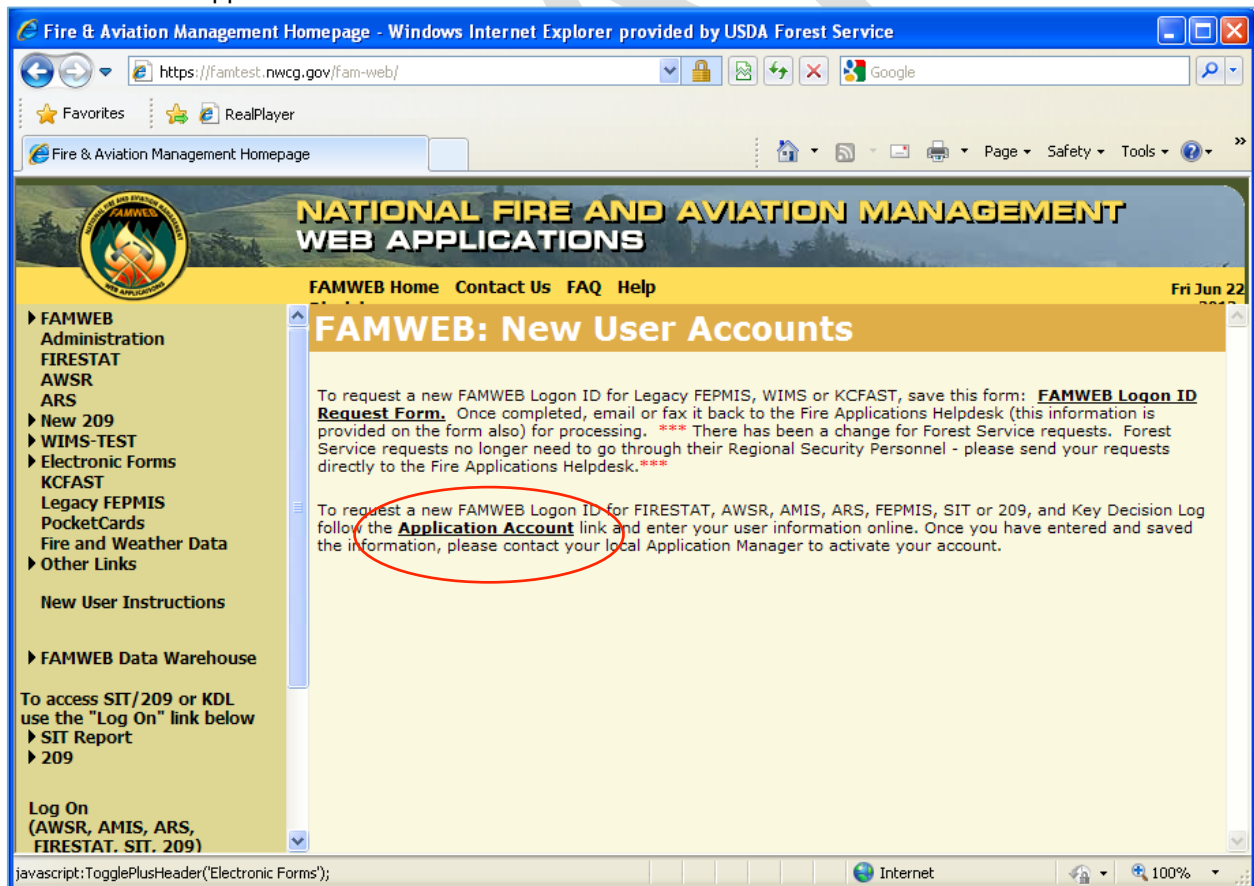
The National Fire and Aviation Management Web Production site (FAMWEB) is located at <https://fam.nwcg.gov/fam-web/>. To request an account select the FAMWEB Logon Request link.

The screenshot shows the homepage of the National Fire and Aviation Management Web Applications. The browser window title is "Fire & Aviation Management Homepage - Windows Internet Explorer provided by USDA Forest Service". The address bar shows "https://fam.nwcg.gov/fam-web/". The page has a yellow header with the text "NATIONAL FIRE AND AVIATION MANAGEMENT WEB APPLICATIONS" and navigation links: "FAMWEB Home", "Contact Us", "FAQ", "Help", "Disclaimer". The date "Fri Jun 22 2012" is displayed in the top right. A left sidebar contains a tree view of navigation options: "FAMWEB Administration" (with sub-items AMIS, ARS, AWSR, FIRESTAT, SIT Report, 209), "FAMWEB Data Warehouse" (with sub-items FEPMIS, KCFAS, WIMS), "Electronic Forms", "Wildland Fire Related Links", "Other Links/Forms", "FAMTEST" (with sub-items "FAMWEB Logon Request (AWSR, AMIS, ARS, FIRESTAT, SIT, 209)" circled in red, and "Log On (AWSR, AMIS, ARS, FIRESTAT, SIT, 209)"), and "Log On (AWSR, AMIS, ARS, FIRESTAT, SIT, 209)". The main content area features a "Welcome to FAMWEB" banner. Below it is a central orange box with a "DATE" column showing "June 19, 2012" and text: "**Attention Data Warehouse Users** There is a new menu item for copying and sharing queries, named Public Shared Folder. If you have used the Share or Shared Outputs folders, in the Public Access Reports folder, please review your queries/output and if they are still needed, move them to your My Folder. All items in the Public Access Reports -> Share and Shared Outputs folders will be deleted on July 9th, 2012. The Data Warehouse SIT/209 menu options have been removed while the data is being cleaned up. If you need a SIT or 209 report or have any questions, please contact the IIA Helpdesk." To the right of this box is a "TechNotes" section with a date "06/18/2012" and text: "WIMS Technote V20 is now available: WIMS Technote 2012-01". Below that is another "TechNotes" section with a date "04/14/2011" and text: "For a complete list of all WIMS TechNotes go to the following link: WIMS Technotes". There are also "Announcements" and "Complete List" links.

The National Fire and Aviation Management TEST site (FAMTEST) is located at <https://famtest.nwcg.gov/fam-web/>. To request a FAMTEST user account select the New User Accounts link.



Then select the Application Account link:



Please note that if you have a FAMWEB account, and then find you need a FAMTEST account you will also need to request an account on FAMTEST. The FAMTEST user name you create must be different than the user name you are using on FAMWEB.

Complete the online registration form. Note the following account tips:

- **Please note** - if you have a Famweb user id for another program on Famweb, you **do not** need to request a new user account. You just need to request that the Application and Role be added to your account. To do this, contact your Application Manager.
- Your User Name is **case sensitive**: must be at least 3 characters in length, but no more than 30; and be unique within FAMWEB. It is recommended that the User Name be the person's first name initial and last name (or portion of last name). A numeral may also be included for very common names to avoid duplication.
- Your Password is **case sensitive**: must be at least 12 characters, but no more than 14; must contain three of the following: at least one number; one symbol such as ~, #, \$, excluding \, (, %,), /, @, ', and "; one upper case letter; one lower case letter; and cannot have been used previously.
- Fill in all boxes completely. This identifies who you are to FAMWEB managers. Incomplete requests may be rejected. Required fields are marked with an asterisk.
- Check the box for the Access you need.
- In the Comment field, please describe your tasking with FAMWEB (e.g., what unit you are with and what organizational data you are responsible for, etc.)
- Passwords will expire every 60 days. Each user is responsible for managing their password.

An example of the Logon screen below, this screen will look the same on FAMWEB and FAMTEST:

FAMWEB Administration: Create User

This page allows you to submit a new user registration request to become a FAMWEB user. Once you have entered and saved the information, please contact your local Application Manager to activate your account.

Note:
Your user name is **case sensitive**: must be at least 3 characters in length, but no more than 30; and be unique within FAMWEB. Your password is **case sensitive**: must be at least 12 characters, but no more than 14; must contain three of the following: at least one number; one symbol such as ~, #, \$, excluding \, (, %,), /, @, ', and "; one upper case letter; one lower case letter; and cannot have been used previously. In the Comment field, please describe your tasking with FAMWEB (e.g., what applications you need access to, what organizational data you are responsible for, etc.)

All required fields are marked with an asterisk (*).

User Name*

Password*

Confirm Password*

First Name*

Last Name*

Title

Unit/Agency* **LOV**

Address

City

State

Zip Code

Telephone Number* (XXXXXXXXXX)

Cell Number (XXXXXXXXXX)

Email Address*

AMIS Access?

ARS Access?

AWSR Access?

New FEPMIS Access?

FIRESTAT Access?

SIT Access?

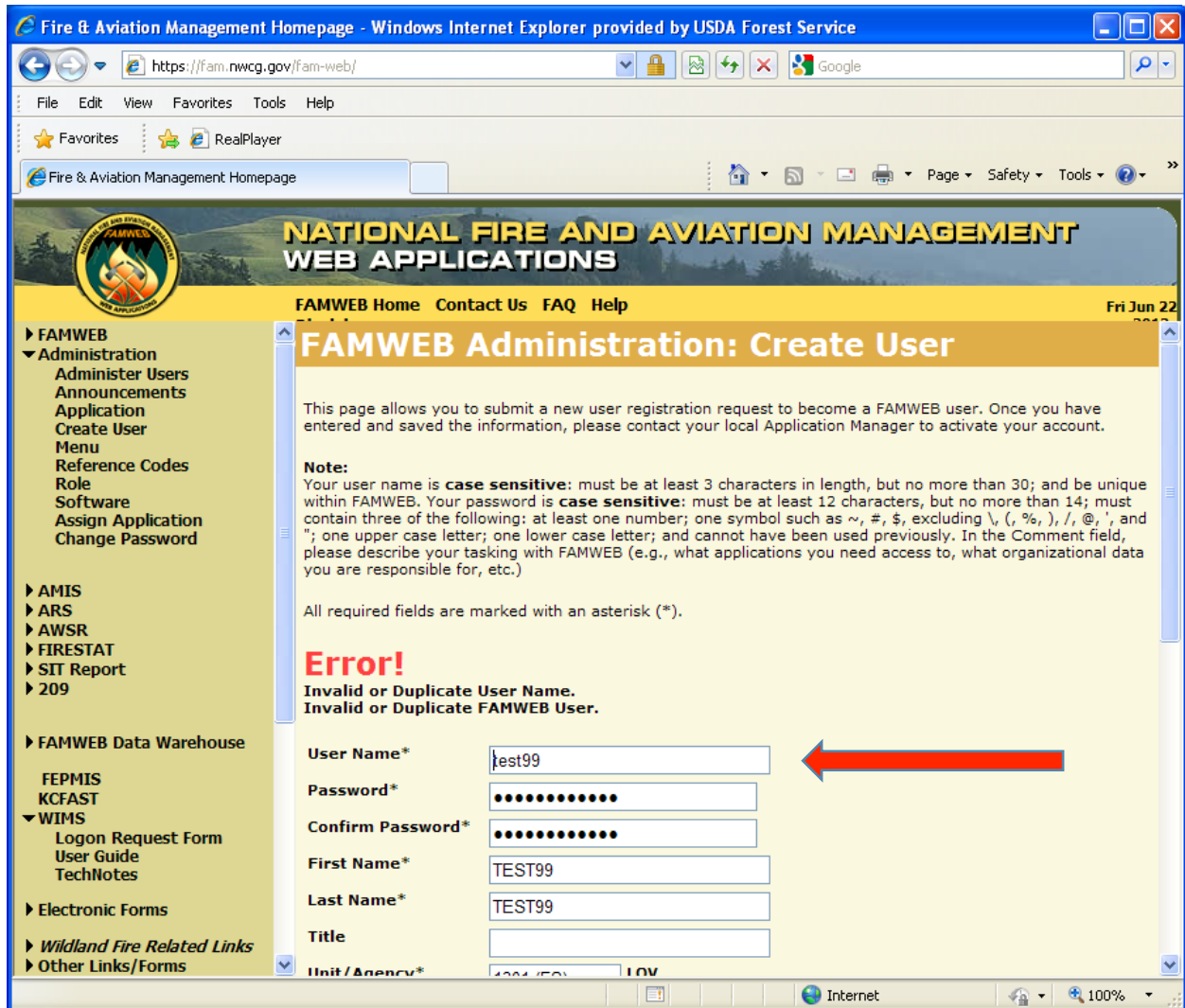
209 Access?

Comment

Once the form is completed, click ADD.

After selecting 'ADD' to create a new account, you may receive an error 'Invalid or Duplicate User Name'. The system checks for three things – duplicate username, phone number or email address. You may want to check with the IIA (IBM) Level 1 Helpdesk to verify if you already have a FAMWEB or FAMTEST user id. If you do not have an account, you will need to change the User Name (i.e. add a letter or number to the user name) and select 'Add'. You may have to do this several times until you find a user name that is not being used. ****Please note - if you have a Famweb user id for another program on Famweb, you do not need to request a new user

account. You just need to request the needed application or role be added to your account. To do this, contact your Application Manager.****



Once you have successfully completed and submitted the form, a window will pop-up with a list of Program Managers. Locate the Program Manager for your area and contact them by email or phone call, asking them to activate your account. FEPMIS users will need to contact their PMO. After your Program Manager has activated your user account you are ready to sign in. If you have any questions, please contact the IIA (IBM) Level 1 Helpdesk at 866-224-7677 or 616-323-1667 IIA-Helpdesk@fs.fed.us

DRAFT