

Situational Awareness for FIREX-AQ 2019

Summary of Advance Planning:

The USFS provides a fire outlook (up to a week in detail and 8-14 days in general) for each Geographic Coordination Center (<https://gacc.nifc.gov/>). The Boise region (aka "Great Basin" on map in previous link) outlook is posted on-line with a host of other fuels and weather info here:

<https://gacc.nifc.gov/gbcc/outlooks.php>

The forecasters provide contact info (4 emails at end of video) if anyone wants to reach out to them.

Rough priority for monitoring active fires:

1. Smoke is usually visible in GOES imagery (see satellite links below):

- GeoColor is easiest way to see smoke plumes, if you're not sure if it's smoke or cloud check band 7
- Band 7 (4 μm) is all the hotspots updated in GOES (more frequent than MODIS or VIIRS)
- Band 14 (11 μm) approximates plume top temp for pyroCb/pyroCu. PyroCb: Band 14 < -35°C

2. For the first official stats on a new fire (size, suppression or not) the GACC website for the appropriate region can be clicked on here, and then you find the fires on a prominently displayed zoomable map:

<https://gacc.nifc.gov/> (This site tends to give similar info as the GACCs all on one national, zoomable, topo map which is nice, but the GACC page will have contact phone numbers in case you want to call about the possibility of sampling, <https://maps.nwcg.gov>).

3. After a few days, when a fire and its management are well established, it is often described in pretty good detail (including the outlook and POC) on inciweb: <https://inciweb.nwcg.gov/> (except some California fires managed by Calfire: http://www.fire.ca.gov/current_incidents)

4. General updates on Canadian fires, forecasts: <http://cwfis.cfs.nrcan.gc.ca/home>

Forecasting and Nowcasting Links

Satellite Imagery (General):

- College of DuPage Satellite Page: <https://weather.cod.edu/satrad/>
- NASA Satellite Imagery Page: <https://weather.msfc.nasa.gov/GOES/>
- CIRA/CSU/RAMMB SLIDER: <http://rammb-slider.cira.colostate.edu/>
- SSEC Real Earth: <http://re.ssec.wisc.edu/>
- NASA Worldview: <https://worldview.earthdata.nasa.gov/>
- Weathernerds Custom Satellite Viewer: <https://www.weathernerds.org/satellite/>
- Tropicaltidbits Satellite Viewer: <https://tropicaltidbits.com/sat/>

Model Data (NWP):

- TropicalTidbits Model Viewer: <https://tropicaltidbits.com/analysis/models/>
- Weatherbell (requires login): <http://models.weatherbell.com/>
- Pivotal Weather: <https://www.pivotalweather.com/model.php>
- Alicia Bentley GFS Maps: <http://www.atmos.albany.edu/student/abentley/realtime.html>
- Tomer Burg's Maps: <http://www.atmos.albany.edu/student/tburg/analysis/>
- College of DuPage Model Page: <https://weather.cod.edu/forecast/>
- Storm Prediction Center Mesoanalysis Page: <https://www.spc.noaa.gov/exper/mesoanalysis/>
- Storm Prediction Center HREF Viewer Page: <https://www.spc.noaa.gov/exper/href/>
- Weathernerds Model Viewer: <https://www.weathernerds.org/models/>
- Weathermodels.com (requires login): <https://weathermodels.com/>
- WxCharts: <http://wxcharts.eu/>

Analysis & Observation Data (Meteorology):

- NWS Home Page: <https://www.weather.gov/>
- WPC surface analysis ZOOM: <https://www.wpc.ncep.noaa.gov/html/sfc-zoom.php>
- Mesowest Data: <https://mesowest.utah.edu/index.html>
- RAL Real-Time Surface Maps: <http://weather.rap.ucar.edu/surface/>
- NWS Weather & Hazards Viewer: <https://www.wrh.noaa.gov/map/?obs=true>
- SPC upper air analysis, maps, and archive: <https://www.spc.noaa.gov/obswx/maps/>
- Wyoming soundings and archive: <http://weather.uwyo.edu/upperair/sounding.html>
- Aviation Weather Center: <https://www.aviationweather.gov/metar>
- Meteorgrams, forecast and analysis:
https://www.meteor.iastate.edu/~ckarsten/bufkit/image_loader.phtml

Radar Data:

- College of DuPage Radar Viewer: <https://weather.cod.edu/satrad/nexrad/>
- National Weather Service Radar Viewer: <https://www.weather.gov/Radar>
- Weathernerds Radar Viewer: <https://www.weathernerds.org/radar/>

Lightning Strike Data:

- Lightning maps: <https://www.lightningmaps.org/>
- Blitzortung Lightning Mapper: http://en.blitzortung.org/live_dynamic_maps3.php

Miscellaneous Weather:

- NASA SPORT: <https://weather.msfc.nasa.gov/cgi-bin/sportPublishData.pl?dataset=goeseastglm>
- HYSPLIT forecast and archive trajectories: https://www.ready.noaa.gov/HYSPLIT_traj.php

Fire Weather Indices:

- Dry, Hot, Windy (HDW) index: <https://www.hdwindex.org/index.html>
- **CANADIAN** Fire Weather Index System: <https://cwfis.cfs.nrcan.gc.ca/maps/fw?type=fwi>

Fire Weather Outlooks:

- SPC fire weather products: https://www.spc.noaa.gov/products/fire_wx/overview.html
- Geographic Coordination Center (GACC): <https://gacc.nifc.gov/>
- Great Basin Coordination Center: <https://gacc.nifc.gov/gbcc/outlooks.php>
- NWS fire weather: https://www.spc.noaa.gov/products/fire_wx/overview.html
- National 7-day fire potential:
<https://psgeodata.fs.fed.us/forecast/#/outlooks?state=sideBySide&gaccId=5>
- Northern Rockies ERCs (basically fuel conditions) by district:
https://gacc.nifc.gov/nrcc/predictive/fuels_fire-danger/graphs/psa03.htm

Fire Perimeters, Incident Information, and Satellite Fire Detections:

- Inciweb: <https://inciweb.nwcg.gov/>
- Calfire: http://www.fire.ca.gov/current_incidents
- USFS Active Fire Mapping Program: <https://fsapps.nwcg.gov/afm/index.php>
- Fire Information for Resource Management System: <https://firms.modaps.eosdis.nasa.gov/>
- NWCG Interactive Hot-Spot Map: <https://maps.nwcg.gov/sa/>
- GACC Northwest Large Fire Interactive Map:
<https://gacc.nifc.gov/nwcc/interactivemap/index.html?webmap=ed0a7dad32fe4848b20c6f91c74c79ea>
- NIFC: https://www.nifc.gov/fireInfo/fireInfo_main.html
 - National Wildland Fire Outlook:
<https://www.predictiveservices.nifc.gov/outlooks/outlooks.htm>
- GACC: <https://gacc.nifc.gov/>
- Idaho Fire Info: <http://www.idahofireinfo.com/p/maps.html>
- Spot forecast map – prescribed fires often are listed here:
<https://www.weather.gov/spot/monitor/>

Information on Canadian Wildfires:

- Updates on Canadian fires, forecasts: <http://cwfis.cfs.nrcan.gc.ca/home>
- Alberta:
 - Fire Map (works in chrome):
<https://esrd.maps.arcgis.com/apps/webappviewer/index.html?id=0b85f87569974de196bf2c82c09e2cc5>
 - Facebook page: <https://www.facebook.com/AlbertaWildfireInfo/>
 - Forest Areas:
<https://wildfire.alberta.ca/resources/maps-data/documents/ForestAreas-Oct09-2018.pdf>
- British Columbia:

- Main page: <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/wildfire-situation>
- Interactive map: <https://governmentofbc.maps.arcgis.com/apps/webappviewer/index.html?id=a1e7b1ecb1514974a9ca00bdbfffa3b1%20%3Chttps://governmentofbc.maps.arcgis.com/apps/webappviewer/index.html?id=a1e7b1ecb1514974a9ca00bdbfffa3b1%3E>
- Saskatchewan:
 - Main page: <https://www.saskatchewan.ca/residents/environment-public-health-and-safety/wildfire-in-saskatchewan>
 - Interactive map: <https://gisappl.saskatchewan.ca/Html5Ext/?viewer=wfmpublic>

PyroCb Information:

- NRL pyroCb imagery archive/animations: <https://www.nrlmry.navy.mil/pyrocb-bin/pyrocb.cgi>

Web Cameras:

- Western USA web cameras: <http://www.alertwildfire.org/>
- McCall ID webcams: <http://www.discovermccall.com/local-webcams/>
- USFS webcams: <https://www.fsvisimages.com/descriptions.aspx>
- Bigfork, Flathead Lake webcam: <http://www.ravenbigfork.com/webcam/>

Aerosol and Chemistry Model Output:

- FIREX-AQ FLUID display: https://fluid.nccs.nasa.gov/missions/mission_FIREX-AQ/
- FIREX-AQ FLUID catalog: https://portal.nccs.nasa.gov/datashare/gmao_ops/pub/fp/.internal/FIREX-AQ/
- RAP Smoke: <https://rapidrefresh.noaa.gov/RAPsmoke/>
- HRRR Smoke: <https://rapidrefresh.noaa.gov/hrrr/HRRRsmoke/>
- NRL NAAPS: https://www.nrlmry.navy.mil/aerosol_web/
- Blue Sky Forecasts: <https://www.airfire.org/data/bluesky-daily/>
- AIRPACT: <http://lar.wsu.edu/airpact/>
- AIRPACT Smoke forecast (FireFox only): <http://lar.wsu.edu/airpact/gmap/ap5/ap5smoke.html>
- NCAR forecasts, including Flexpart, WRF-Chem-Tracers, WACCM, and CAM-chem/DART: <https://www.acom.ucar.edu/firex-aq/>
- RAQMS: <http://raqms-ops.ssec.wisc.edu/>
- CIMSS WRF-Chem <http://raqms.ssec.wisc.edu/forecast/calendar/>
- NOAA ARL: <https://naqfc.arl.noaa.gov/ytang/2019-firex-aq.html>
- University of Iowa WRF-Chem: <http://bio.cgrer.uiowa.edu/FIREX-AQ/index.html>
- CAMS: https://atmosphere.copernicus.eu/charts/cams/aerosol-forecasts?facets=undefined&projection=classical_north_america&layer_name=composition_bb_aod550
- Alaska Smoke Forecasts: <http://smoke.alaska.edu/>

Air Quality/PM data:

- Aerosol Watch (NOAA): <https://www.star.nesdis.noaa.gov/smcd/spb/aq/AerosolWatch/>
- AirNow: <https://www.airnow.gov/>
- AirNow MT region:
https://airnow.gov/index.cfm?action=airnow.local_state&stateid=27&mapcenter=0&tabs=0
- EPA: <https://www.epa.gov/outdoor-air-quality-data>
- PM data in North America: <http://idsmoke.blogspot.com/>
- Idaho Satellite Smoke Portal:
<https://storymaps.arcgis.com/stories/f681a2398cf24f26ae0542abe0ff6b60>
- Idaho PM hourly average with ~2 h delay, DEQ: <http://airquality.deq.idaho.gov/>
- Montana PM_{2.5}: <http://svc.mt.gov/deq/todaysair/?source=mobilnav>
- USFS portable PM monitors at 30 min res in sites with smoke impacts (note table below map):
<https://www.wrcc.dri.edu/cgi-bin/smoke.pl>
- Airfire source of PM data link:
https://tools.airfire.org/monitoring/v4/#!/category=PM2.5_nowcast¢erlat=42¢erlon=-95&zoom=4&monitors=060371201_01&monitors=lon_.108.536_lat_33.882_usfs.1035&monitors=410250003_01

AOD Data:

- AERONET: https://aeronet.gsfc.nasa.gov/cgi-bin/draw_map_display_aod_v3?long1=-180&long2=180&lat1=-90&lat2=90&multiplier=2&what_map=4&nachal=1&formatter=0&level=3&place_code=10&place_limit=0

Lidar Data:

- TOLNet LiDAR network: <https://www-air.larc.nasa.gov/missions/TOLNet/>
- CALIOP: https://www-calipso.larc.nasa.gov/products/lidar/browse_images/show_calendar.php
- MPLNET: <https://mplnet.gsfc.nasa.gov/data?all&v=V3>
- HSRL: <http://hsrl.ssec.wisc.edu/>

Satellite Overpass Predictor/Maps:

- <https://cloudsway2.larc.nasa.gov/cgi-bin/predict/predict.cgi>

Temporary Flight Restrictions (TFRs):

- http://tfr.faa.gov/tfr_map_ims/html/ns/scale2/tile_1_2.html
- <https://pilotweb.nas.faa.gov/PilotWeb/>

FIREX-AQ ground sites:

- McCall MPL ground site: <https://mplnet.gsfc.nasa.gov/data?s=McCall&v=V3>
- <https://www.esrl.noaa.gov/csd/projects/firex-aq/groundsites/>
- https://aeronet.gsfc.nasa.gov/new_web/DRAGON-FIREX-AQ_2019.html

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