AKFF Station Management

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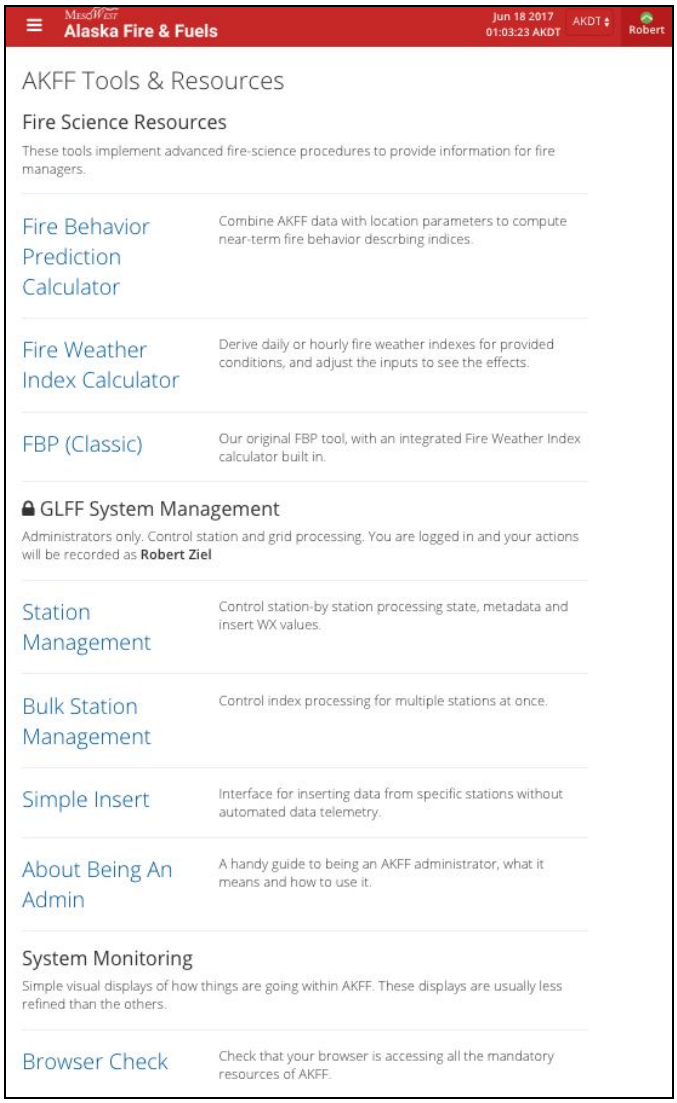


AKFF System Management requires administrators to manage day to day operations and insure that accurate information is displayed for fire managers. The tools include:

- **Station Management** for comprehensive management of weather station data management.
- **Bulk Station Management** for starting, stopping, and reprocessing groups of stations
- **Simple Insert** for manual station data entry

Station Manager

The Alaska Fire & Fuels system provides administrators with complete control over the surface observation stations and their FWI record. These controls can be accessed from the Station Manager page (https://akff.mesowest.org/tools/stations/), which is found under the *Tools* tab.

All operations performed in the Station Manager are applied on the date set at the top of the Station Manager table. ***Confirm the date before making any changes here.***

There are two fields for each station that combine to determine AKFF operations with respect to individual weather observing stations:

- **Wx Status** includes two states, *INACTIVE* and *ACTIVE*. The only way to change this status is to select one from the drop down selection provided.
    - *INACTIVE* stations do not collect and store weather observations.
    - *ACTIVE* stations maintain a record of all weather observations collected from MesoWest or entered manually.
- **Index Status** includes three states (*START*, *STOP*, and *QCSTOP)* that the user can select once the station's Wx Status is set to *ACTIVE*.
    - *START* initiates Fire Weather Index (FWI) system calculations and asks the administrator to provide startup fuel moisture codes for that purpose.
    - *STOP* interrupts FWI calculations, but allows the station weather observations and forecasts to be collected and displayed on the map, tables and graphs.
    - *QCSTOP* also interrupts FWI calculations, and also allows weather observations to be collected. However, *QCSTOP* prevents the display of observations and forecasts in the map, table, and graph environments for the period that the status is in effect.

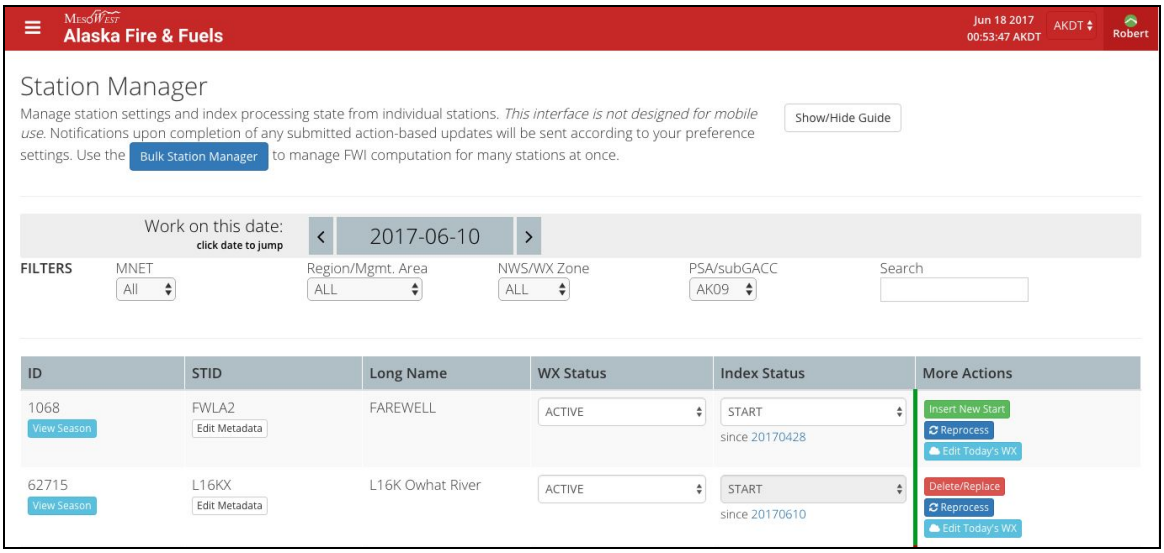
Adding Stations to AKFF

If a station is active in MesoWest, it can be added to the AKFF database and be used like any other station already established. Many active stations in MesoWest have incomplete data streams, differing sensor complements, and maintenance standards. Administrators will evaluate a station to determine its value before adding it to AKFF.

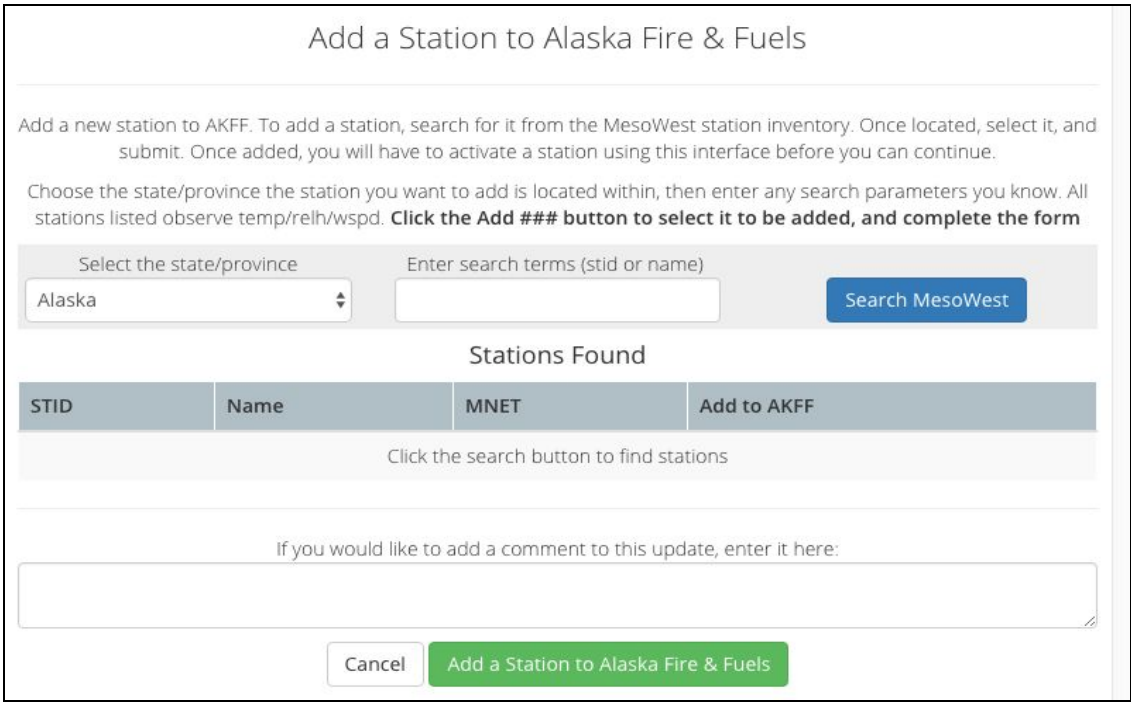
Criteria may include:

- Absence of any other observing stations in the vicinity
- Presence of the minimum complement of sensors; temperature, relative humidity, windspeed, and precipitation amount.
- Reliable and consistent observations.
- Fires or fire potential near the observing location.

Adding a station is a four-step process outlined below:



1. **Navigate to the date of interest in the gray selector bar and select the green Add a Station button at the bottom of the station manager page**



2. **Search for the station in the dialog box provided using part (or all) of the MesoWest station name or station identifier. Once found, choose Add XXX, which will appear on the list titled "Stations Found". Then select the green Add a Station to Alaska Fire & Fuels button at the bottom to confirm the addition.**

At this time, the station is added to AKFF. However, it will not start collecting data until the administrator updates the station's Wx Status to *ACTIVE.* No data can be added to the station record until it is made *ACTIVE*. AKFF will not collect Wx data while a station is *INACTIVE and will never retrieve those observations*. There will be a time delay of several minutes before the station can be found on the Station Manager page after it is added.

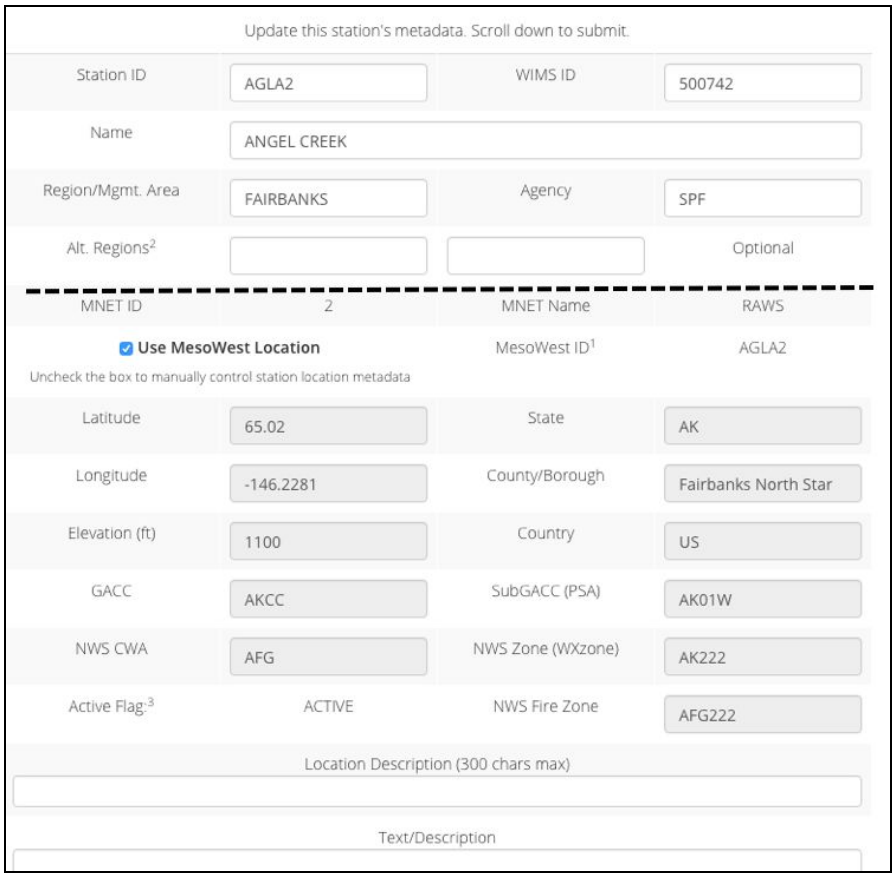
3. **Search for the new station on the Station Manager page and update the WX Status to *ACTIVE*.**
4. **Once the station is active, it begins collecting observations with the next hourly collection and will be available to be *START*ed on the first day that a 1400 AKDT observation is collected.**
5. **Review station metadata and update fire zone association(s).**

Station Metadata

AKFF Maintains a comprehensive record for station identification and management.

The items above the dashed line here are available for edit by the administrator.

Generally, it is best to leave the **"Use MesoWest Location"** checked so that location information below the dashed line autopopulates from MesoWest itself.



Stations added or already established in AKFF have several administrative associations used to group and display information. Among them are several that are usually applied automatically along with its MesoWest location:

- MNET ID and MNET Name: Used to identify the managing network that establishes standards, operates supporting systems, and maintains a set of stations. RAWS stations are operated by the US federal and state land and fire management agencies.
- MesoWest ID: The supporting system for collection and management of weather observation data, MesoWest and Synoptics Labs, establishes unique identifiers for each weather station in its system.
- GACC (Geographic Area Coordination Center): https://www.nifc.gov/nicc/index.htm
- NWS CWA (County Warning Area): This field identifies the Weather Forecast Office (WFO) responsible for forecasts in the area the station is located.
- SubGACC (PSA): This field identifies the Predictive Service Area, or PSA, that the weather station is located in. PSAs are defined by each GACC predictive services unit. http://psgeodata.fs.fed.us/forecast/#/outlooks?state=map
- NWS Zone (WXZone) and NWS Fire Zone: These two identifiers reference the same local NWS Fire Weather forecasting zones. NWS Zone is a legacy of identification in fire management databases while the NWS Fire Zone is obtained directly from NWS.

In addition to these traditional, and normally automatic, designations for each station location, the administrator has responsibility for management of the following identifiers:

- Station ID: The Station ID defaults to the MNET ID when stations were/are added to AKFF. However, the administrator has the opportunity to provide a more memorable ID specifically for AKFF users. There are some AKFF operations that require station identification by ID only and edits here may aid users working primarily in AKFF.
- WIMS ID: Six digit number, established for reference to national Weather Information Management System (WIMS) designations.
- Name: Provided by default by Mesowest, it can be edited for local use. Shortening names may improve some table displays.
- Region/Mgmt. Area and Alt. Regions: identifiers for grouping stations according to Alaska Wildland Fire administration. See additional instruction below.
- Agency: Identifies the owner of the station.

Region/Mgmt Area and Alt. Regions

These three identifiers are used to group stations for the convenience of AKFF users and administrators. Most AKFF users will reference these when displaying *FWI Daily Forecast Summary* tables. Administrators can use these references to select groups of stations for a variety of station management tasks.

Administrators are responsible for populating these fields. There are no defaults provided when stations are added to AKFF. Here are a few guidelines for populating them:

Region/Mgmt Area: This is the primary fire management identifier and is used to reference the fire management area or zone that the weather station is physically located in. Here is the list of identifiers that are appropriate for this field:

• ANCHORAGE • CHUGACH • COPPER RIVER • DELTA • FAIRBANKS • HAINES • GALENA • KENAI	• MILDTA • MILFWA • MILYTA • SOUTHWEST • TANANA • TOK • TONGASS • UPPER YUKON
• PORT - for inactive portable stations	

Alt. Regions: These two additional designators allow administrators to identify up to two additional administrative groupings for additional convenience. They can be entered wherever Region/Mgmt Area are called for in the system.

Any of the identifiers referenced as Region/Mgmt Areas can be used here. This is commonly used for stations that are near the boundary between two or more Region/Mgmt Areas.

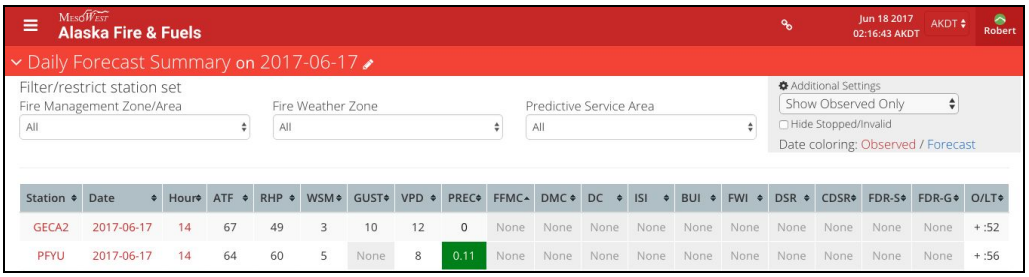
In addition, administrators can identify additional ad hoc identifiers that can be provided to fire and land managers. Some additional identifiers in current use include:

- MILITARY is for the Alaska Fire Service Military Zone and combines MILDTA, MILFWA, and MILYTA into a single group.
- NPSEAST and NPSWEST refer to NPS administrative groupings
- PORT is used for portable stations in one of the Alt. Regions field when it is active and the Region/Mgmt Area is referring to its physical location. This helps maintain a way to query the entire group of portable stations. When inactive, these fields should be blank.

There are only two Alt. Region fields, so use them judiciously.

Managing Index Status for *ACTIVE* Stations

Finding active stations with FWI calculation issues, among nearly 200 in the system, can be a challenge. All active stations, whether they are calculating FWI values, can be displayed with the FWI Daily Forecast Summary Table. Setting the Additional Settings to “Show Observed Only” and unchecking the “Hide Stopped/Invalid” box will allow you to find stations with missing weather or FWI records by sorting on individual columns. Filtering for individual zones can help limit your search further.



Off Season Index Status is defaulted to *STOP* late in the year to reflect the generally low day to day fire weather conditions. Administrators should apply the *STOP* status earlier when and if cold and snow impact the accuracy of precipitation estimates for the rest of the year.

At the Start of the Fire Season, each *ACTIVE* station should be *START*ed when conditions become favorable for fire spread in the spring. This is generally three days after the ground is considered snow-free in the area around the station and generally when daily maximum temperatures rise above 50 for three consecutive days. These are not hard and fast criteria, but provide a good guideline.

1. Once a potential *START* date has been identified, examine the weather record to make sure the weather stream (including the proposed *START* date) is complete and accurate.
2. Look for any rain events in the days immediately preceding and including the proposed *START* date. Consider applying the *START* on the day preceding the rain event to normalize the FFMC. In the alternative, consider adjusting the FFMC down on the selected date to reflect wet fine fuels on the start date.
3. Otherwise, use the default FFMC value of 85 and always use the default DMC of 6.
4. DC startup default is 15. If there is a concern for persistent overwinter drought, then after consultation with the NWS and other appropriate agencies, the station should be placed in one of three categories, with the corresponding startup adjustment applied:
    - MODERATE: if season ending DC for the station and its nearest neighbors is a bit above average and consultation suggests MODERATE drought, set to 50.
    - SEVERE: if season ending DC for the station and its nearest neighbors is well above average and consultation suggests SEVERE drought, set to 100.
    - EXTREME: if season ending DC for the station and its nearest neighbors is near maximum values and consultation suggests EXTREME drought, set to 150.

When daily observation is incomplete or missing, there is no requirement that stations be *STOP*ped or *QCSTOP*ped. FWI calculations for daily observation records will be interrupted automatically. However, if the problem is expected to persist, it may be best to select one of them to interrupt the FWI calculations for the forecast days. Consider these options:

- Edit the daily record to maintain calculations. Use adjacent hourly observations, RTMA/QPE values, or adjacent station weather. This is a good choice if one sensor seems to be on the fritz for a few days.
- Select *STOP* if you wish to continue reporting and displaying weather observations and forecasts. FWI calculations will be stopped, and thus not displayed.
- Select *QCSTOP* if you wish to discontinue reporting and displaying weather observations and forecast as well. This is useful when the weather elements are obviously bad, and will prevent contamination or discussion of maps, graphs, and tables.

When weather observation record and resulting FWI calculations are in error, it is best to remove or replace the associated FWI values for days that are known to be in wrong.

- If it is clear that the problem developed in the days after a station was started and the date can be identified, the Index Status should be changed to *STOP* or *QCSTOP* on that day. This stops FWI calculations and identifies the initial problem date.
- If the date that the problem developed is uncertain, or that it developed shortly after the *START* date, consider selecting Delete/Replace on the date the *START* was applied to remove the *START* status entirely, This will eliminate any erroneous FWI calculations that came after that *START* date.

When stations are repaired and complete collections are restored, FWI calculations can be restarted in 1 of 2 ways.

- Editing the bad or missing weather data over the entire *STOP/QCSTOP* period is the first option. Once the offending weather data has been edited, the *STOP/QCSTOP* can be removed by selecting Delete/Replace after navigating to the date it was applied. This is the preferred option if it can be accomplished, because it helps maintain a continuous record for the season. RTMA/QPE values for the weather station location can be queried on a 2-week graph and surrounding stations can be queried for analogous readings.

- If the period or quantity of bad or missing data is extensive, it may be best to simply enter a new *START* on the date that the weather stream has been restored.

Portable station management

- When portable stations are active, they can calculate FWI codes and indices. Their operation at that time can follow the guidelines above.
- When a portable station is inactive, *QCSTOP* should be applied to interrupt FWI calculations and hide all weather forecasts associated with the station location.

Other Station Manager Functions

The right column on the Station Manager Page, *More Actions*, offers several additional functions to serve administrative needs. They include:

- Insert New Start or Delete/Replace. Delete/Replace function shows for dates there is a START, STOP, or QCSTOP action applied.
- Reprocess
- Edit Today's WX

It is fairly easy to review the actions taken to manage index calculations. Select the View Season button to view the list of actions taken and evaluate the current station status.

Insert New Start

The Insert New Start function allows administrators to insert a new set of fuel moisture codes on a date that does not already have a *START, STOP, or QCSTOP* action applied.

CAUTION: Inserting new start dates with new initial fuel moisture codes should be considered only in cases where there are long gaps in the daily weather record interrupting daily FWI calculations. In most cases, according to the Weather Guide for the Canadian Forest Fire Weather Index (CFFDRS) System (page 15), it is preferable to edit the daily (not hourly) weather stream to maintain continuous daily records.

Delete/Replace

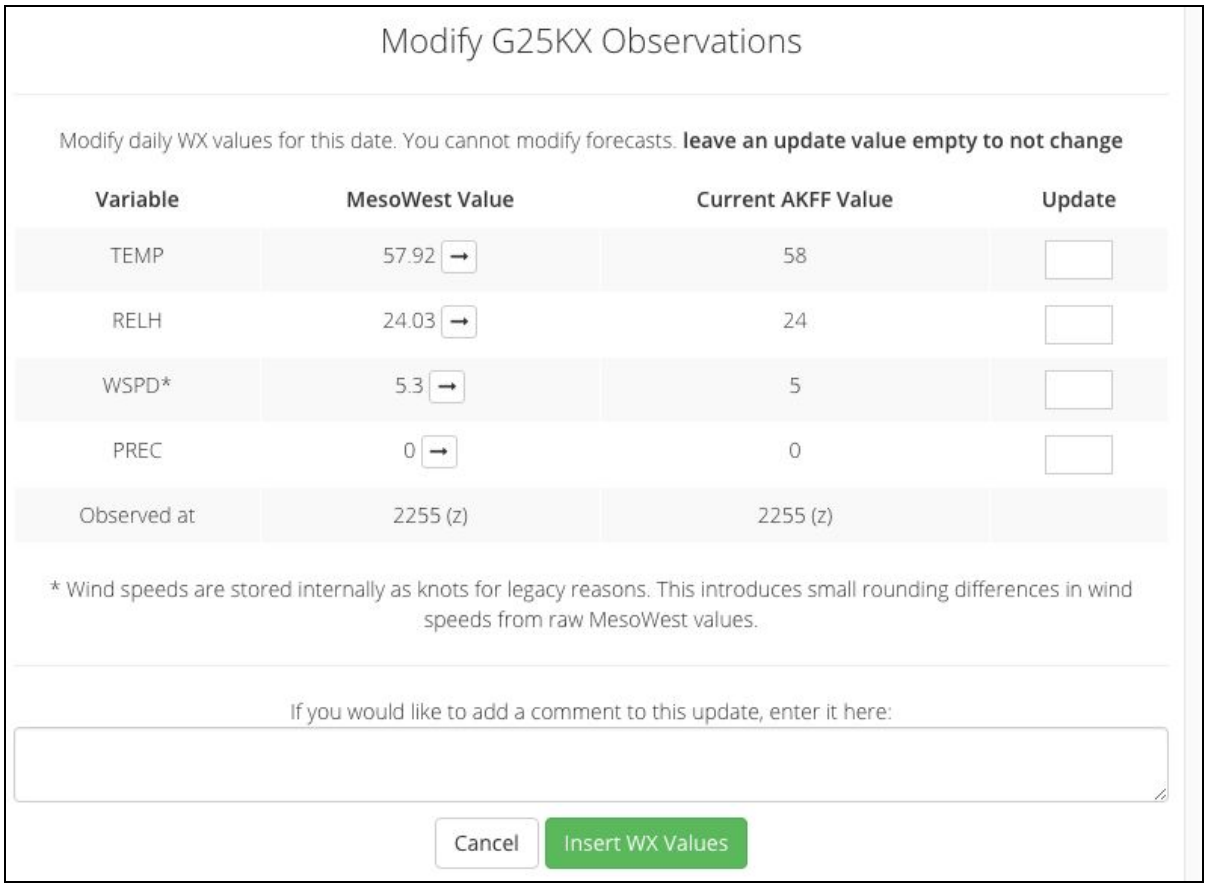
Administrators will commonly find that they have reason to remove a *START/STOP/QCSTOP* action that was applied. Here are a few example situations:

- *START* is applied in error. It is best to apply only a single *START* action in a season if at all possible.
- *STOP/QCSTOP* is applied to manage station problems. After problems are resolved and weather stream is edited, the *STOP/QCSTOP* can be removed.

Edit Today's WX

AKFF provides administrators with the means to edit daily (not hourly) weather records to support FWI Calculations. Only Temperature, Relative Humidity, Windspeed, and 24-hour precipitation can be edited.

If you wish to add or edit daily weather records to maintain the continuity of the FWI record, an edit screen for the selected date at the given station can be accessed from the Station Manager.



According to the [Weather Guide for the Canadian Forest Fire Weather Index (CFFDRS) System] (page 15), it is preferable to edit the weather stream rather than tolerate gaps in the daily FWI record or to enter new START actions after intervening gaps in the record. Further, there are specific recommendations for providing edits to missing or erroneous records. With advances built into the AKFF system, there are some additional methods. Here is a guide:

- Review the hourly record in the hours before and after the daily record to be edited. Interpolate values as necessary.
- Query the RTMA record for the station location from the AKFF Graph for two weeks of the weather element, including the date(s) to be edited.
- Consider the daily weather values for adjacent stations or from the RTMA data on the Map display for the date in question. You may consider an average value.
- Ask for local knowledge of rain events on the dates in question.

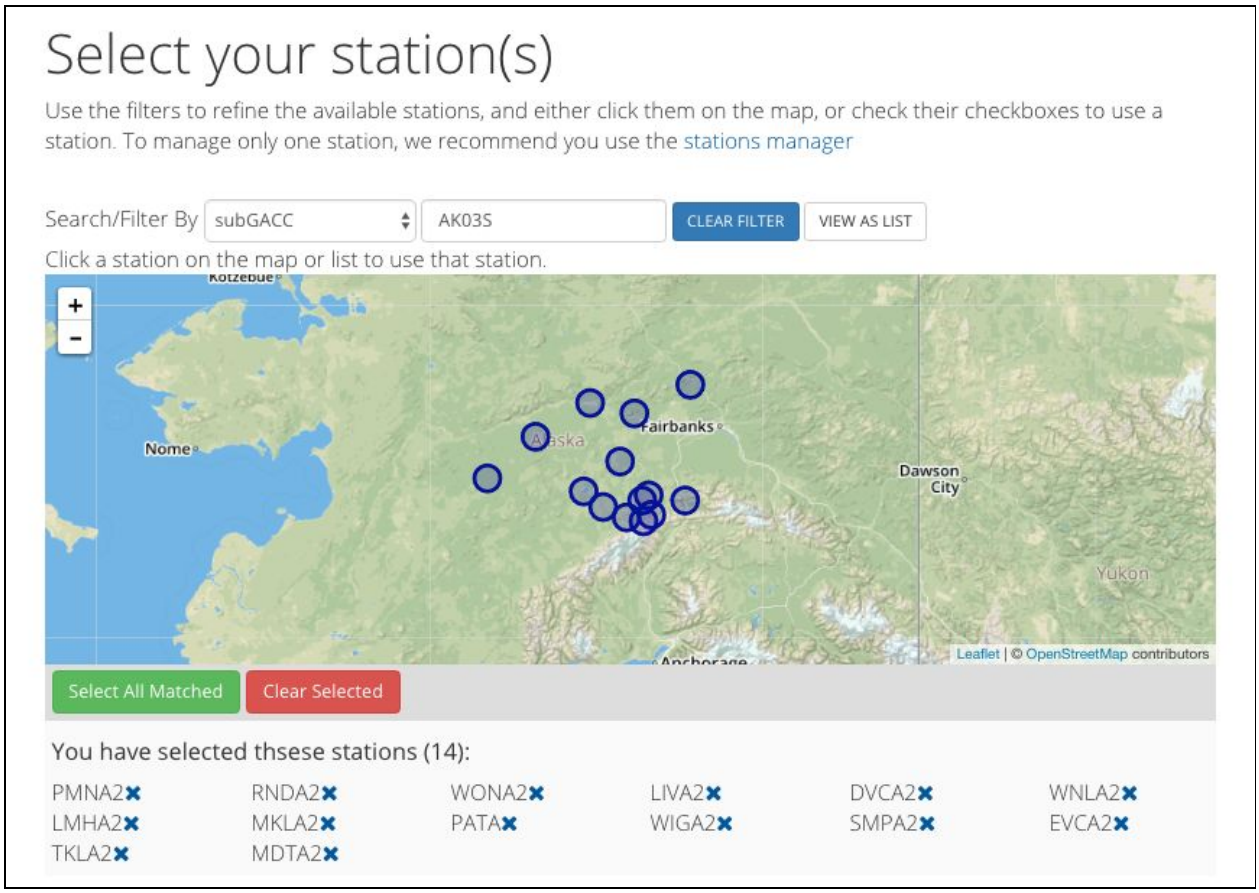
Bulk Station Manager

While the Station Manager tool provides a comprehensive set of tools to manage individual stations, the Bulk Station Manager allows the administrator to perform several operations on multiple stations at once.

Though stations are generally started individually to encourage review of weather streams in that process, the STOP status may be applied to groups of stations at the end of the season.

Select Your Station(s)

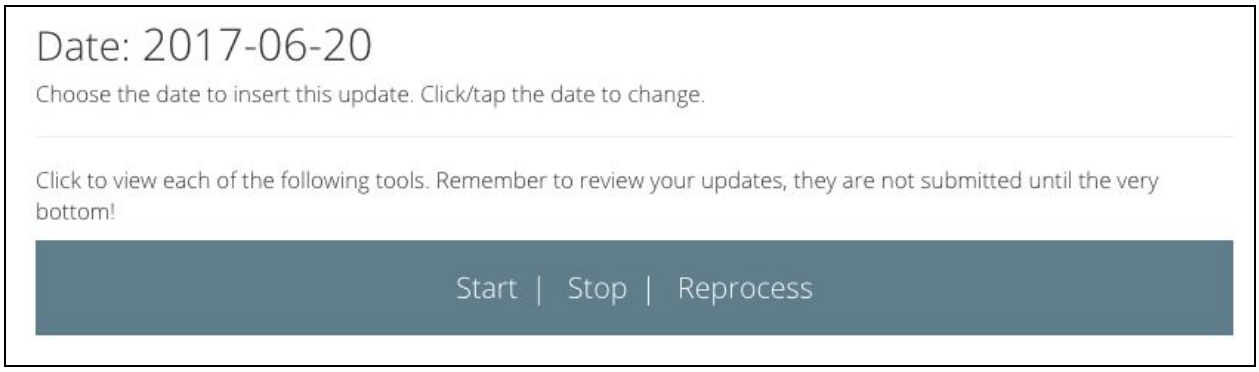
The Bulk Station Manager allows you to select stations individually, according to PSA, and/or Fire Weather Zone



Confirm/Adjust Date and Type of Bulk Action

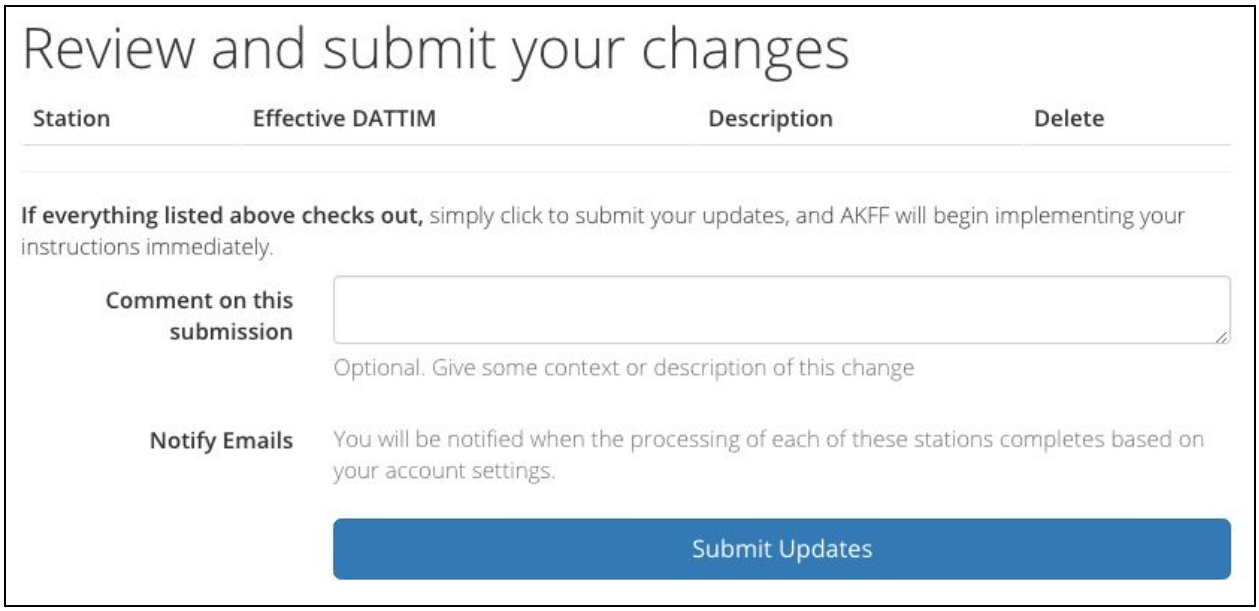
Once stations have been selected, the date of the action is highlighted and needs to be confirmed. Select the date to edit it. Once the date is correct, select *START/STOP/REPROCESS* to apply the desired action.

Notice that *QCSTOP* is not one of the choices. This is not included here because it is usually applied only in special cases. AKFF is available for review of weather information in the off season and *QCSTOP* would not provide for this.



Review and submit your changes

All administrator actions allow for comment. A short explanation is desirable before selecting *"Submit Updates"*



Simple Insert

There are 5 manual weather observing locations that continue to collect daily 1400 AKDT observations and report them to AICC for entry into AKFF. The Simple Insert, or *"Manual Data Telemetry Input"* tool is provided for that purpose. This tool is fairly self-explanatory.