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## WIMS TechNote-2015-03

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### Fire and Aviation Management Staff

**Date:** September, 2015

**System:** WIMS 4.1

**Subject:** WXML – Web Services

**Purpose:** Added WXML Functionality

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**Scope:** WIMS Web Services

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## WXML - WIMS Web Services Availability

In 2009, WIMS began providing Web Services from within the WIMS application or from a browser. This service returns XML documents that can be used in subsequent applications. This TechNote describes added output fields (station latitude and longitude), enhancements to the argument list for more selective queries, and examples.

### Creating XML from within WIMS

Enter WXML into the Fast Path; the Data Exchange Facility screen will appear.

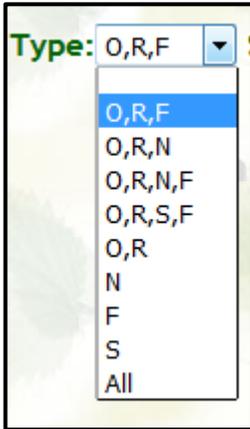


test test test **Data Exchange Facility** test test [Back to Menu](#)

Select a Service:  Point Forecasts  Weather Observations  NFDR

Station: 241513 SIG Type: O,R,F Start Date: 14-SEP-15 End Date: 14-SEP-15 Time: RS Sort: Newest to Oldest Run Reset

- Select Point Forecast, Trend Forecast, Observation or NFDR using radio buttons. NFDR is the default.
- Enter either Station or SIG
- Select the Type of the data from the Pick List



Enter the Date Range (dd-mon-yy dd-mon-yy)

- Enter the Time (0 – 23, or RS. Optional)
- Enter Sort Order
- Click on Run

Another browser window will open and return data acquired in XML format.

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```

<nfdrs>
  -<row num="1">
    <sta_id>241513</sta_id>
    <sta_nm>MISSOULA</sta_nm>
    <latitude> 46.8200</latitude>
    <longitude>-114.1000</longitude>
    <nfdr_dt>09/14/2015</nfdr_dt>
    <nfdr_tm>13</nfdr_tm>
    <nfdr_type>R</nfdr_type>
    <mp>1</mp>
    <msgc>7G3P2</msgc>
    <one_hr>3</one_hr>
    <ten_hr>4</ten_hr>
    <hu_hr>10</hu_hr>
    <th_hr>13</th_hr>
    <xh_hr>5</xh_hr>
    <ic>46</ic>
    <kbdi>389</kbdi>
    <sc>10</sc>
    <ec>54</ec>
    <bi>53</bi>
    <sl>3 </sl>
    <lr>0</lr>
    <lo>0</lo>
    <hr>0</hr>
    <ho>0</ho>
    <fl>38</fl>
    <hrb>3</hrb>
    <wdy>104</wdy>
    <adj>H </adj>
  </row>
  -<row num="2">
    <sta_id>241513</sta_id>
    <sta_nm>MISSOULA</sta_nm>
    <latitude> 46.8200</latitude>
    <longitude>-114.1000</longitude>
    <nfdr_dt>09/14/2015</nfdr_dt>
    <nfdr_tm>13</nfdr_tm>
    <nfdr_type>R</nfdr_type>
    <mp>2</mp>
    <msgc>7C2A2</msgc>
  
```

The data can be saved as a text file using the browser's **Save** or **Save As** function or copied and pasted into a text editor and saved that way. The saved file can be opened in programs that recognize the XML encoding, for example, Excel.

| num | sta_id | sta_nm   | latitude | longitude | nfd_r_dt   | nfd_r_tm | nfd_r_type | mp | msl   | adi | sc | ec | bi | sl | lr | lo | hr | ho | fl | hrb | wdy | adj |
|-----|--------|----------|----------|-----------|------------|----------|------------|----|-------|-----|----|----|----|----|----|----|----|----|----|-----|-----|-----|
| 1   | 241513 | MISSOULA | 46.82    | -114.1    | 09/14/2015 | 13       | R          |    | 1 7G3 | 389 | 10 | 54 | 53 | 3  | 0  | 0  | 0  | 0  | 38 | 3   | 104 | H   |
| 2   | 241513 | MISSOULA | 46.82    | -114.1    | 09/14/2015 | 13       | R          |    | 2 7C2 | 389 | 7  | 20 | 30 | 5  | 0  | 0  | 0  | 0  | 21 | 3   | 104 | V   |

## Calling the Web Services directly

Users can construct URL strings to directly call the web services without being logged onto WIMS. The file may be retrieved via a Web Browser or scripted using the wget utility or scripting tools such as Python.

- Generally when using wget within a script, the URL string needs to be in double quotes (“). For example:  
**wget --output-document=ofile.xml “https://fam.nwcg.gov/wims/xsql/obs.xsql?stn=241513...”**

- Security settings on some computers may require the “--no-check-certificate” command to be inserted after the document name. when using wget as shown here:

**wget --output-document=MSLA\_Hourly\_WX.xml --no-check-certificate “URL String”**

The basic URL's are listed below by function. Each URL requires a character string of arguments.

### For NFDRS

<https://fam.nwcg.gov/wims/xsql/nfdrs.xsql?<argument list>>

### For Weather Observations

<https://fam.nwcg.gov/wims/xsql/obs.xsql?<argument list>>

### For Point Weather Forecasts

<https://fam.nwcg.gov/wims/xsql/pfcst.xsql?<argument list>>

**<argument list> &stn=&sig=&user= &start=&end=&ndays=&time=&type=&priority=&fmodel=&sort=**

## Required Arguments – All Services

**Stations.** Data for a single station or a list of stations (SIG) may be requested. If a SIG is specified, the WIMS User ID the SIG owner is also required.

Examples. **stn=241513&sig=&user=** requests for one station by WIMS StationID.

**stn=&sig=FL-PORTL&user=FS7328** requests all stations in SIG FL-PORTL owned by FS7328.

**Dates.** **&start, &end, and &ndays** define the date ranges. **&start** and **&end** are formatted dd-mon-yy. **&ndays** defines the most recent number of days to return. **&start** and **&end** take priority over **&ndays**. If **&start** and **&end** both are specified, data are returned between the two dates (inclusive). If only **&start** is specified, data from the start date to current date are returned. If only **&end** is specified, all data prior to the end date are returned. If no date argument is specified, the current day is returned.

Examples: **&start=01-Jan-14&end=31-Dec-14&ndays=** returns data for all of 2014.  
**&start=&end=&ndays=10** returns the most recent 10 days.  
**&start=01-Jan-14&end=31-Dec-14&ndays=25** returns data for all of 2014.  
**&start=&end=&ndays=** returns current day

## Optional Arguments – All Services

**Times:** **&time** defines the hour to be returned. This is most useful for Observations. The hour is WIMS observation time (Local time 0 to 23). The code **RS** may be used to reference the Regular Scheduled Observation time defined in the station’s catalog.

- Note: WIMS truncates the minutes of an observation time. Thus any observation between 1400 and 1459 becomes hour=14.

**Sort Order:** **&sort=desc** or **&sort=** returns records sorted by StationID+Date (Newest to Oldest).  
**&sort=asc** returns records sorted by StationID+Date (Oldest to Newest).

**Types:** **&type** defines the observation types returned. Valid arguments for **&type** depends on the data request:

### *Weather Observations:*

**&type=O** returns the once-daily NFDRS published weather observation

**&type=R** returns the hourly observations, exclusive of the “O” for the day

**&type=** returns all observations

### *NFDRS:*

**&type=O** returns the once-daily NFDRS Indexes from the published O observation

**&type=R** returns the once-daily NFDRS Indexes from the unpublished R observation

**&type=S** returns user published Special NFDR observations (at times other than RS time)

**&type=N** returns the four times/day NFDRS Indexes from the Nelson DFM

**&type=F** returns the once-daily forecasted NFDRS Indexes

**&type=** returns all NFDRS record types

Multiple types may be request by separating types with a comma. (e.g. O,R,N)

*Point Forecasts:*

**&type=F** or **&type=** returns the once-daily forecasted NFDR weather observation

## Optional Arguments – NFDRS Services

**Fuel Model Priority:** **&priority=** can be used to select a specific model priority specified (1-4)

**Fuel Model Code:** **&fmodel=** can be used to return fuel model(s) matching a description (e.g. **&fmodel= 7G** returns any fuel model containing a 7G code, no matter what the model priority is).

## Examples

**NFDRS (Browser and Wget).**

**Observations (Browser and wget).**

- One station, hourly observations for most recent 3 days, oldest to newest

```
https://fam.nwcg.gov/wims/xsql/obs.xsql?stn=241513&sig=&type=&start=&end=&time=&sort=asc&ndays=3&user=
```

```
wget --output-document=MSLA_Hourly_WX.xml
```

```
"https://fam.nwcg.gov/wims/xsql/obs.xsql?stn=241513&sig=&type=&start=&end=&time=&sort=asc&ndays=3&user="
```

- All stations in a SIG, 0800 local time for 17-Sep-14

```
https://fam.nwcg.gov/wims/xsql/obs.xsql?stn=&sig=MSLA&user=FS7328&type=&start=17-Sep-14&end=17-Sep-14&time=8
```

```
wget --output-document=MSLA_0800.xml
```

```
"https://fam.nwcg.gov/wims/xsql/obs.xsql?stn=&sig=MSLA&user=FS7328&type=&start=17-Sep-14&end=17-Sep-14&time=8"
```

**Point Forecasts (Browser and wget).**

- Single Station, past 7 days

```
https://fam.nwcg.gov/wims/xsql/pfcst.xsql?stn=241513&sig=&type=&start=&end=&time=&sort=asc&ndays=7&user=
```

```
wget --output-document=241513_fcst_xml  
"https://fam.nwcg.gov/wims/xsql/pfcst.xsql?stn=241513&sig=&type=&start=&end=&time=&sort=asc&ndays=7&user="
```

- SIG, Current Day

```
https://fam.nwcg.gov/wims/xsql/pfcst.xsql?stn=&sig=MSLA&type=&start=&end=&time=&sort=asc&ndays=&user=FS7328
```

```
wget --output-document=MSLA_fcst_xml  
"https://fam.nwcg.gov/wims/xsql/pfcst.xsql?stn=&sig=MSLA&type=&start=&end=&time=&sort=asc&ndays=&user=FS7328"
```

## WIMS WXML Data Tag Definitions

| NFDRS      |                            | Observations |  | Forecasts    |                       |
|------------|----------------------------|--------------|--|--------------|-----------------------|
| XML Tag    | Description                | XML Tag      | Description                            | XML Tag      | Description           |
| Sta_id     | WIMS ID                    | Sta_id       | WIMS ID                                | Station_id   | WIMS ID               |
| Sta_nm     | Station Name               | Sta_name     | Station Name                           | Station_name | Station Name          |
| Latitude   | Station Latitude           | Latitude     | Station Latitude                       | Latitude     | Station Latitude      |
| Longitude  | Station Longitude          | Longitude    | Station Longitude                      | Longitude    | Station Longitude     |
| nfd_r_dt   | NFDR Date                  | Obs_dt       | Obs Date                               | Fcst_date    | Fcst Valid Date       |
| nfd_r_tm   | NFDR Hour                  | Obs_tm       | Obs Hour                               | valid_tm     | Fcst Valid Hour       |
| nfd_r_type | NFDR Type                  | Obs_type     | Obs Type                               | sow          | State of Weather      |
| Mp         | Model Priority             | Dry_temp     | Dry Bulb Temp                          | Dry_temp     | Dry Bulb Temp         |
| Msgc       | Fuel Model                 | Rh           | Relative Humidity                      | Rh           | Relative Humidity     |
| One_hr     | 1-hr TLFM                  | M_l          | Morning Lightning Activity Level (LAL) | a_l          | Fcst AM LAL           |
| Ten_hr     | 10-hr TLFM                 | Hc_rsk       | Human Cause Risk                       | Wind_dir     | Wind Direction        |
| Hu_hr      | 100-hr TLFM                | Wind_dir     | Wind Direction                         | Wind_spd     | Wind Speed            |
| Th_hr      | 1000-hr TLFM               | Wind_spd     | Wind Speed                             | Ten_hr       | Fcst 10-hr TLFM       |
| Xh         | X1000                      | temp_max     | 24 Hr Max Temp                         | temp_max     | 24 Hr Max Temp        |
| Ic         | Ignition Component         | temp_min     | 24 Hr Min Temp                         | temp_min     | 24 Hr Min Temp        |
| Kbdi       | Keetch Byram Drought Index | rh_max       | 24 Hr Max RH                           | rh_max       | 24 Hr Max RH          |
| Sc         | Spread Component           | rh_man       | 24 Hr Min RH                           | rh_man       | 24 Hr Min RH          |
| Er         | Energy Release Component   | Pp_dur       | 24 Hr Precip Duration                  | Dur1         | Hours of rain, 1st 16 |
| Bi         | Burning Index              | Pp_Amt       | 24 Hr Precip Amount                    | Dur2         | Hours of rain, 2nd 8  |
| Sl         | Staffing Level             | Y_l          | Yesterdays LAL                         | t_l          | Total LAL for day     |
| Lr         | Lightning Risk             | wet          | Fuels Wet (Y/N)                        | wet          | Wet Flag              |
| Lo         | Lightning Occur. Index     | sow          | State of weather                       |              |                       |
| Hr         | Human Risk                 | snow_flg     | Fuels covered by snow (y/n)            |              |                       |
| Ho         | Human Occur. Index         |              |  |              |                       |
| Fl         | Fire Load Index            |              |  |              |                       |
| Hrb        | Herbaceous Fuel Moist.     |              |  |              |                       |
| Wdy        | Woody Fuel Moist.          |              |  |              |                       |
| adj        | Adjective Rating           |              |  |              |                       |