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# WIMS TechNote-2021-01-WXML

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Fire and Aviation Management Staff

Date: June 2021

System: WIMS 5.5

Subject: WIMS WXML – Web Services

Purpose: New URL for WXML Services at EROS Data Center

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Scope: WXML URL Change: In all WXML instances the base URL changes from

<https://fam.nwcg.gov/> to <https://famprod.nwcg.gov/>

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## WXML - WIMS Web Services Availability

In 2009, WIMS began providing Web Services that returns WIMS data in XML documents that can be used in subsequent applications. In 2015, station latitude and longitude were added to XML documents for all services. Additionally several enhancements to some argument lists for more selective queries and control of the date sort order.

In 2018 minor enhancements to NFDRS arguments allowed for NFDR 2016 fuel models and added solar radiation, wind gust speed and direction to the output of weather observations. In 2020, Growing Season Index for computing live fuel moisture was added.

This Technote defines the new URL for WIMS WXML services.

Current WIMS WXML Data Tag Definitions are defined on the last page of this Technote.

## Calling the Web Services directly

Users can construct URL strings to directly call the web services without being logged onto WIMS. The services may be scripted to use the WGET utility to return XML files for any schedule a user may need.

Generally when using WGET within a script, the URL string needs to be in double quotes ("). For example:

***wget --output-document=ofile.xml***

***“ https://famprod.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 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. The basic functions and arguments are:

## **NFDRS**

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

Example with all NFDRS arguments with null values:

<https://famprod.nwcg.gov/wims/xsql/nfdrs.xsql?stn=&sig=&user=&type=&start=&end=&time=&priority=&fmodel=&sort=&ndays=>

## **Weather Observations**

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

Example with all observation arguments with null values:

<https://famprod.nwcg.gov/wims/xsql/obs.xsql?stn=&sig=&user=&type=&start=&end=&time=&sort=&ndays=>

## **Point Weather Forecasts**

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

Example with all Point Forecast arguments with null values:

<https://famprod.nwcg.gov/wims/xsql/pfcst.xsql?stn=&sig=&user=&type=&start=&end=&time=&sort=&ndays=>

## **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 of the SIG owner is also required.

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

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

- WIMS XML will accept legacy (e.g. FS7328) or post NAP (e.g. Ibradshaw) user ID.

**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-18&end=31-Dec-18&ndays=** returns data for all of 2018.  
**&start=&end=&ndays=10** returns the most recent 10 days.  
**&start=01-Jan-18&end=31-Dec-18&ndays=25** returns data for all of 2018.  
**&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=S** returns user published observation used to create Special NFDR records (at times other than RS time)

**&type=** returns all observations

### *NFDRS:*

**&type=O** returns only the once-daily legacy NFDRS Indexes from the **published O** observation at the station **RS** time.

**&type=R** returns only the once-daily legacy NFDRS Indexes from the **unpublished R** observation at the station **RS** time.

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

**&type=N** returns **only** 2016 NFDRS Fuel Model Index records for all times specified in WIMS->ENFDR-> Nelson Dead Fuel Moisture Options> Index Frequency unless constrained by the “&time=” argument. (**RS** time is the baseline for frequency of observations.)

NFDRS Index Frequency: Every 24 hours ▾

**&type=F** returns only the once-daily forecasted legacy and 2016 NFDRS Indexes

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

➤ Multiple types may be requested by separating types with a comma but must one of the following strings:

- O,R
- O,R,N
- O,R,F
- O,R,N,F
- O,R,S,N

*Point Forecasts:*

**&type=F** or **&type=** returns only once-daily forecasted NFDR weather (not forecasted NFDRS Indexes).

## Optional Arguments – NFDRS Services

**Fuel Model Priority:** **&priority=?** This argument can be used to select a specific model priority (1-9)

**Fuel Model Code:** **&fmodel=?** can be used to return a fuel model matching a description (e.g. **&fmodel= 7G** or **&fmodel=16Y**) returns any fuel model starting with the specified code, regardless of the model priority and subordinate attributes (e.g. Slope Class).

## Examples

**NFDRS (Browser and Wget).**

- One station, daily NFDRS for most recent 3 days, all types, all models, oldest to newest

<https://famprod.nwcg.gov/wims/xsql/nfdrs.xsql?stn=241513&sig=&user=&type=&start=&end=&time=&priority=&fmodel=&sort=asc&ndays=3>

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

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

- One station, daily NFDRS for most recent 3 days, all types, 16Y model only, oldest to newest

<https://famprod.nwcg.gov/wims/xsql/nfdrs.xsql?stn=241513&sig=&user=&type=&start=&end=&time=&priority=&fmodel=16Y&sort=asc&ndays=3>

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

```
"https://famprod.nwcg.gov/wims/xsql/nfdrs.xsql?stn=241513&sig=&user=&type=&start=&end=&time=&priority=&fmodel=16Y&sort=asc&ndays=3"
```

- All stations and models in a SIG, daily NFDRS for 17-Sep-18

<https://famprod.nwcg.gov/wims/xsql/nfdrs.xsql?stn=&sig=MSLA&user=lbradshaw&type=&start=17-Sep-18&end=17-Sep-18&time=&priority=&fmodel=&sort=asc&ndays=>

```
wget --output-document=MSLA_1300.xml
```

```
"https://famprod.nwcg.gov/wims/xsql/nfdrs.xsql?stn=&sig=MSLA&user=LBRADSHAW&type=&start=17-Sep-18&end=17-Sep-18&time=&priority=&fmodel=&sort=asc&ndays="
```

### **Observations (Browser and wget).**

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

<https://famprod.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://famprod.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-18

<https://famprod.nwcg.gov/wims/xsql/obs.xsql?stn=&sig=MSLA&user=lbradshaw&type=&start=17-Sep-18&end=17-Sep-18&time=8>

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

```
"https://famprod.nwcg.gov/wims/xsql/obs.xsql?stn=&sig=MSLA&user=lbradshaw&type=&start=17-Sep-18&end=17-Sep-18&time=8"
```

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

- Single Station, past 7 days

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

- SIG, Current Day

<https://famprod.nwcg.gov/wims/xsql/pfcst.xsql?stn=&sig=MSLA&user=lbradshaw&type=&start=&end=&time=&sort=asc&ndays=>

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

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

## Creating XML from within WIMS

The most useful function of the within WIMS function is to generate a URL in the browser address bar with all the arguments needed in a WGET or other scripting function.

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

- 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/tab 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>244603</sta_id>
    <sta_nm>HEBGEN</sta_nm>
    <latitude> 44.6660</latitude>
    <longitude>-111.0991</longitude>
    <nfdt_dt>06/02/2021</nfdt_dt>
    <nfdt_tm>13</nfdt_tm>
    <nfdt_type>F</nfdt_type>
    <mp>1</mp>
    <msgc>16Y1P </msgc>
    <one_hr>9.9</one_hr>
    <ten_hr>12.25</ten_hr>
    <hu_hr>13.91</hu_hr>
    <th_hr>16.21</th_hr>
    <xh_hr>-99.99</xh_hr>
    <ic>7.6</ic>
    <kbd>92</kbd>
    <sc>1.5</sc>
    <ec>30</ec>
    <bi>17.1</bi>
    <sl>3 </sl>
    <lr>0</lr>
    <lo>0</lo>
    <hr>0</hr>
    <ho>0</ho>
    <fl>12</fl>
    <hrb>30</hrb>
    <wdy>60</wdy>
    <herb_gsi>0.32</herb_gsi>
    <woody_gsi>0.32</woody_gsi>
    <adj>M </adj>
  </row>
  <row num="2">
    <sta_id>244603</sta_id>
    <sta_nm>HEBGEN</sta_nm>
    <latitude> 44.6660</latitude>
    <longitude>-111.0991</longitude>
    <nfdt_dt>06/02/2021</nfdt_dt>
    <nfdt_tm>13</nfdt_tm>
    <nfdt_type>F</nfdt_type>
    <mp>2</mp>
```

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 or Access.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	Y	Z	AA	AB	AC	AD
sta_id	sta	lati	long	nfdt dt	nfdt	nfdt	nfdt	msg	one	ten	hu	th	xh	ic	kbd	sc	ec	bi	sl	fl	hrb	wdy	herl	woc	adj
244603	HEBGE	44.67	-111.1	06/01/2021	13	F	2	7G1P3	4.88	7.68	10.44	15.47	15.47	22.3	86	4.4	44.6	34	3	24	4.9	70	0	0	M
244603	HEBGE	44.67	-111.1	06/01/2021	13	F	3	7H1P3	4.88	7.68	10.44	15.47	15.47	23.9	86	1.3	25.6	15.3	3	11	4.9	70	0	0	M
244603	HEBGE	44.67	-111.1	06/01/2021	12	O	3	7H1P3	4.67	5.98	11.19	15.59	15.59	23.9	92	1.4	25.8	15.4	3	11	4.7	70	0	0	M
244603	HEBGE	44.67	-111.1	06/01/2021	13	F	4	7U1P3	4.88	7.68	10.44	15.47	15.47	23.7	86	2.6	33.1	23.5	3	17	4.9	70	0	0	M
244603	HEBGE	44.67	-111.1	06/01/2021	12	O	4	7U1P3	4.67	5.98	11.19	15.59	15.59	23.8	92	2.7	35.1	24.3	4	17	4.7	70	0	0	H

## WIMS WXML Data Tag Definitions (WIMS 5.5 June 2021)

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_nm	Station Name	station_nm	Station Name
latitude	Station Latitude	latitude	Station Latitude, dd.dddd	latitude	Station Latitude
longitude	Station Longitude	longitude	Station Longitude ddd.dddd	longitude	Station Longitude
nfdr_dt	NFDR Date	obs_dt	Obs Date	fcst_dt	Fcst Valid Date
nfdr_tm	NFDR Hour	obs_tm	Obs Hour	valid_tm	Fcst Valid Hour
nfdr_type	NFDR Type (O/R/N/F/R)	obs_type	Obs Type (O/R/S)	sow	State of Weather
mp	Model Priority (1-9)	dry_temp	Dry Bulb Temp, F	dry_temp	Dry Bulb Temp, F
msgc	Fuel Model 7x, 8x, 16x,	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, degrees (16 point)
hu_hr	100-hr TLFM, %	wind_dir	Wind Direction, degrees (10 –min average)	wind_spd	Wind Speed, mph
th_hr	1000-hr TLFM, %	wind_spd	Wind Speed, mph (10 –min average)	ten_hr	Fcst 10-hr TLFM
xh	X1000	temp_max	24 Hr Max Temp, F	temp_max	24 Hr Max Temp, F
ic	Ignition Component	temp_min	24 Hr Min Temp, F	temp_min	24 Hr Min Temp, F
kdbi	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, %
ec	Energy Release Component	pp_dur	24 Hr Precip Duration, hours	dur1	Hours of rain, 1st 16
bi	Burning Index	pp_amt	24 Hr Precip Amount, in	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	Fuels Wet (Y/N) at Fcst Valid Hour
lo	Lightning Occur. Index	sow	State of weather (0-9)		
hr	Human Risk	solradiation	Hour averaged Direct Beam solar radiation, watts/sq-mt		
ho	Human Occur. Index	peakgustspeed	Peak gust during hour, mps		
fl	Fire Load Index	peakgustdir	Direction of peak gust, degrees (0-360)		
hrb	Live Herbaceous Fuel Moisture, %	snow_flg	Fuels covered by snow (y/n)		
wdy	Live Woody Fuel Moisture, %				
herb_gsi	Herb Fuel GSI (0 to 1.) 2016 fuel models				
woody_gsi	Woody Fuel GSI (0 to 1. ) 2016 fuel models				
adj	Adjective Rating				