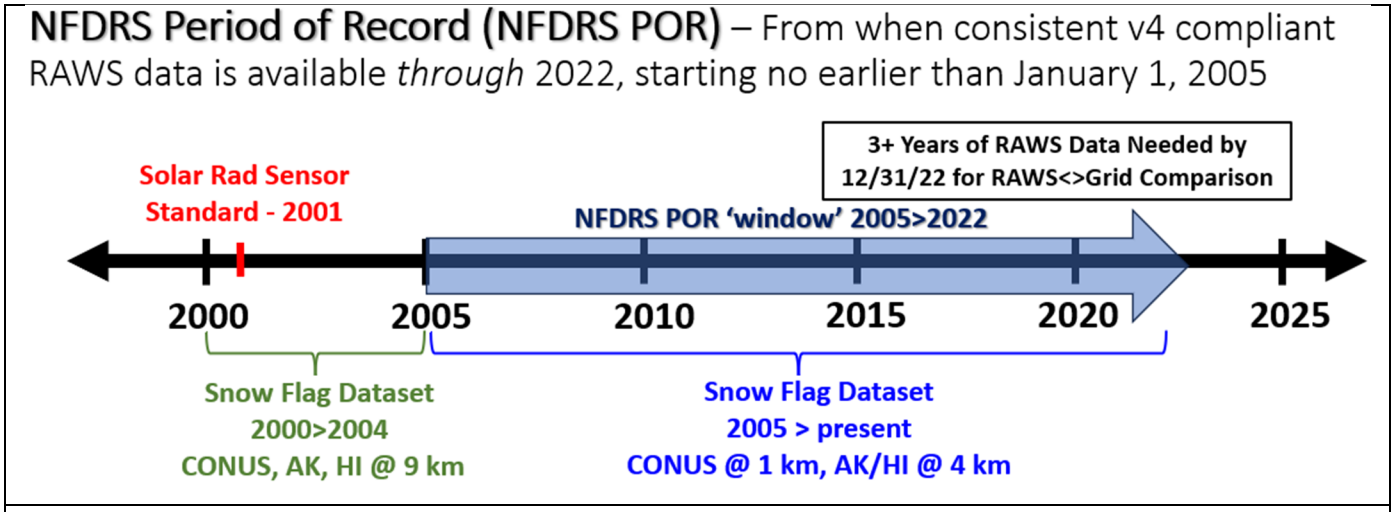
NFDRS Period of Record (NFDRS POR) RAWS Dataset for FEMS Release 3.0

The **NFDRS POR**, a national RAWS QC and gap fill dataset from the Western Region Climate Center (WRCC)/Desert Research Institute (DRI), will be deployed with FEMS 3.0 as the authoritative RAWS dataset for NFDRSv4. The **NFDRS POR** leverages the 2005>2022 data period, when gridded data for the NFDRSv4 weather elements used in the quality control process are aligned on the basis of availability, quality, and resolution. This optimal data alignment informs a more accurate quality control process.

The Period of Record (POR) designation indicates that stations in the dataset have data for the full 2005>2022 period if they were operational during that time, but that data for stations deployed after 1/1/2005 will begin the date those stations were installed. This assures that **NFDRS POR** data isn't attributed to RAWS that didn't yet exist. Currently operational RAWS with 3+ years of data through 2022 qualify for inclusion in the **NFDRS POR**.



The NFDRS POR 'window' focuses on a period with optimally aligned gridded data for the required NFDRSv4 weather elements as a basis for the QC process. Resulting station-level data are available from 2005>2022 or RAWS install date>2022 (whichever is shorter)

Quality Control (QC) Flag Values – Basic information about the QC flag values is on the following page. Complete technical documentation of the entire QC and gap fill process is available on the FEMS web portal at: https://www.wildfire.gov/page/fems-climatology-data, titled RAWS QC and Gap-filled description.

Version Control – This release is Version 1.1 (**NFDRS PORv1.1**). Future releases will be similarly versioned.

- **NFDRS PORv1.1** (FEMS 3.0) = 2005-2022 or RAWS install date-2022 (whichever is shorter); full QC validation/flagging process used, but "suspicious" RAWS data (QC flag 2) are NOT replaced.

Other Related Dataset Versions – The **NFDRS POR** is a subset of the larger parent **RAWS QC and gap fill** dataset, an initial version of which (1.0) was released as provisional data for FEMS. With the FEMS 3.0 release, the **provisional RAWS QC and gap fill** dataset will be removed from FEMS and be available only through the Western Region Climate Center/DRI. Contact tim.brown@dri.edu for access.

- **RAWS QC and gap fill v1.0** (FEMS>WRCC): 2000-2022, full QC including replacements for "suspicious" QC flag #2
- **RAWS QC and gap fill v1.2** (WRCC): Same as v1.0, but with additional stations & improved methodology

Understanding Data from the NFDRS PORv1.1

Along with complete NFDRSv4 compliant weather data, the **NFDRS PORv1.1** data files include the QC flags that indicate the result of the QC process and the nature of the data value populating each element field.

QC flag values:

0 = Original value from RAWS retained (was present and fulfilled QC validation)

1 = Original value from RAWS was missing and has been replaced with an estimated value

2 = Original value from RAWS was deemed "suspicious" (failed QC inspection) **but was retained*.**

***In the NFDRS PORv1.1, RAWS data are replaced with estimated values only when the original values are missing**.

In the FW21(LST) or CSV(UTC) data files, the QC flag values populate the last 8 fields of each record, per below, and correspond to the elements measured. Tflag>Temperature, RHflag > Relative Humidity, PCPflag>Precipitation, WSflag>Wind Speed, WAflag>Wind Azimuth, SRflag>Solar Radiation, GSflag>Gust Speed, GAflag>Gust Azimuth.

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DateTime,Temperature(F),RelativeHumidity(%),Precipitation(in),WindSpeed(mph),WindAzimuth(degrees),SolarRadiation(
W/m2),SnowFlag,GustSpeed(mph),GustAzimuth(degrees),Tflag,RHflag,PCPflag,WSflag,WAflag,SRflag,GSflag,GAflag
2005-01-01T00:00:00-07:00,35,71,00.00,12,194,0,0,23,191,0,0,0,0,0,0,0,0
2005-01-01T01:00:00-07:00,36,63,00.00,12,203,0,0,23,191,0,0,0,0,0,0,0,0
```

Example (below) of complete weather data elements from a **NFDRS PORv1.1** FW21 file:

DateTime	Temperature(F	RelativeHumidity(%	Precipitation(in	WindSpeed(mph	WindAzimuth(degrees	SolarRadiation(W/m2)	SnowFlag	GustSpeed(mph)	GustAzimuth(degrees)
5/11/2006 13:00	75	7	0	6	182	993	0	20	204
5/11/2006 14:00	78	5	0	9	300	846	0	20	92
5/11/2006 15:00	77	6	0	6	204	635	0	25	338
5/11/2006 16:00	77	8	0	6	258	416	0	26	319
5/11/2006 17:00	75	8	0	5	250	186	0	16	216
5/11/2006 18:00	70	10	0	5	266	71	0	17	238
5/11/2006 19:00	63	14	0	7	261	12	0	14	275
5/11/2006 20:00	63	17	0	9	261	0	0	14	256
5/11/2006 21:00	62	17	0	9	263	0	0	19	244
5/11/2006 22:00	61	15	0	9	268	0	0	21	265
5/11/2006 23:00	59	14	0	8	283	0	0	21	266
5/12/2006 0:00	59	14	0	5	283	0	0	15	272
5/12/2006 1:00	57	14	0	5	276	0	0	14	244
5/12/2006 2:00	57	16	0	4	287	0	0	12	273
5/12/2006 3:00	56	17	0	4	276	0	0	11	271

Example (right) of QC flag values for the records and weather elements above:

It's important to note that despite the weather data in the FW21 or CSV file being complete and viable for NFDRSv4, the QC process flagged a number of the records & data elements as "suspicious" (QC flag 2).

Since original RAWS values are retained with QC flag 2, their presence indicates that data quality issues remain that could impact NFDRSv4 outcomes.

Tflag	RHflag	PCPflag	WSflag	WAflag	SRflag	GSflag	GAflag
0	2	0	0	0	2	2	0
0	2	0	0	0	2	0	0
0	2	0	0	0	2	0	0
0	0	0	0	0	2	0	0
0	2	0	0	0	2	0	0
0	2	0	0	0	0	0	0
0	2	0	0	0	0	0	0
0	2	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	2	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0