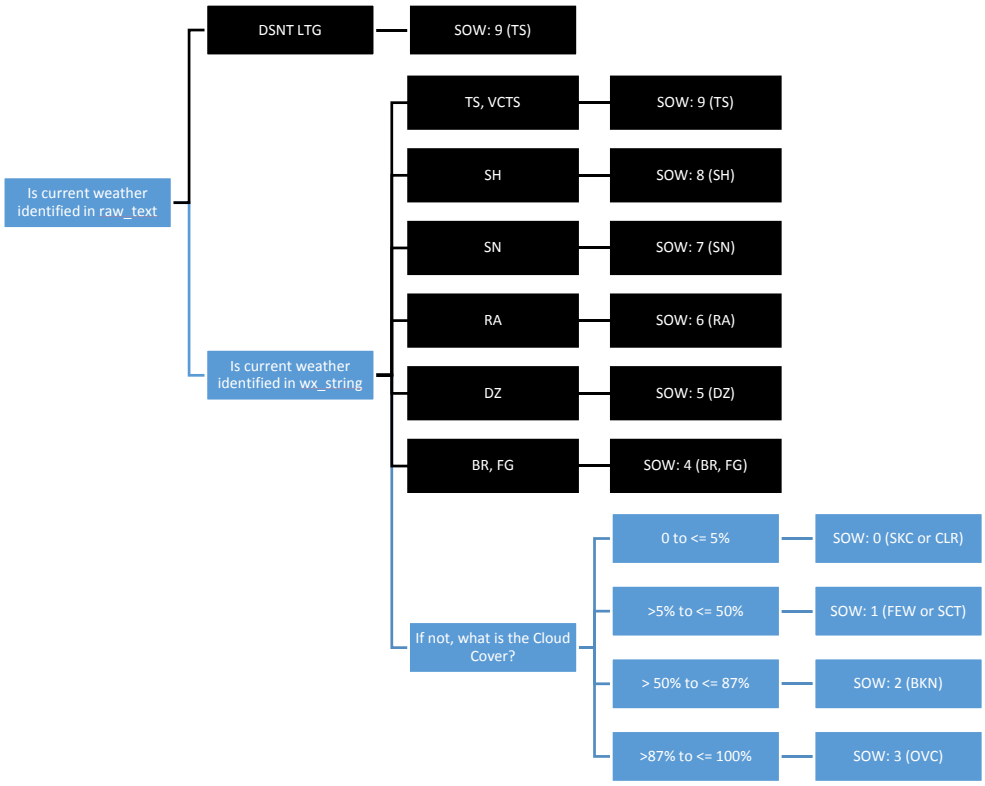
Specifications on Weather Observation from ASOS to FW13(9) Format

Observation fields directly from ASOS records:

- Observation date
- Observation time
- Most recent hourly air temperature
- Most recent hourly precipitation total
- Precipitation amount
- Snow Flag:
- Most recent hourly wind direction

Calculated fields based on the ASOS weather records:

- **Most recent hourly wind speed:** Transformed from the 10 meter ASOS to 6 meter WIMS by a formula consulted from Corey Davis and changed unit from knots to MPH
- **Wind direction of peak gust**: retrieved from the wind speed from most recent hour
- **Speed of peak gust:** Transformed from the 10 meter ASOS to 6 meter WIMS and changed unit from knots to MPH
- **Precipitation duration:** Calculated based on the detectable amount of precipitation for each hour
- **Most recent hourly relative humidity:** Calculated based on most recent hours temperature and dew point
- **Minimum/Maximum relative humidity**: Calculated based on previous 24 hours temperature
- **Minimum/Maximum Temperature:** Calculated based on previous 24 hours relative humidity
- **Observation type:** Calculated on the observation time (only close to 13:00 will be assign O)
- State of weather code: A logic as following flow chart



Flow Chart for State of Weather Code

Fields with default value:

Record type: All records begin with this record type identifier code (W13 for FW13 or W98 for FW9)

Station Number: Derived from station catalog setting in WIMS

Measured 10-hour time lag fuel moisture: Set to NULL by default

Wet flag: Set to N by default advised by Mike Dunivan

Herbaceous greenness factor: Derived from pre-prepared CSV file provided by Mike Dunivan

Shrub greenness factor: Derived from pre-prepared CSV file provided by Mike Dunivan

Season code: Derived from pre-prepared CSV file provided by Mike Dunivan

Moisture Type code: Set to 2(Relative Humidity) by default

Measurement Type code: Set to 1(U.S.) by default

Solar radiation: Set to 0 by default

Appendix (Specification of FW13):

Weather Observation Data Transfer Format, 2013 (WxObs 13)			
Item	**Cols**	**Type**	**Description**
1	01-03	3A	Record type (W13). All records begin with this record type identifier code.
2	04-09	6N	Station Number.
3	10-17	8N	Observation date (YYYYMMDD).
4	18-21	4N	Observation time (0000-2359).
5	22	1A	Observation type (O=Published NFDRS, R=RAWS, F=Forecast, X=Other). If type is R and observation time is the station's standard NFDRS observation time(RS) and the State of weather code is not blank, State of weather code and Wet Flag for this observation were estimated by the WIMS RAWS Gateway routines. (Note: NFDR processing programs should be modified to compute NFDRS indexes for the traditional "O" and the "R" at RS time if the SOW is not null.)
6	23	1N	State of weather code.
7	24-26	3N	Dry bulb temperature (degrees Fahrenheit or degrees Celsius based on Measurement Type code [col. 63]).
8	27-29	3N	Atmospheric moisture (wet bulb temperature, relative humidity (percent), or dewpoint temperature based on Moisture Type code [col. 62]).
9	30-32	3N	Wind direction azimuth measured from true north. 0 (zero) means no wind direction, 360 is north.
10	33-35	3N	Average windspeed over a 10-minute period (miles or kilometers per hour based on Measurement Type code).
11	36-37	2N	Measured 10-hour time lag fuel moisture.
12	38-40	3N	Maximum Temperature (degrees Fahrenheit or degrees Celsius based on Measurement Type code [col. 63]).
13	41-43	3N	Minimum Temperature (degrees Fahrenheit or degrees Celsius based on Measurement Type code [col. 63]).
14	44-46	3N	Maximum relative humidity (percent).
15	47-49	3N	Minimum relative humidity (percent).
16	50-51	2N	Precipitation duration (hours).
17	52-56	5N	Precipitation amount based on Measurement Type code [col. 63]. Blanks=no precipitation. *U.S. measurement:* inches with implied decimal nn.nnn format; trace shown as 00005. *Metric measurement:* measured in millimeters, no implied decimal; trace shown as 00001.
18	57	1A	Wet flag (Y/N).

19	58-59	2N	Herbaceous greenness factor (0-20).
20	60-61	2N	Shrub greenness factor (0-20).
21	62	1N	Moisture Type code (1=Wet bulb, 2=Relative Humidity, 3=Dewpoint).
22	63	1N	Measurement Type code: 1=U.S.,2=Metric. Affects temperature (Fahrenheit or Celsius), wind (miles or kilometers per hour), and precipitation (decimal inches or millimeters).
23	64	1N	Season code (1=Winter, 2=Spring, 3=Summer, 4=Fall).
24	65-68	4N	Solar radiation (watts per square meter).
25	69-71	3N	Wind direction of peak gust during the hour, degrees. Zero means no wind direction, 360 is north.
26	72-74	3N	Speed of peak gust during the hour. (miles or kilometers per hour based on Measurement Type code).
27	75	1A	Snow Flag (Y/N). Signals fuels over the fire danger rating area are snow covered.