

USING THE METFETCH TOOL

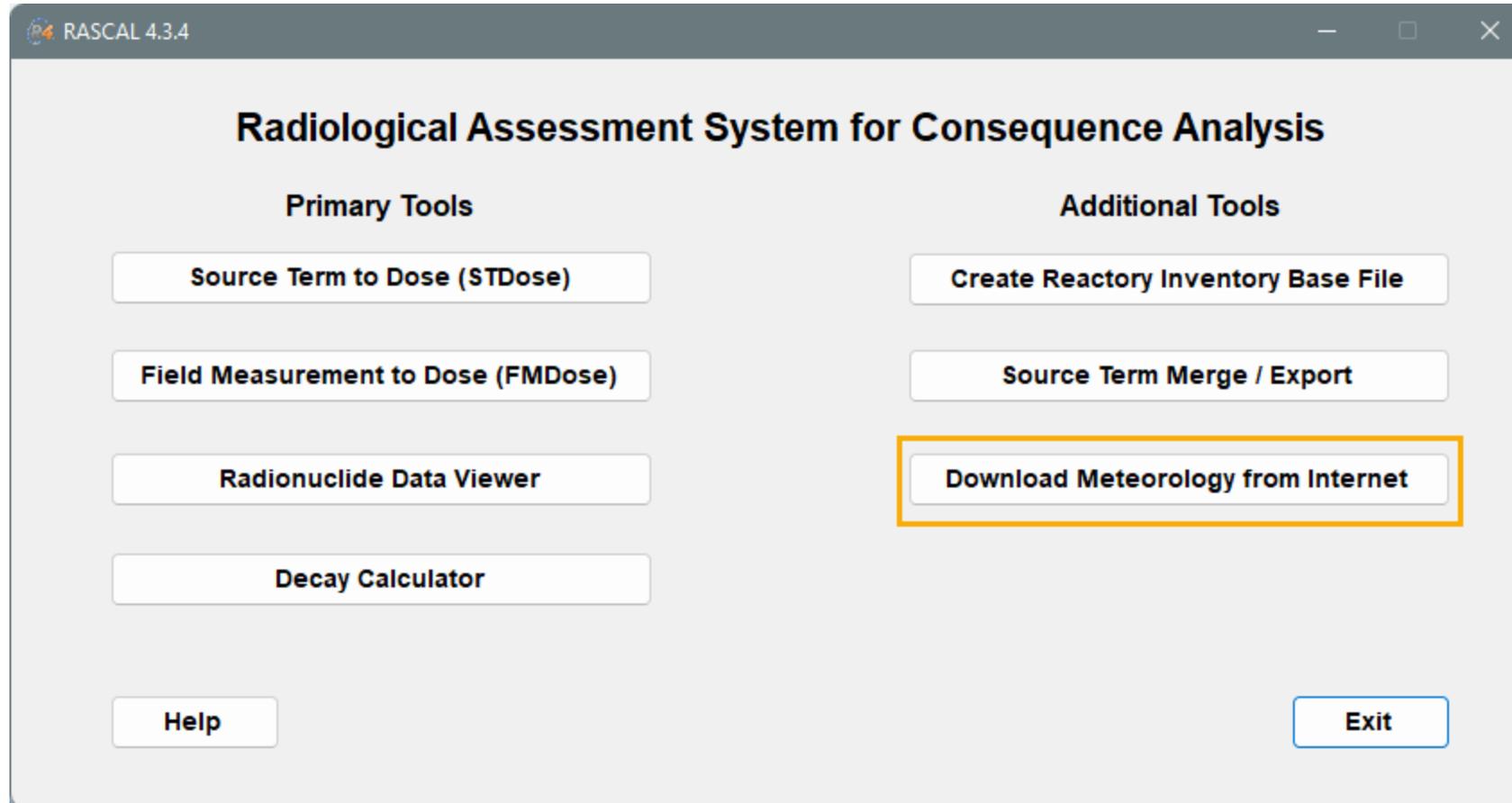
Part of the RASCAL Instructor-led Training

IN THE PAST, ALL THE METEOROLOGICAL DATA RETRIEVAL AND ENTRY INTO RASCAL HAD TO BE DONE MANUALLY.

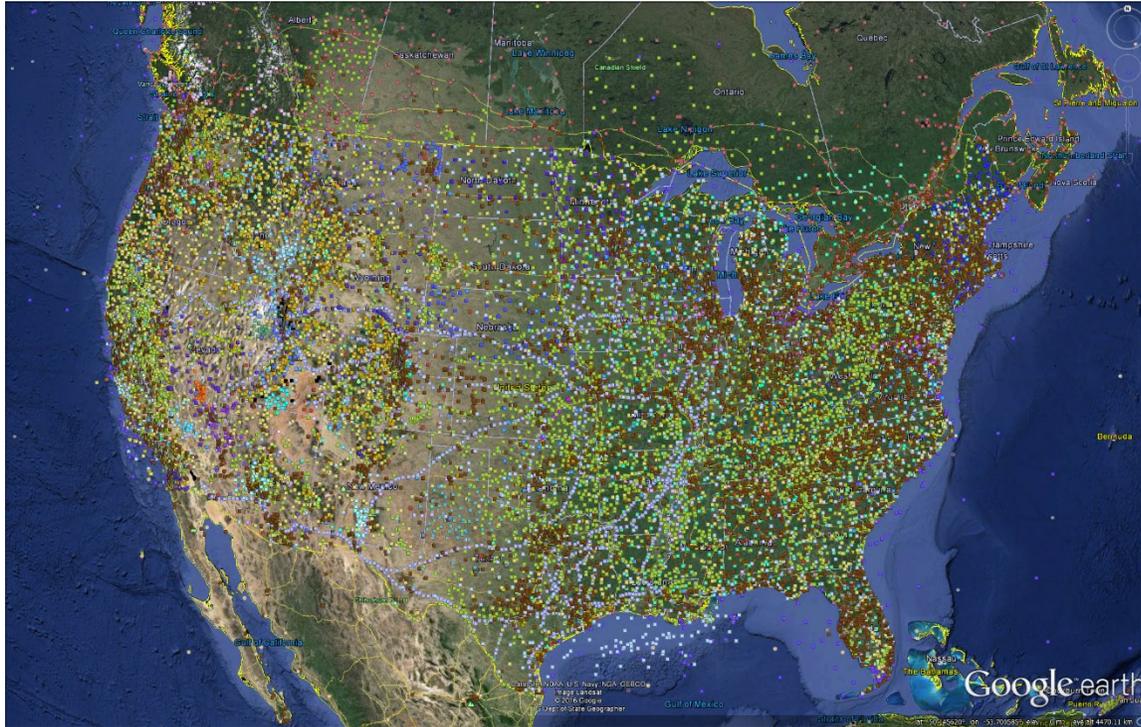
This meant:

- Identifying surrounding weather stations if the site was not in RASCAL
- Finding a source for the weather data, e.g. ERDS, NWS website
- Capturing the data for observations and forecasts; copying the numbers or printing
- Entering that data item by item into the RASCAL meteorological data processing program
- Periodically repeating the full process

TO PARTIALLY AUTOMATE THIS PROCEDURE RASCAL HAS A TOOL TO *DOWNLOAD METEOROLOGY FROM INTERNET (METFETCH)*.



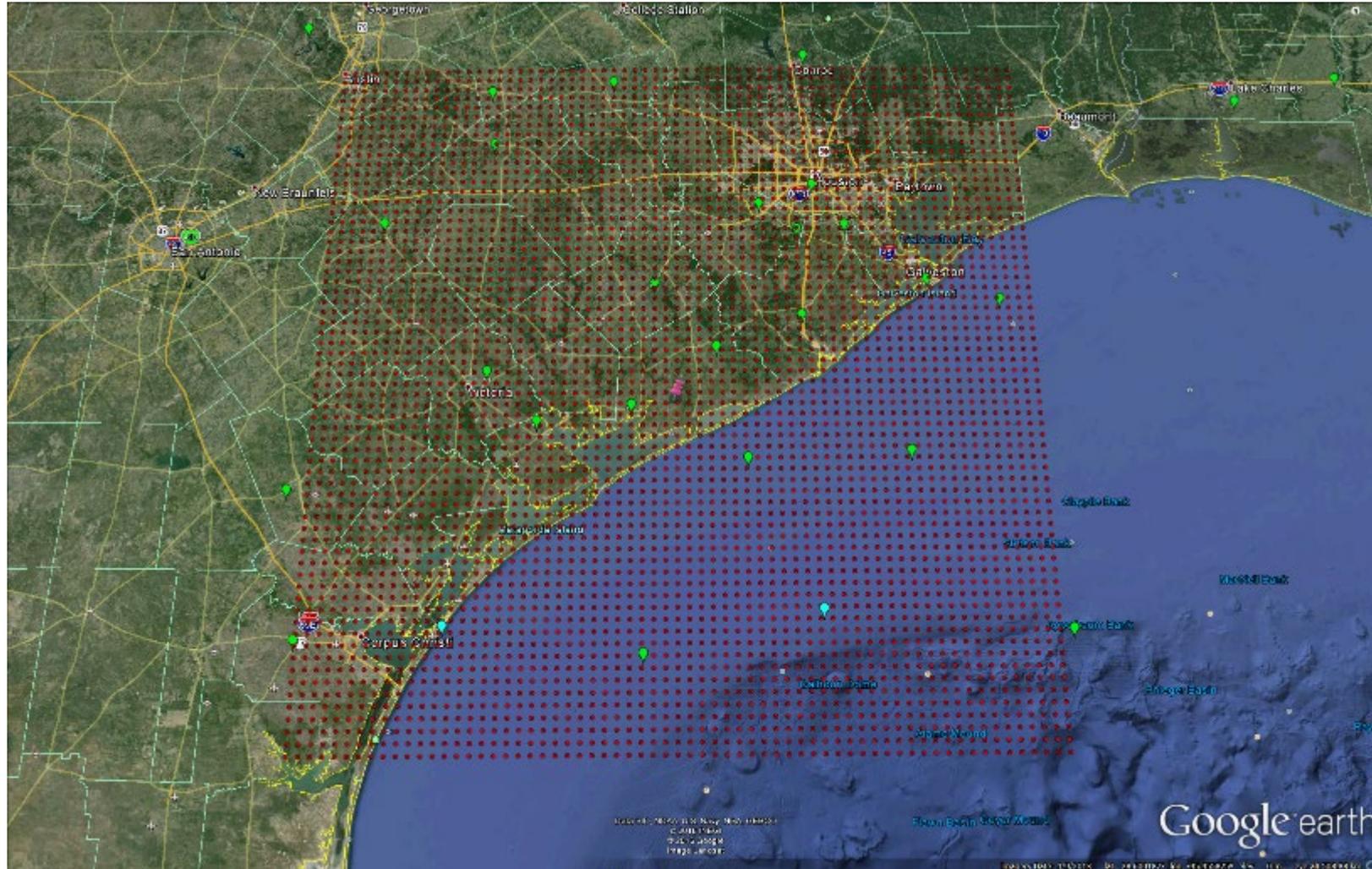
THERE ARE LITERALLY THOUSANDS OF SOURCES FOR OBSERVED WEATHER DATA ONLINE.



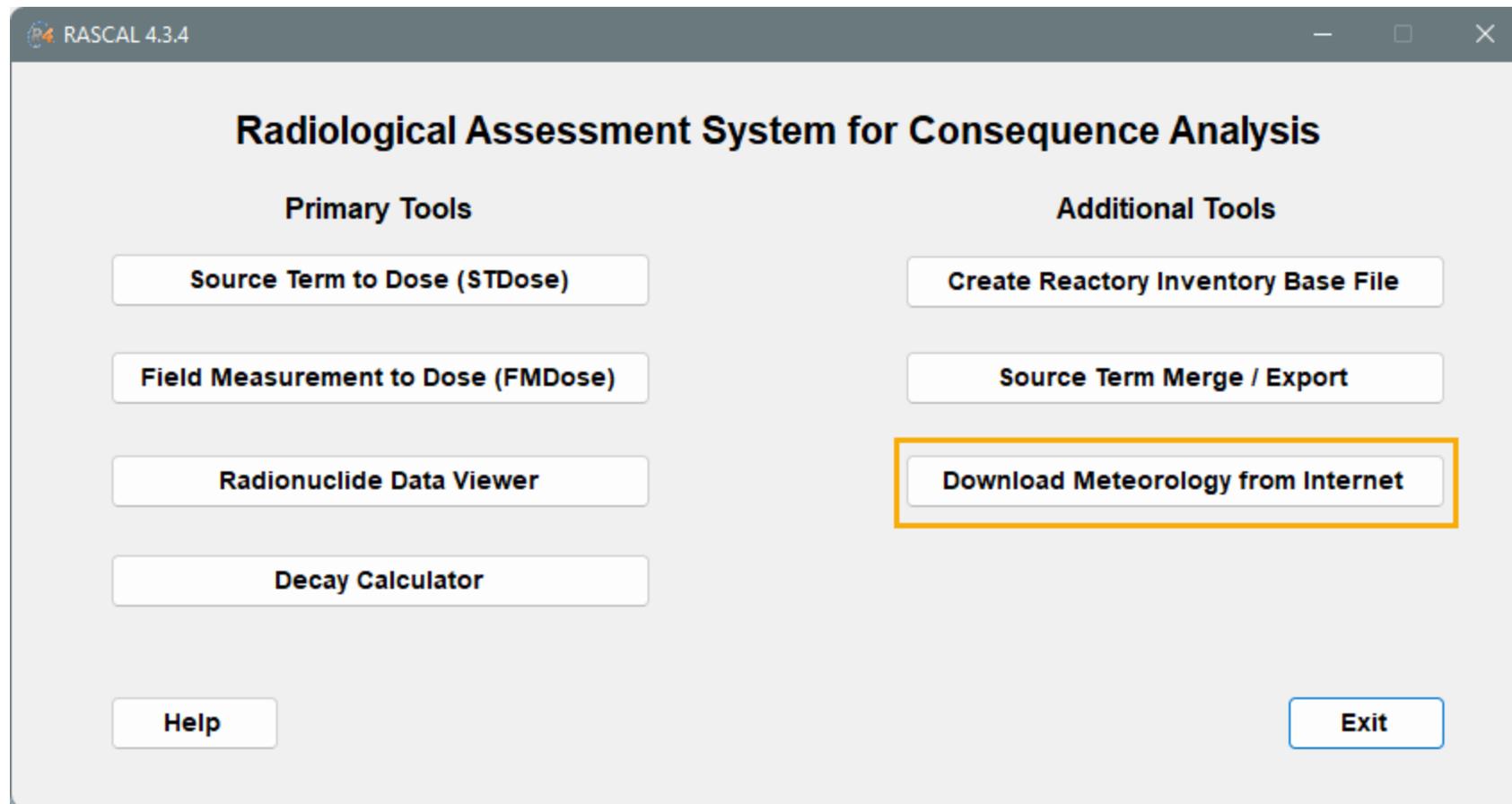
There are data sets containing observations for a wide range of places besides NWS sites; national labs, highways, oil rigs, and so on. Not all the data has the same quality and availability.

Observations and forecasts are available for about 2,500 station locations and include primary NWS and FAA stations in the U.S.

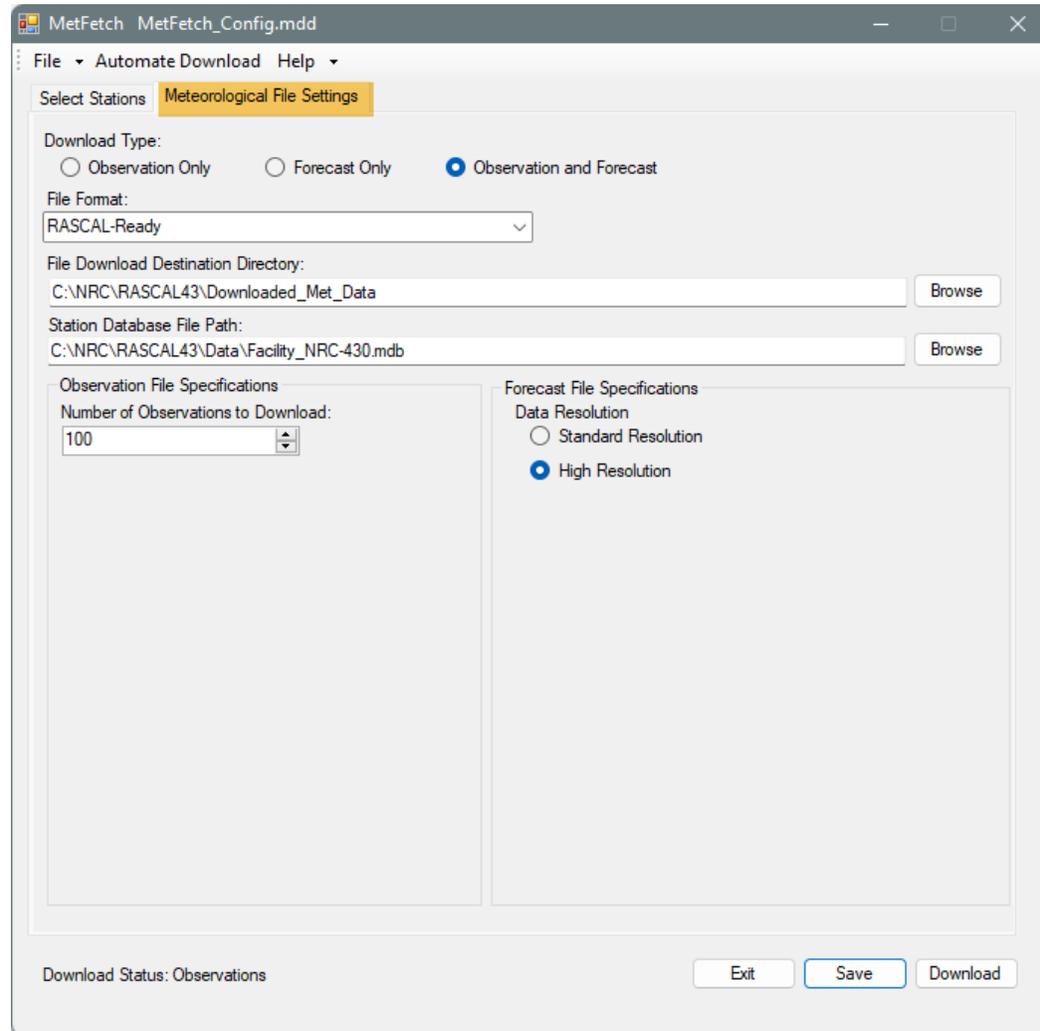
OBSERVATIONS ARE FROM WEATHER STATIONS, FORECASTS ARE FROM THE CLOSEST FORECAST MODEL POINT TO THE STATION.



RASCAL HAS A SEPARATE TOOL TO HANDLE THE DOWNLOAD OF WEATHER DATA FROM THE INTERNET.

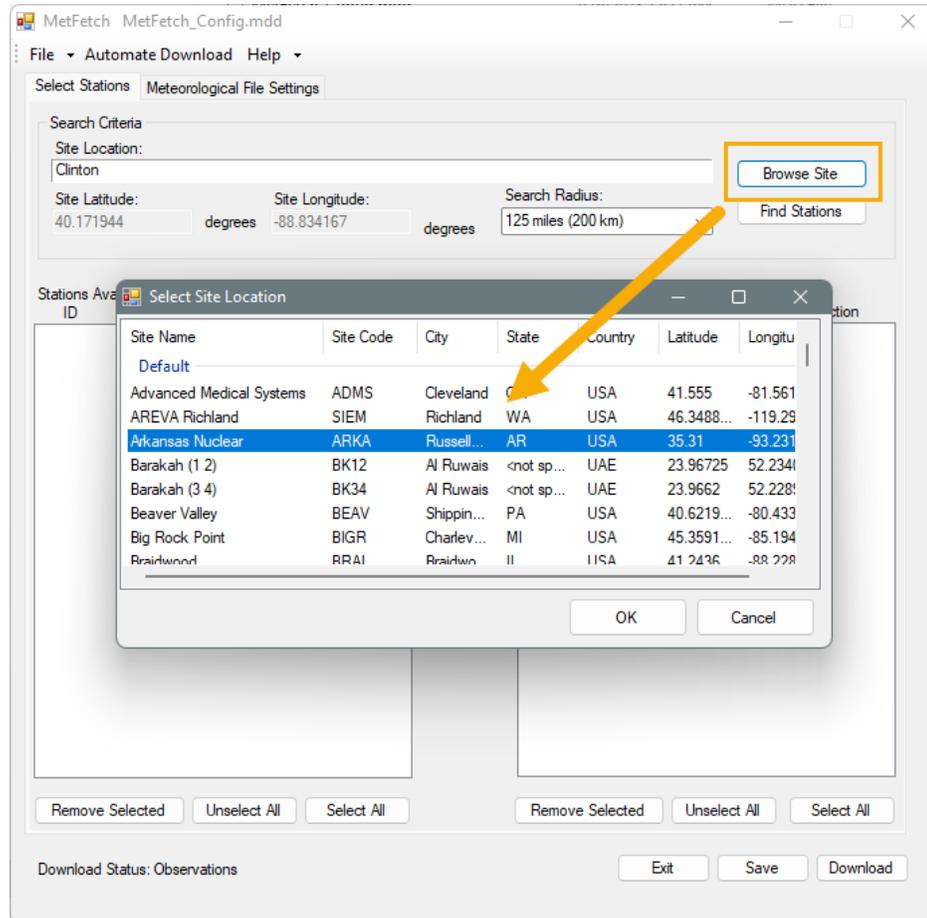


THE FIRST TIME YOU START UP METFETCH, CHECK ALL THE SETTINGS.



Those setting shown here are those recommended for routine use of the MetFetch tool with the RASCAL STDose model.

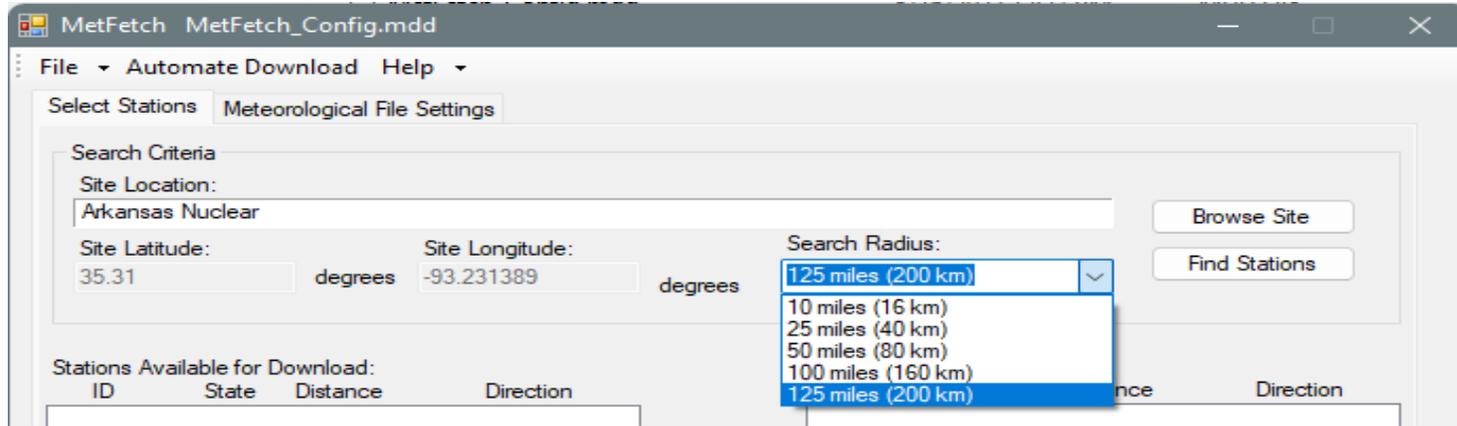
BEGIN BY USING THE BROWSE SITE BUTTON TO SEE A LIST OF ALL THE FACILITIES IN THE RASCAL DATABASE



Select the desired site.

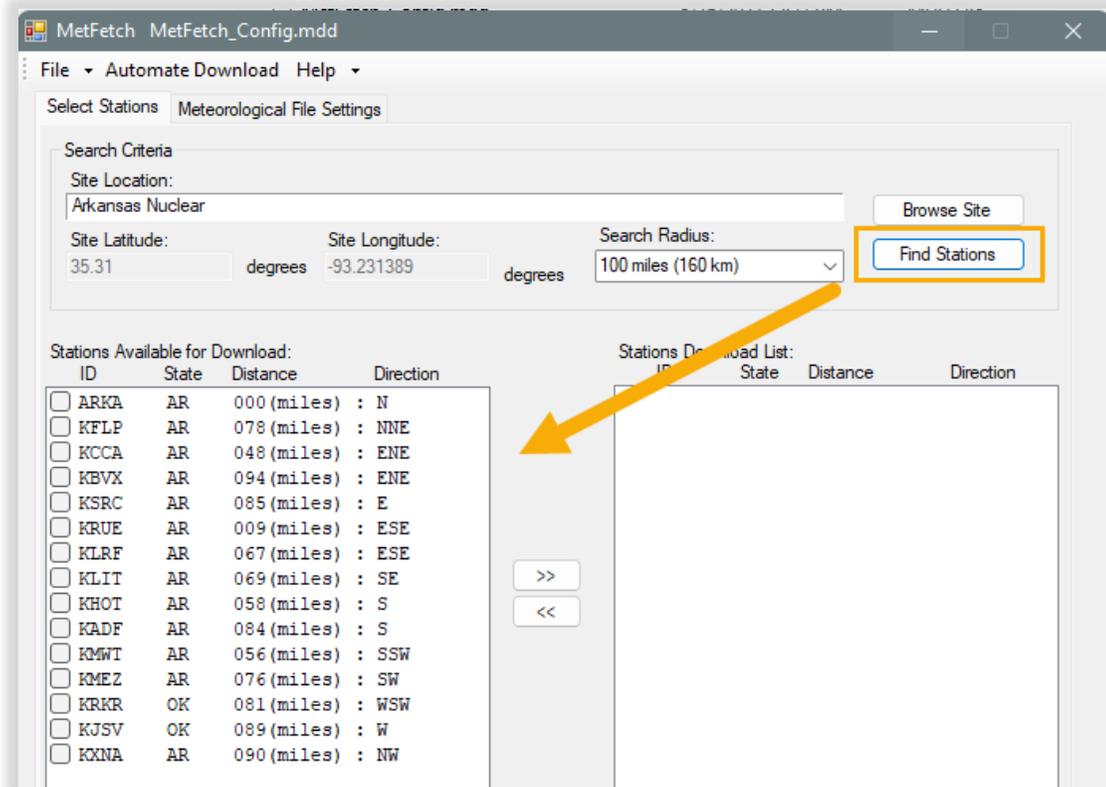
That will load the site latitude and longitude.

NEXT, SET THE STATION TYPE AND THE SEARCH RADIUS



Reducing the search radius is needed only in the U.S. for areas where there are many sources of observed weather data.

CLICK THE FIND STATIONS BUTTON



The left panel will be populated with the station IDs for all stations found within the selected search radius of the site.

This is the list of stations where data is ***available***.

SELECT FROM THE AVAILABLE STATIONS

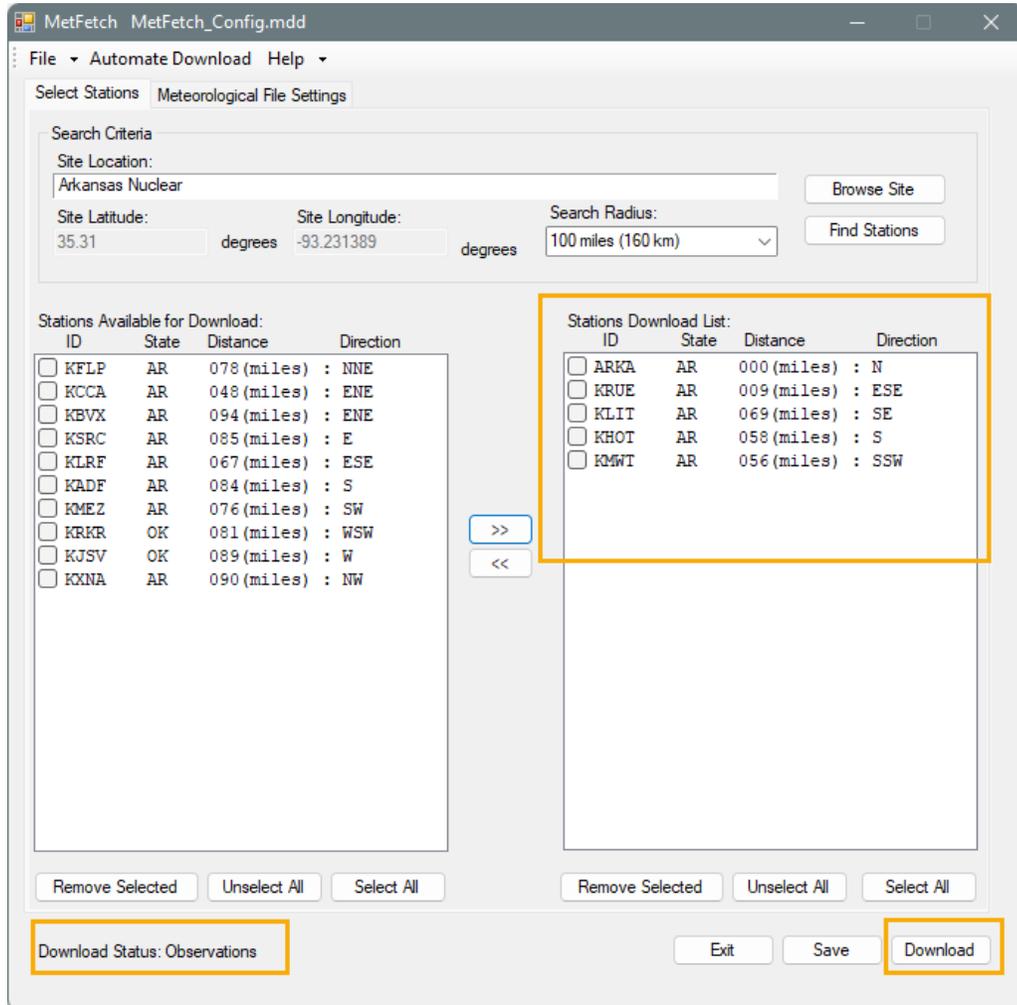
Stations Available for Download:				Stations Download List:			
ID	State	Distance	Direction	ID	State	Distance	Direction
<input checked="" type="checkbox"/>	ARKA	AR	000 (miles) : N				
<input type="checkbox"/>	KFLP	AR	078 (miles) : NNE				
<input type="checkbox"/>	KCCA	AR	048 (miles) : ENE				
<input type="checkbox"/>	KBVX	AR	094 (miles) : ENE				
<input type="checkbox"/>	KSRC	AR	085 (miles) : E				
<input checked="" type="checkbox"/>	KRUE	AR	009 (miles) : ESE				
<input type="checkbox"/>	KLRF	AR	067 (miles) : ESE				
<input checked="" type="checkbox"/>	KLIT	AR	069 (miles) : SE				
<input checked="" type="checkbox"/>	KHOT	AR	058 (miles) : S				
<input type="checkbox"/>	KADF	AR	084 (miles) : S				
<input checked="" type="checkbox"/>	KMWT	AR	056 (miles) : SSW				
<input type="checkbox"/>	KMEZ	AR	076 (miles) : SW				
<input type="checkbox"/>	KRKR	OK	081 (miles) : WSW				
<input type="checkbox"/>	KJSV	OK	089 (miles) : W				
<input type="checkbox"/>	KXNA	AR	090 (miles) : NW				

>>
<<

Toggle checkmark to select.

Use >> button to move station(s) from left pane to the right (download) pane.

FINALLY, CLICK THE DOWNLOAD BUTTON



WHAT HAPPENS DURING THE DOWNLOAD?

- A warning will be displayed that MetFetch cannot download observations for the site station.
 - That is normal – NPP sites do not provide their met data to NWS
 - It is a reminder to you to manually get site observations
- Observations are downloaded for the other stations
- Forecasts are downloaded from the nearest point to each of the stations

WHAT DO I DO AFTER THE DOWNLOAD?



- The Download status: Idle indicates the process is complete.
- You can leave the program open as you may come back to it later to get updated observations and forecasts.
- The data has been downloaded to a location on your computer where the RASCAL STDose model can find it. But you need to go and retrieve it.

NEXT STEP IS TO GET THE DOWNLOADED DATA INTO THE STDose MODEL

- Open a saved case or start running an STDose scenario that uses the same site as downloaded in MetFetch
- For our example, let's take a look at Cooper and some BWR specifics.

CLICK THE ENTER DATA BUTTON

Meteorological Data Processor

File Stations Help

Location: Arkansas - Unit 1 (ARKA)

Latitude: 35.3100° N

Longitude: 93.2314° W

Only stations within 124 miles are shown.

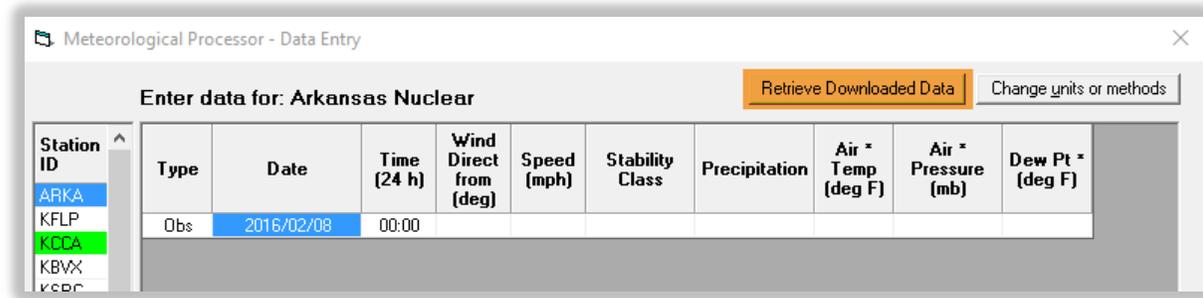
Available meteorological stations

Station ID	Distance (miles)	Bearing (deg)
ARKA	0.0	0.
KFLP	77.3	27.8
KCCA	48.1	65.6
KBVX	93.4	71.7
KSRC	84.6	94.6
KM19	117.6	78.9
KRUE	8.6	114.4
KLRF	67.0	113.9
KSGT	106.6	117.4
KLIT	69.4	125.5
KPBF	107.9	136.6
KCDH	120.0	167.1
KHOT	58.0	172.4

Observation Summary

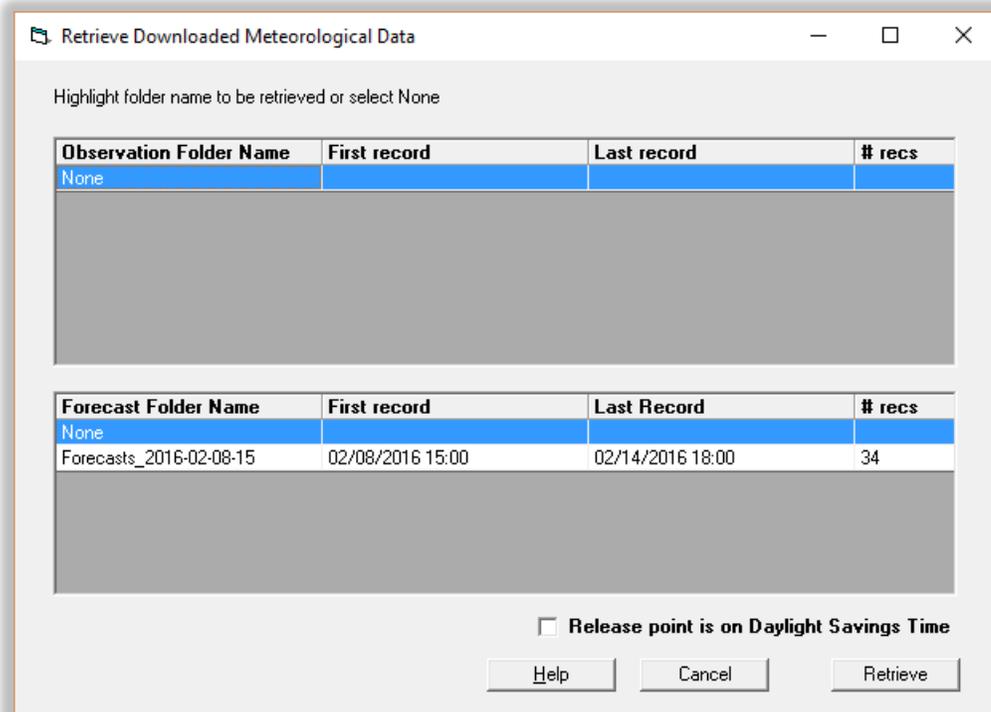
Station Summary

WITH THE SITE SELECTED IN THE STATION ID LIST, CLICK THE RETRIEVE DOWNLOADED DATA BUTTON



Note: the site ID is actually colored green also. However, since it is currently selected the blue color hides the green.

THE RETRIEVE SCREEN SHOWS A FOLDER WITH FORECAST DATA FOR THE SITE BUT NO FOLDER FOR OBSERVED DATA.



That is correct as remember we mentioned earlier that MetFetch does not have access to observations made at the site.

TO COMPLETE THE RETRIEVAL OF THE DATA FOR THE SITE:

Retrieve Downloaded Meteorological Data

Highlight folder name to be retrieved or select None

Observation Folder Name	First record	Last record	# recs
None			

Forecast Folder Name	First record	Last Record	# recs
None			
Forecasts_2016-02-08-15	02/08/2016 15:00	02/14/2016 18:00	34

Release point is on Daylight Savings Time

Help Cancel Retrieve

Click to select the available forecast data folder.

Leave the DST box unchecked; does not apply this time of year.

Click the Retrieve button.

THE FORECAST DATA THAT WAS DOWNLOADED IS LOADED INTO THE GRID FOR THE SITE

Meteorological Processor - Data Entry

Enter data for: Arkansas Nuclear

Retrieve Downloaded Data Change units or methods

Station ID	Type	Date	Time (24 h)	Wind Direct from (deg)	Speed (mph)	Stability Class	Precipitation	Air * Temp (deg F)	Air * Pressure (mb)	Dew Pt * (deg F)
ARKA	Obs	2016/02/08	00:00							
KFLP	Fcst	2016/02/08	15:00	300	23.0	Unknown	No Precip	45		19
KCCA	Fcst	2016/02/08	18:00	310	15.0	Unknown	No Precip	40		17
KBVX	Fcst	2016/02/08	21:00	310	11.5	Unknown	No Precip	35		18
KSRC	Fcst	2016/02/09	00:00	310	11.5	Unknown	No Precip	31		18
KM19	Fcst	2016/02/09	03:00	310	10.4	Unknown	No Precip	29		18
KRUE	Fcst	2016/02/09	06:00	300	10.4	Unknown	No Precip	27		17
KLRF	Fcst	2016/02/09	09:00	310	13.8	Unknown	No Precip	30		17
KSGT	Fcst	2016/02/09	12:00	300	15.0	Unknown	No Precip	40		17
KLIT	Fcst	2016/02/09	15:00	300	16.1	Unknown	No Precip	45		17
KPBF	Fcst	2016/02/09	18:00	310	10.4	Unknown	No Precip	41		17
KCDH	Fcst	2016/02/09	21:00	310	8.1	Unknown	No Precip	34		18
KHDT	Fcst	2016/02/10	00:00	310	6.9	Unknown	No Precip	31		18
KADF	Fcst	2016/02/10	03:00	310	5.8	Unknown	No Precip	28		18
KMWT	Fcst	2016/02/10	06:00	310	5.8	Unknown	No Precip	28		18
KMEZ	Fcst	2016/02/10	09:00	310	6.9	Unknown	No Precip	33		17
KDEQ	Fcst	2016/02/10	12:00	310	6.9	Unknown	No Precip	41		16
KRKR	Fcst	2016/02/10	15:00	310	6.9	Unknown	No Precip	45		16
KLSV	Fcst	2016/02/10	18:00	310	6.9	Unknown	No Precip	45		16

* Note:
For UF6 releases, air temperature, air pressure, and a measure of moisture are required.
For all other releases, air pressure and moisture are not required. However, air temperature is required if the precipitation type is snow.

Add record Sort records Delete record Delete all Print OK Cancel Help

Note, you still need to enter the observations manually.

See that stability class is Unknown. That is correct as stability is not forecast by NWS. That is OK, RASCAL will estimate it when needed.

REPEAT THE PROCESS FOR OTHER DOWNLOADED STATIONS

Station ID	Type	Date	Time (24 h)	Wind Direct from (deg)	Speed (mph)	Stability Class	Precipitation
ARKA							
KFLP	Obs	2016/02/07	05:15	0	0.0	Unknown	No Precip
KCCA	Obs	2016/02/07	05:35	0	0.0	Unknown	No Precip
KBVX	Obs	2016/02/07	05:55	0	0.0	Unknown	No Precip
KSRC	Obs	2016/02/07	06:15	0	0.0	Unknown	No Precip
KM19	Obs	2016/02/07	06:35	0	0.0	Unknown	No Precip
KRUE	Obs	2016/02/07	06:55	0	0.0	Unknown	No Precip
KLRF	Obs	2016/02/07	07:15	0	0.0	Unknown	No Precip
KSGT	Obs	2016/02/07	07:35	0	0.0	Unknown	No Precip
KLJT	Obs	2016/02/07	07:55	0	0.0	Unknown	No Precip
KPBF	Obs	2016/02/07	08:15	0	0.0	Unknown	No Precip
KCDH	Obs	2016/02/07	08:35	0	0.0	Unknown	No Precip
KHDT	Obs	2016/02/07	08:55	0	0.0	Unknown	No Precip
KADF	Obs	2016/02/07	09:15	0	0.0	Unknown	No Precip
KMWT	Obs	2016/02/07	09:35	0	0.0	Unknown	No Precip
KMEZ	Obs	2016/02/07	09:55	0	0.0	Unknown	No Precip
KDEQ	Obs	2016/02/07	10:15	0	0.0	Unknown	No Precip
KRKR	Obs	2016/02/07	10:35	0	0.0	Unknown	No Precip
KLSV	Obs	2016/02/07	10:55	0	0.0	Unknown	No Precip

Note

You will have to select folders for both observations and forecasts.

Always pick the most recent folder

AFTER RETRIEVING DATA FOR ALL STATIONS

- Click OK to return to the main screen
- Note that all now we have a significant number of records for all stations.
- Click the Process Data button to create a dataset usable by the STDose ATD models.

CONCLUSIONS

- MetFetch makes it much easier to get both observed and forecast data for multiple sites.
- Since it is automated it reduces errors
- The entire download and retrieve process would be repeated at intervals
 - NWS makes observations every hour
 - Forecast are updated every 6-12 hours

FINAL WORD ON METFETCH

- At this time it works best for U.S. sites where it has access to many observation stations and the U.S. digital forecast data.
- RASCAL 4.3.3 added access to Aviation Weather for the world but coverage is less.
- Future version of RASCAL may provide ways for countries to automatically retrieve their data.