The NexRad Radar Rainfall tool is accessed through the ET Data and Radar-based Rainfall Data link on the DBHYDRO Browser Menu.
Entering the NexRad Radar Rainfall Application

The NexRad Radar Rainfall application provides users with the ability to access rainfall data for District areas for varied spatially and temporally aggregated datasets in tabular and image formats. Elements on the main application screen include detailed and overview map images; a navigation panel (1) that allows users to select and activate different types of Query, Data, and Polygon and display different layers: a time series retrieval panel (2) that enables time-specific information to be returned; and a mapping function toolbar (3) that enables mapping functions. The District developed ArcGIS JavaScript based application for NEXRAD data retrieval.
1. Using the Navigation Panel

The navigation panel allows users to determine how information is displayed on Nexrad interface.

**Query Type Selection:**
Users can select Map Based Output or Text Based Output from Query Type Selection.

![Example showing map-based output for monthly radar rainfall data for Palm Beach County](image)

**Example showing map-based output for monthly radar rainfall data for Palm Beach County**

![Example showing text-based output for monthly radar rainfall data for Palm Beach County](image)

**Example showing text-based output for monthly radar rainfall data for Palm Beach County.**
**Type selection:**

Type selection lets user choose the type of data they need from a drop-down box of data types: Radar Rainfall, Reference ET, Potential ET, and Solar Radiation as shown below:

![Type Selection](image)

**Polygon selection:**

It has two sets of drop-down boxes: Top one allows user to select the type of Polygon that they want to query information for by selecting either County, Rain areas, AHED (Arc-Hydro Enhanced Database) Watersheds, LOSA (Lake Okeechobee Service Area) Water Basins, entire district and rain grid as shown below. Bottom drop-down box is for selecting the detail options for the polygon selection made under top drop-down box other than the entire district and rain grid.

![Options under top drop-down box](image)

![Options under bottom drop-down box](image)

**Map display is also controlled by Navigation Panel selections.**

User can activate any layers as listed under NEXRAD Map Service Layers.

![Map display](image)
Example of selecting results layer when rain grid is selected under polygon selection and map-based output for radar rainfall type data.
Example of selecting rain gauge layer, user can see all rain gauge locations
Example of selecting county layer, user can see all counties
Example of selecting Rain areas
Example of selecting AHED Watershed
Example of selecting LOSA Water Basin layer
Example of selecting entire District
Example of selecting rain grid

2. Using the Times Series Retrieval Panel

The Time Series Retrieval Panel allows user to select any date for which they want data to be retrieved. Requested data from the NexRad Radar Rainfall database is retrieved and displayed to the map image or as text output depending on user choice.

After request is complete, a message shows that request is complete, and data is retrieved for specified polygon for the specified data type for the selected date range in the specified output format.

Time series header is seen on top of the viewer.

Another note also representing the quality of radar data (Near-Real-Time, which is NRT or End-of-Month, which is EOM) is visible at the bottom of the panel.
Timeseries Header

Message showing status of the request.

Message showing quality of the data.

NEXRAD Viewer: ALL County Radar Rainfall estimates from 10/1/2017 7:00:00 AM to 10/31/2017 7:00:00 AM

Request is complete!!!
NEXRAD ALL County Radar Rainfall data from 10/1/2017 7:00:00 AM to 10/31/2017 7:00:00 AM

NEXRAD Map Service Layers
- ResultLayer
- Rain Gages
- Counties
- Rain Areas
- AHED Watersheds
- LOSA Water Basins
- Entire District
- Rain Grid
- Baseemap

Note: Present Rainfall Data include both Near Real Time and EOM data. The latest EOM data available as of Sep 20, 2017.
Detail Step by Step Instructions for Map Based Output:

Step 1: Select Map Based Output from Query Type Selection drop down menu.

Step 2: Select the type of data from Type selection drop down menu.

Step 3: Select the category of polygon (county, rain area, AHED Watershed, LOSA Water Basin, entire district or rain grid) from top drop-down menu under Polygon Selection.

Step 4: Select any specific county, rain area, AHED Watershed or LOSA Water Basin or all from the second drop-down menu under Polygon Selection. For entire district and rain grid no further breakdown option is available.

Step 5: Select the period of data request from Date Selection menu.

Step 6: Click “Search”.

Step 7: Check the Time series header along with the messages showing the status of request and quality of the data.

Step 8: Turn on the Layers from Map Service Layers including result layer and polygon selected for query.

Step 9: Look for the results on map mentioning the amount of rain for specified polygon selected for query.

Step 10: To better understand the results open the “Legend” at the bottom of the panel.
Example showing map-based output for radar rainfall for All Rain Areas.
**Detail Step by Step Instructions for Text Based Output:**

Step 1: Select Text Based Output from Query Type Selection drop down menu.

Step 2: Select the type of data from Type selection drop down menu.

Step 3: Select the period of data request from Date Selection menu.

Step 4: Select the category of polygon (Select pixel, entire district, county, LOSA Water Basin or AHED Watershed) from top drop-down menu under Polygon Selection.

Step 5: Select any specific pixel, entire district, county, LOSA Water Basin or AHED Watershed from the second drop-down menu under Polygon Selection. For entire district, no further breakdown option is available. Multiple pixels can be selected using '/'.

Step 6: Select Time interval: either 15 min, 1 hour, Daily, Event, Monthly, or Annual.

Step 7: Select Output destination either as Browser or File.

Step 8: Select Output File Format as either txt or excel.

Step 9: Click check box to include zeroes or not (currently “include zero” option is only available for batch mode).

Step 10: Click check box to include pixels in polygon or not.

Step 11: Check Batch Mode if data set request is large (over 10,000 rows), provide an email address with batch mode request.

Step 12: Click on “Get Data" tab to get output.
Screen shot for sample Input for daily radar rainfall for multiple pixels.

Sample output for the requested pixels in Browser.

<table>
<thead>
<tr>
<th>POLYGON</th>
<th>DATE - TIME</th>
<th>VALUE</th>
<th>FREQUENCY</th>
<th>QUALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>10053490</td>
<td>10/01/2017 0000</td>
<td>0.950</td>
<td>D</td>
<td>NRT</td>
</tr>
<tr>
<td>10053495</td>
<td>10/02/2017 0000</td>
<td>0.160</td>
<td>D</td>
<td>NRT</td>
</tr>
<tr>
<td>10053973</td>
<td>10/02/2017 0000</td>
<td>0.300</td>
<td>D</td>
<td>NRT</td>
</tr>
</tbody>
</table>

Note: Due to reporting issues, 15 min data from 12:00-12:15 is reported at 12:15, Hourly data from 2:00-3:00 is reported at 2:00 and daily data for 2400 hrs is reported same day at 0000.

3. Using the Map Function Toolbar

The Map Function Toolbar allows user to perform several Mapping functions including:

Zoom-In, Zoom-Out, Pan
Frequently Asked Questions:

1. Question: For what time period data is available?
   Answer: Please see the link under “Available Data”, located below “Time Series Retrieval”

2. Question: Can user extract rain gauge data from this interface?
   Answer: No, rain gauge data can be extracted from DBHYDRO Browser.

3. Question: What methodology is used for computing polygon-based rainfall?
   Answer: A weighted method based on the selected pixel areas within the polygon.

4. Question: Can user create his/her own polygon using map-based output option?
   Answer: Not yet.

5. Question: How can user get pixel-based rainfall for any pixel/pixels of users own choice?
   Answer: User can get the pixel ids from map-based output for the polygon of his own choice and then user can go to text based output and choose "select pixel" option under "polygon selection". User can enter pixel ids one by one using ‘/’.

6. Question: How many pixel ids can user enter at once?
   Answer: User can enter up to 55 pixels at once.

7. Question: How the pixels are sorted?
   Answer: They are sorted by pixel first and then by date and time.

8. Question: How can user get pixel-based rainfall for any polygon?
   Answer: Under text-based output, user can select any polygon under “polygon selection” and check “include pixels”.

9. Question: How large can a file be downloaded in batchmode?
   Answer: 2 Gb.

10. Question: Is the data always in eastern standard time or does it switch to eastern daylight savings time during daylight savings?
    Answer: All times are Eastern Standard Time.