



# Navigable Waters Protection Rule

## Antecedent Precipitation Tool Q&As

### **HOW IS THE TERM “TYPICAL YEAR” USED IN THE NAVIGABLE WATERS PROTECTION RULE?**

Under the Navigable Waters Protection Rule, determining the jurisdictional status of a waterbody is generally informed by understanding conditions in a “typical year” – *i.e.*, the normal periodic range of precipitation and other climate variables for that waterbody. Application of the typical year concept ensures that the hydrologic flows or surface water connections necessary to establish jurisdiction are characterized based on normal climatic conditions (*i.e.*, neither too wet nor too dry).

### **WHEN WILL THE AGENCIES USE THE ANTECEDENT PRECIPITATION TOOL (APT) TO DETERMINE “TYPICAL YEAR”?**

Some locations in the country have ample data to determine flow conditions or surface water connections in a “typical year” and thus, the APT or other tools may not be necessary for determining typical year conditions. In the absence of or with limited availability of site-specific flow or surface water connection data, the agencies will generally use the APT when assessing typical year conditions to inform a jurisdictional determination. An APT analysis can be conducted for point-in-time data sources, which are data sources that represent the conditions at a specific location on a specific date (*e.g.*, aerial photographs or data collected during a site visit).

### **HOW WILL THE APT BE USED TO DETERMINE “TYPICAL YEAR”?**

The APT is a tool that calculates precipitation normalcy using a standardized methodology. To calculate precipitation normalcy, the APT uses publicly available data sources to determine if precipitation, drought and other climatic conditions from the previous three months are “wet,” “normal,” or “dry” compared to precipitation patterns from the most recent 30-year record.

- The tool collects National Oceanic and Atmospheric Administration (NOAA) precipitation data for a given location from nearby weather monitoring stations and compares recent precipitation data from the period of interest to the past 30 years of precipitation data. For example, the tool can be used to compare precipitation data from the most recent summer to the range of precipitation from the past 30 summers.
- The APT is a useful way of determining if precipitation conditions are normal. The 30 years of weather data provides a distribution, showing the range of normal and extreme precipitation conditions. The APT defines “normal” as within the 30th and 70th percentiles of the 30 years of data; *i.e.*, under “normal” conditions, no less than 30% of the values are drier, and no less than 30% of the values are wetter.

In addition to providing a standardized methodology to calculate precipitation normalcy, the APT also provides other relevant information such as drought indices to inform a decision of whether precipitation, drought and other climatic conditions are normal. Thus, using the APT method can allow for reliable and predictable decisions as part of approved jurisdictional determinations, as it accounts for a rolling 30 years of precipitation data for a location and provides the agencies with accurate information to characterize a “typical year.”

## **WHAT OTHER TOOLS ARE AVAILABLE TO INFORM DETERMINATIONS OF “TYPICAL YEAR”?**

The agencies will generally use the APT method to determine “typical year,” but the agencies will also consider additional sources of data relevant to the resource being evaluated. The agencies recognize that precipitation is only one part of the water budget, and that the impact of antecedent precipitation on flows or surface water connections may vary throughout the year depending on factors like temperature and water storage. The agencies may consider data sources such as the Palmer Drought Severity Index (PDSI), which is also reported by the APT. The PDSI incorporates multiple hydrologic inputs and can capture the presence of prolonged drought. The agencies may also consider data on snowpack for certain regions and certain times of the year.

Complementary data sources and tools for determining whether flows or surface water connections occur in a “typical year” include:

- The Palmer Drought Severity Index (PDSI, <https://www.ncdc.noaa.gov/temp-andprecip/drought/historical-palmers/psi/201811-201910>)
- The Web-based Water-Budget Interactive Modeling Program (WebWIMP, <http://climate.geog.udel.edu/~wimp/>)
- NOAA’s National Snow Analyses (<https://www.nohrsc.noaa.gov/nsa/>)
- Natural Resources Conservation Service (NRCS) Snow Telemetry Data (SNOTEL, <https://www.wcc.nrcs.usda.gov/snow/>)
- Continuous flow monitors
- Physical and biological field indicators
- Remote sensing data and hydrologic models

## **HOW DOES THE APT ACCOUNT FOR TEMPORAL VARIABILITY IN CLIMATE CONDITIONS?**

The APT adjusts for changes in climatic conditions by calculating normal precipitation conditions based on a rolling thirty-year period. The thirty-year period is calculated specifically for the observation date of interest and is adjusted over time if conditions are changing.

## **WHERE CAN I ACCESS THE APT, AND WHAT SUPPORTING DOCUMENTATION IS AVAILABLE?**

The APT can be accessed and downloaded from <https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool/releases/latest>, where users can also find information about how to download the APT as well as general background information. After downloading the APT, users can

access the help page which includes the user guide and provides instructions on how to perform calculations using the APT.

### **WHO SHOULD I CONTACT IF I HAVE QUESTIONS ABOUT THE APT?**

For questions about the APT and the Navigable Waters Protection Rule, please contact the EPA at [CWAwotus@epa.gov](mailto:CWAwotus@epa.gov). Should you encounter errors with the APT, click the “Report Issue” button to send your error log to the Corps at [APT-ReportIssue@usace.army.mil](mailto:APT-ReportIssue@usace.army.mil).