

## **National Climatic Data Center Climate Data Online**

### **Motivation for Dataset Creation**

The National Climatic Data Center (NCDC) created the Climate Data Online (CDO) to offer web services that provide access to current weather and climate data. It provides free access to NCDC's archive of global historical weather and climate data in addition to station history information. API can be used by developers looking to create their own scripts or programs that use the CDO database of weather and climate data. The weather and climate data can be used as factors to generate predictive modeling for whatever purpose that the programmer has in mind. Relationships can be found between the weather/climate data and the outcome variables. The data has been used by National Centers for Environmental Information (NCEI), National Centers for Environmental Protection (NCEP), and the Geophysical Fluid Dynamics Laboratory to create high-volume numerical weather prediction and global climate models and data. More information is available here: <https://www.ncei.noaa.gov/products/weather-climate-models>.

### **Dataset Composition**

These data include quality controlled daily, monthly, seasonal, and yearly measurements of temperature, precipitation, wind, and degree days as well as radar data and 30-year climate normals. Specifically, the types of instances include daily summaries, global marine data, global summary of the month, global summary of the year, local climatological data, normal annual/seasonal, normal daily, normal hourly, normal monthly, precipitation by 15-minute intervals, precipitation hourly, and weather radar (level II and III).

### **Data Collection Process**

Data was collected directly from various local and national weather/climate stations. Specific timeframes for each instance in the data are included in the "Dataset Composition" section above, but in general the timeframe ranges from 1662 to present. No sampling strategy was involved; sampling was based on data that was available from the stations worldwide that could provide information on the instances listed in the above sections. The sample can be considered representative of the larger set (which is region-specific weather/climate information) since data is collected from various local stations that can be aggregated to represent the larger region of interest. According to the website: "Weather information is not observed and reported at all locations. There are a finite number of reporting stations across the United States and abroad. Often, data from the closest available reporting station must be used as a substitute."

### **Data Preprocessing**

The available data has not been preprocessed or cleaned but the collection process is consistent (in terms of the measurement units used). Further cleaning and organization are up to the users to achieve their goal using this dataset.

### **Dataset Distribution**

The dataset can be accessed via <https://www.ncdc.noaa.gov/cdo-web/webservices/v2#gettingStarted>. An access token is required to use the API, and each token will be limited to five requests per second and 10,000 requests per day.

### **Dataset Maintenance**

One can reach to [ncei.orders@noaa.gov](mailto:ncei.orders@noaa.gov) or call 1-828-271-4800 for further support.

### **Legal & Ethical Considerations**

This dataset does not directly relate to people. The dataset does not contain information that might be considered sensitive or confidential.