# GLOBE Curated Climate Data - 09/23-11/23

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## Abstract

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*This report shares the results of a curated data set for the atmospheric variables of precipitation and temperature for the months of September through November 2023. Theses data sets were evaluated for study site accuracy of at least 10 meters. The overall data set as well as the final curated data sets are described as well as shared access to the curated data sets.*

***Keywords***

## 2 Summary

### 2.1 GLOBE Program & GLOBE ADAT

Overview of NASA GLOBE Program

The NASA GLOBE Program, which stands for Global Learning and Observations to Benefit the Environment, is a worldwide science and education initiative that brings together students, teachers, and scientists to contribute to our understanding of the Earth's environment. The program was initiated in 1995 as a partnership between NASA, the National Science Foundation (NSF), and the National Oceanic and Atmospheric Administration (NOAA), with support from other international partners.

The primary goal of the GLOBE Program is to promote science education and scientific understanding by engaging students and teachers in hands-on, experiential learning activities related to Earth system science. Participants in the program collect environmental data and conduct scientific investigations in their local communities, contributing valuable information to a global database.

Key components of the GLOBE Program include:

Protocols: GLOBE provides standardized protocols for data collection in various scientific fields, such as atmosphere, hydrology, soil, and land cover. These protocols ensure that data collected by participants are consistent and can be used for scientific research.

Data Entry and Visualization: Participants enter their data into the GLOBE database, where it becomes part of a global dataset. The data are then made available to the public for analysis and visualization through the GLOBE website.

Collaboration: GLOBE encourages collaboration between students, teachers, and scientists at both local and international levels. This collaboration fosters a sense of global community and allows participants to engage in real-world scientific research.

- Protocol
- Date Range
- Date Count Range
- Site Name
- Country/State/Territory
- Proximity to Lakes or Rivers
- School/Teacher/Partner
- Elevation Range
- Latitude/Longitude Range
- Proximity to Latitude/Longitude

| Month/Varaible | Raw Data | Curated Data |
|---|---|---|
| September Precipitation | 5847 | 4353 |
| October Precipitation | 6412 | 4823 |
| November Precipitation | 6364 | 4540 |
| September Temperature | 441436 | 315719 |
| October Temperature | 473907 | 343695 |
| November Temperature | 455766 | 327781 |

Training and Resources: The program provides training materials, resources, and support for teachers to integrate GLOBE activities into their classrooms. This helps educators facilitate meaningful learning experiences for their students.

International Reach: The GLOBE Program currently operates in 127 countries, with a diverse range of participants contributing to a better understanding of the Earth's environment on a global scale.

The NASA GLOBE Program plays a crucial role in promoting scientific literacy, environmental awareness, and global collaboration in the field of Earth system science. It empowers students and teachers to become active contributors to scientific research while fostering a sense of stewardship for the planet.

GLOBE ADAT

GLOBE allows users to access data using the Advanced Data Access Tool (ADAT). Once users have chosen the site(s) they want to investigate, they can apply filters to narrow the data search, or download the data as a comma-separated value (CSV) file for a detailed analysis with their software of choice. The Advanced Data Access Tool also includes the option to download a summary file that compiles the amount of available data for each site of interest. Users can use this feature to determine which sites may be more data-rich and worth further investigation.

The GLOBE Advanced Data Access Tool allows users to refine searches using various parameters and then choose specific sites that contain the relevant measurements. Specific search parameters include:

Data Overview and Metadata for Data Sets

**Metadata**

Precipitation

Temperature

**2.2**

**Data Sets**

Precipitation https://tinyurl.com/4wzprra5

| | Unique Data Sites |
|---|---|
| Precipitation | 333 |
| Temperature | 446 |

| Variable | Units | Definition |
|---|---|---|
| site_id | | An identification code referencing the observation site |
| latitude | decimal degrees north | The latitude of the site where data were observed. Range: [-90, 90] |
| longitude | decimal degrees east | The longitude of the site where date were observed. Range: [-180, 180] |
| elevation | elevation | meters above sea level |
| measured_on | measured_on | dd/mm/yyyy |
| precipitations:measured at | yyyy-mm- ddTHH:MM | The date and time when the data were observed in UTC |
| precipitations:days accumulated | precipitations:days accumulated | |
| precipitations:solar noon at | yyyy-mm- ddTHH:MM | The date and time when the data were observed in UTC |
| precipitations:solar measured at | yyyy-mm- ddTHH:MM | The date and time when the data were observed in solar time which is the apparent local time based on the position of the sun at the site |
| precipitations:snowfall accumulation | millimeters (mm) | Depth of snowfall since the previous measurement of precipitation |
| precipitations:snowfall accumulation flag | | A notation if the snowfall amount is missing or was a trace Options: [missing, trace] |
| precipitations:liquid accumulation | millimeters (mm) | The depth of precipitation (rain or melted snow) since the previous measurement of precipitation |
| precipitations:liquid accumulation flag | | A notation if the liquid accumulation amount is missing or was a trace |
| precipitations:ph | | The pH of the rain and/or melted snow |
| precipitations:ph method | | The method used to measure pH Options: [pH paper, pH meter] |
| precipitations:occurrence type | | The type of precipitation observed Options: [ rain, snow, rain mixed with snow, no occurrence, unknown] |
| precipitations:vis rain depth | millimeters (mm) | The depth of rainfall since the previous measurement of precipitation |
| precipitations:vis snow depth | millimeters (mm) | The depth of snowfall since the previous measurement of precipitation |
| precipitations:vis total liquid equivalent | millimeters (mm) | The liquid equivalent depth of new precipitation (rain or melted snow) that has accumulated since last observation |

| Variable | Units | Definition |
|---|---|---|
| site_id | | An identification code referencing the observation site |
| latitude | decimal degrees north | The latitude of the site where data were observed. Range: [-90, 90] |
| longitude | decimal degrees east | The longitude of the site where date were observed. Range: [-180, 180] |
| elevation | elevation | meters above sea level |
| measured_on | measured_on | dd/mm/yyyy |
| air temps:measured at | yyyy-mm- ddTHH:MM | The date and time when the data were observed in UTC |
| air temps:solar measured at | yyyy-mm- ddTHH:MM | The date and time when the data were observed in solar time which is the apparent local time based on the position of the sun at the site |
| air temps:current temp (deg C) | air_temps:current_temp | degrees Celsius |

Temperature https://tinyurl.com/4umtefce

*Available online at:*
*https://curvenote.com/oxa:mwrsYI7OM703MZIAsBvm/k1rAyYB8QToRXMFu50Qk.5*

## References