Global Hydrology Resource Center

Data User Guide

GPM Ground Validation Total Sky Imager IPHEx

Introduction

The GPM Ground Validation Total Sky Imager IPHEx dataset was gathered during the GPM Ground Validation Integrated Precipitation and Hydrology Experiment (IPHEx) in North Carolina from May 9, 2014 through June 14, 2014. The dataset includes data from the total sky imager instrument which is part of the NASA Goddard Space Flight Center (GSFC) ACHIEVE ground-based mobile laboratory. It is an automatic, full-color sky imager system providing real-time, full color digital images of daytime sky conditions. Data files are available in the JPEG image format.

Citation

Tsay S., A. Loftus and P. Pantina. 2015. GPM Ground Validation Total Sky Imager IPHEx [indicate subset used]. Dataset available online, [https://fcportal.nsstc.nasa.gov/pub/gpm_validation/iphex/AllSkyImager/] from the NASA Global Hydrology Resource Center DAAC, Huntsville, Alabama, U.S.A. doi: http://dx.doi.org/10.5067/GPMGV/IPHEX/TOTALSKYIMAGER/DATA101.

Keywords:

GHRC, NASA, GPM GV, ACHIEVE, IPHEX; optical rain gauge, tipping bucket rain gauge; precipitation rate, temperature, cumulative precipitation;

Campaign

The Global Precipitation Measurement (GPM) mission Ground Validation (GV) campaign used a variety of methods for validation of GPM satellite constellation measurements prior to launch of the GPM Core Satellite, which launched on February 27th, 2014. The validation effort included numerous GPM-specific and joint-agency/international external field campaigns, using state of the art cloud and precipitation observational infrastructure (polarimetric radars, profilers, rain gauges, disdrometers). Surface rainfall was measured by very dense rain gauge and

disdrometer networks at various field campaign sites. These field campaigns accounted for the majority of the effort and resources expended by Global Precipitation Measurement (GPM) mission Ground Validation (GV). More information about the GPM mission is available at http://pmm.nasa.gov/GPM.

The GPM Integrated Precipitation and Hydrology Experiment (IPHEx) was held in North Carolina during the months of April-June 2014. The goal of IPHEx was to characterize warm season orographic precipitation regimes and the relationship between precipitation regimes and hydrologic processes in regions of complex terrain. The IPHEx campaign was part of the development, evaluation, and improvement of remote-sensing precipitation algorithms in support of the GPM mission through NASA GPM GV field campaign (IPHEX_GVFC) and the evaluation of Quantitative Precipitation Estimation (QPE) products for hydrologic forecasting and water resource applications in the Upper Tennessee, Catawba-Santee, Yadkin-Pee Dee, and Savannah river basins (IPHEX-HAP, H4SE). NOAA Hydrometeorology Testbed (HTM) has synergy with this project. More information about IPHEx is available at http://gpm.nsstc.nasa.gov/iphex/.

Instrument Description

The Total Sky Imager TSI880 instrument was located near Maggie Valley, North Carolina, USA lat: 35.5198, lon:-83.0947 (lat: 35° 31' 11.2794" lon: 83° 5' 40.92") during the IPHEx campaign. It provides real-time, full color digital images of daytime sky conditions. More information about this instrument is available at http://www.yesinc.com/products/data/tsi880/.

Investigators

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File Naming Convention

The IPHEx Total Sky Imager dataset files are named with the following convention:

IPHEx_TSI880_totalskyimager_YYYMMDDHHMMSS.jpg

Where,

IPHEx = GPM Integrated Precipitation and Hydrology Experiment
TSI880 = instrument model number
totalskyimager = instrument (Yankee Scientific Total Sky Imager TSI880)
YYYMMDDHHMMSS = year, month, day, hour, minute, and second of data
jpg = data file format (jpeg image)

Data Format Description

The GPM Ground Validation Total Sky Imager IPHEx data is available in JPEG image format with a data processing level of 1B. More information about NASA data processing levels can be found at http://science.nasa.gov/earth-science/earth-science-data/data-processing-levels-for-eosdis-data-products/.

Contact Information

To order these data or for further information, please contact:

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