Data User Guide

# *GPM Ground Validation Mission Reports GCPEx*

## Introduction

The Global Precipitation Measurement (GPM) Ground Validation Mission Reports for the GPM Cold-season Precipitation Experiment (GCPEx) dataset contains reports filed by scientists during the GCPEx campaign from January 15 through February 29, 2012. This dataset includes the Plan of the Day (POD), Weather Forecast, instrument status, and reports filed by the Instrument Scientist, Mission Manager, and Mission Scientist. In addition, a summary file of GCPEx Case Dates and types provides information on the Event number, the start and end times, snow water equivalent (SWE) amounts, precipitation type, and synoptic conditions at the time.

## Citation

Petersen, Walter A. 2016. GPM Ground Validation Mission Reports GCPEx [indicate subset used]. Dataset available online [https://fcportal.nsstc.nasa.gov/pub/gpm_validation/gcpex/reports/] from the NASA EOSDIS Global Hydrology Resource Center Distributed Active Archive Center, Huntsville, Alabama, U.S.A. doi: http://dx.doi.org/10.5067/GPMGV/GCPEX/REPORTS/DATA101

## Keywords:

GHRC, GPM GV, NASA, GCPEx; mission reports; instrument scientists, mission manager, mission scientist, plan of the day, and weather forecasts;

## Campaign

The GPM Cold-season Precipitation Experiment (GCPEx) occurred in Ontario, Canada, January 15, 2012 through February 29, 2012. GCPEx addressed shortcomings in GPM snowfall retrieval algorithm by collecting microphysical properties, associated remote sensing observations, and coordinating model simulations of precipitating snow. Datasets were collected toward achieving the

GCPEx overarching goal to characterize the ability of multi-frequency active and passive microwave sensors to detect and estimate falling snow. Collectively these GCPEx datasets provide a high quality, physically-consistent and coherent datasets suited to the development and testing of GPM snowfall retrieval algorithm physics. Additional information can be found at http://gpm.nsstc.nasa.gov/gcpex/.

## Instrument Description

During the GCPEx campaign, data was collected by ground-based and airborne instrument platforms. Table 1 outlines the aircraft used during the campaign and the associated instruments aboard. Additional information on the instruments used can be found at http://gpm.nsstc.nasa.gov/gcpex/instruments.html.

**Table 1. Aircraft Instruments**

| Aircraft | Instruments On Board |
|---|---|
| DC-8 Aircraft | DC-8, APR-2, CoSMIR |
| UND Citation Aircraft | 2DC, CDP, CIP, CN Counter, CPI, Dew Point (chilled mirror), HVPS-3, King Hot wire, Nevzorov, Pressure, Rosemount icing rate meter, Temperature, Water Vapor, Winds |

Ground-based instruments were situated at five site locations. Table 2 outlines the instruments used at each of these site locations.

**Table 2. Ground Site Instruments**

| Instrument | CARE | Huronia | Morton | Skydive | Steamshow |
|---|---|---|---|---|---|
| 2DVD | X | | X | X | X |
| Ceilometer CT25K | | X | | | |
| ADMIRARI MRR | X | | | | |
| Cologne Dual Polarization Radiometer | X | | | | |
| D3R | X | | | | |
| Gamma SWE | X | X | | | |
| Ground-Staring Radiometer | X | | | | |
| Hot Plates | X | X | X | X | X |
| L-Band SWE | X | | | | |
| Met Tower | X | X | X | X | X |
| MRR | X | | X | X | X |

| | | | | | |
|---|---|---|---|---|---|
| Parsivel Disdrometers | X | X | X | X | X |
| Pluvios | X | X | X | X | X |
| POSS | X | X | | X | X |
| PVI | X | X | | | X |
| Radiometer TP3000 | X | | | | |
| Visibility Meter FD12P | | X | | | |
| Soundings | X | | | | |
| W-Band Vertically Pointing | X | | | | |
| Webcam | X | X | X | X | X |
| 915 MHz Wind Profiler | X | | | | |
| X-Band Vertically Pointing | X | | | | |

## Investigators

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## File Naming Convention

GCPEX_CaseSummaryTable.pdf is contains the event numbers and synoptic context.

Individual report files in this dataset are illustrated by a representative collection of examples listed below:

[instrument]_[flight date]_[submission date].pdf *
mission_manager_[take off time].pdf **
mission_scientist_[mission date]_[report submission date].pdf
POD_YYYY-MM-DD_HH-MM.pdf *
weather-forecast-YYYY-MM-DD_HH-MM.pdf *

Where:

[flight date] = YYYY-MM-DD (year, month, day)
[submission date] = YYYY-MM-DD_HH-MM (year, month, day, hour, minute)
[take off time] = YYYY-MM-DD_HHMM (year, month, day, hour, minute)
[mission date] = YYYY-MM-DD (year, month, day)
[report submission date] = YYYY-MM-DD_HHMM (year, month, day, hour, minute)
POD = Plan of the Day
YYYY-MM-DD_HH-MM = year, month, day, hour, minute
pdf = Acrobat Portable Document Format (Adobe Systems Incorporated)

*Some files provided are compressed into .tar files.
** Some files provided are compressed into .zip files.

## Data Format Description

The GPM Ground Validation Mission Reports GCPEx dataset consists of reports in Acrobat Portable Document Format (.pdf) format and Tape ARchive (.tar) files. Reports with associated attachments have been bundled with the attachments into .tar files. The attachments are in various formats including PowerPoint (.pptx), Joint Photographic Experts Group (.jpg), Portable Network Graphics (.png), and Microsoft Word (.docx).

## Contact Information

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

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