



Data User Guide

GPM Ground Validation Two-Dimensional Video Disdrometer (2DVD) HyMeX

Introduction

The GPM Ground Validation Two-Dimensional Video Disdrometer (2DVD) HyMeX measured the size of raindrops and also recorded two side view optical images of each raindrop. The 2DVD data were collected as part of the HYdrological cycle in Mediterranean EXperiment (HyMeX) campaign from September 30 to November 12, 2012. The data are in ASCII format.

Citation

Petersen, W. A. and P. N. Gatlin. 2016. GPM Ground Validation Two-Dimensional Video Disdrometer (2DVD) HyMeX [indicate subset used]. Dataset available online [ftp://gpm.nsstc.nasa.gov/gpm_validation/related_projects/hymex/2dvd/] 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/HYMEX/2DVD/DATA301>.

Keywords:

GHRC, GPM GV, HyMeX; Mediterranean, Alés, France, Rome, Italy; radar, two-dimensional video disdrometer, vertical velocity, drop size distribution, rainfall rate, liquid water content;

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 HYdrological cycle in Mediterranean EXperiment (HyMeX) aimed to improve the understanding, quantification and modelling of the hydrological cycle in the Mediterranean, with emphasis on the predictability and evolution of extreme weather events, inter-annual to decadal variability of the Mediterranean coupled system, and associated trends in the context of global change. Furthermore, this campaign aimed to improve observational and modelling systems, better predict extreme events, simulate the long-term water-cycle, and provide guidelines for adaptation measures. Special Observation Period 1 (SOP1), which was from September 5 to November 6, 2012, was dedicated to heavy precipitation and flash-flooding. More information about HyMeX is available at <http://www.hymex.org/>.

Instrument Description

The GPM Ground Validation Two-Dimensional Video Disdrometer (2DVD) measured the size of raindrops and also recorded two side view optical images of each raindrop. Used for in situ measurements of precipitation drop size distribution, this instrument recorded orthogonal image projections of raindrops as they crossed its sensing area and provided velocity and shape of individual raindrops. These data were obtained during the HYdrological cycle in Mediterranean EXperiment (HyMeX) Special Observations Period (SOP), which took place in the northern Mediterranean region during the fall of 2012. An MRR was deployed in Alés, France and Rome, Italy. The dataset covers the period of September 30, 2012 through November 12, 2012, but each MRR deployed may not contain data during the entirety of this period.

Site # / Instrument	Site	Site Coordinates	Latitude	Longitude	Altitude (m)
SN35	Alés, France	N44°08'13.8", E04°05'51.3"	44.137167	4.097583	150
SN36, APU, TB	Rome, Italy	N41°53'37.3", E12°29'37.8"	41.893694	12.493833	076

MRR2-2DVD co-located instruments

More detailed information about the GPM Ground Validation NASA Micro Rain Radar (MRR) HyMeX is available at:

ftp://gpm.nsstc.nasa.gov/gpm_validation/related_projects/hymex/2dvd/doc/Data Format 2dvd hymex.pdf.

Investigators

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File Naming Convention

The 2DVD dataset files are named with the following convention:

hymex_2dvd_[sn]_[date]_[site]_[latitude_longitude].tar

Where,

[sn] = serial number of 2DVD (i.e. SN35)

[date] = YYYYmmDD (e.g., 20110422)

[site] = geographical region of 2DVD deployment

[latitude_longitude]=geographic location of instrument (e.g.,
N363442.07_W0972640.90 is North 36°34'42.07" and West 97°26'40.90")

Data Format Description

The GPM Ground Validation Two-Dimensional Video Disdrometer (2DVD) HyMeX data are available in ASCII format. The data processing level for the drop-by-drop data files is 2. The drop count, drop size distribution, integral parameters, and event summaries data files are level 3. 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/>.

References

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2015. HYdrological cycle in Mediterranean EXperiment (HyMeX) website:
<http://www.hymex.org/>

Contact Information

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

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