

----- GENERAL INFORMATION -----

DATA TITLE: MJO Task Force YOTC-GASS data set

PROJECT TITLE: Interactions of large-scale dynamics and MJO propagation in multi-model simulations

DATA ABSTRACT: See MJOTF_table_ref.pdf.

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ASSOCIATED PUBLICATIONS:

Heath A., A. O. Gonzalez, M. Gehne, and A. Jaramillo (2021), Interactions of large-scale dynamics and MJO propagation in multi-model simulations, accepted, Journal of Geophysical Research: Atmospheres.

COLLECTION INFORMATION (the associated manuscript):

Time period(s): August 2018–August 2020

Location(s): Iowa State University, Ames, IA, USA

----- FILE DIRECTORY -----

This data set is a subset of the MJO Task Force & Year of Tropical Convection (YOTC) and the GEWEX Atmosphere System Study (GASS) 20-year climate model simulation data. There are 25 folders that represent the 25 climate model simulations produced by 23 models (three simulations use the same model) from different organizations. The relationships between the simulations are detailed with associated references in MJOTF_table_ref.pdf.

----- FILE LIST-----

Each folder contains data in netCDF format (see <https://www.unidata.ucar.edu/software/netcdf/>) of the same measurements in the same units, etc. Each folder contains:

1. geopotential data (units: meters per second squared, file: geop_daily.nc)
2. vertical pressure velocity data (units: Pascals per second, file: om_daily.nc)
3. precipitation rate data (units: millimeters per day, file: pr_daily.nc)
4. specific humidity data (units: grams of water vapor per kilogram, file: shum_daily.nc)
5. temperature data (units: degrees Kelvin, file name: ta_daily.nc)
6. zonal velocity data (units: meters per second, file: ua_daily.nc)
7. meridional velocity data (units: meters per second, file: va_daily.nc)

All data files have 20 years (1991–2010) of daily averaged data on a 365-day calendar for latitudes 30S to 30N and all longitudes at 2.5 by 2.5 degree horizontal resolution (25 by 144 grid points). There are also 22 pressure levels (1000, 975, 950, 925, 900, 850, 800, 750, 700, 650, 600, 550, 500, 450, 400, 350, 300, 250, 200, 150, 100, 50 hPa). Exceptions: 1) PNU_CFS does not supply specific humidity data, and 2) precipitation data spans 60S to 60N (49 instead of 25 latitude grid points).

Missing Data Codes: All missing data is coded with the _FillValue = -9999.

----- METHODS AND MATERIALS -----

----- DATA COLLECTION METHODS & DATA PROCESSING METHODS -----

For information about the data collection and processing methods, the user is directed to the MJOTF YOTC GASS Project webpages:

<http://wgne.meteoinfo.ru/activities/on-going-activities/wgne-mjo-task-force/> and <https://www.cgd.ucar.edu/projects/yotc/mjo/vertical.html>. In addition, the users can find more information about each individual model simulation in the references in MJOTF_table_ref.pdf.

----- SOFTWARE -----

All scripts the project used to produce the figures in the associated manuscript were written mainly in NCL and secondarily in Python. See details below for NCL.

Name: NCAR Command Language

Version: 6.6.2, Release Date: February 28, 2019

System Requirements: see URL

URL: <https://www.ncl.ucar.edu/>

Developer: NCAR (National Center for Atmospheric Research), Boulder, CO, USA

----- LICENSING -----

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