



JRA55_CDFDM_S14FD global daily meteorological forcing data

1. IDENTIFICATION INFORMATION

Name	JRA55_CDFDM_S14FD global daily meteorological forcing data
Abbreviation	JCS
DOI	doi:10.20783/DIAS.671 [https://doi.org/10.20783/DIAS.671]
Metadata Identifier	JRA55_CDFDM_S14FD20250610085647-DIAS20221121113753-en

2. CONTACT

2.1 CONTACT on DATASET

Name	Toshichika Iizumi
Organization	Institute for Agro-Environmental Sciences, National Agriculture and Food Research Organization
Address	3-1-3 Kannondai, Tsukuba, Ibaraki, 305-8604, Japan
TEL	029-838-8201
E-mail	iizumi.toshichika765@naro.go.jp

2.2 CONTACT on PROJECT

2.2.1 Data Integration and Analysis System

Name	DIAS Office
Organization	Japan Agency for Marine-Earth Science and Technology
Address	3173-25, Showa-Cho, Kanazawa-ku, Yokohama-shi, Kanagawa, 236-0001, Japan
E-mail	dias-office@diasjp.net

3. DOCUMENT AUTHOR

Name	Toshichika Iizumi
Organization	Institute for Agro-Environmental Sciences, National Agriculture and Food Research Organization
E-mail	iizumi.toshichika765@naro.go.jp

4. DATASET CREATOR

Name	Toshichika Iizumi
Organization	Institute for Agro-Environmental Sciences, National Agriculture and Food Research Organization
E-mail	iizumi.toshichika765@naro.go.jp

5. DATE OF THIS DOCUMENT

2025-06-10

6. DATE OF DATASET

creation : 2025-06-10

7. DATASET OVERVIEW

7.1 Abstract

JRA55-CDFDM-S14FD (referred to as JCS for simplicity) is a global daily meteorological forcing data. This is the successor to the previously developed meteorological forcing data S14FD. Based on S14FD's baseline climatology of 1961-2000, the JRA-55 reanalysis has been bias-corrected using the cumulative distribution function-based method (CDFDM). It provides daily values for 10 types of meteorological variables for the period 1958–2023. Land areas contain corrected values, while sea areas and Antarctica contain reanalysis values. Variables include daily mean 2m air temperature (tave2m, °C), daily maximum 2m air temperature (tmax2m, °C), daily minimum 2m air temperature (tmin2m, °C), daily total precipitation (precsfc, mm d⁻¹), daily mean downward shortwave radiation flux (dswrfsfc, W m⁻²), daily mean downward longwave radiation flux (dlwrfsfc, W m⁻²), daily mean 2m relative humidity (rh2m, %), daily mean 2m specific humidity (spfh2m, kg kg⁻¹), daily mean 10m wind speed (wind10m, m s⁻¹) and daily mean surface pressure (pressfc, hPa).

7.2 Topic Category(ISO19139)

climatologyMeteorologyAtmosphere

7.3 Temporal Extent

Begin Date	1958-01-01
End Date	2023-12-31
Temporal Characteristics	Daily

7.4 Geographic Bounding Box

North latitude	bound	90
West longitude	bound	-180
Eastbound longitude		180
South latitude	bound	-90

7.5 Grid

Dimension Name	Dimension Size (slice number of the dimension)	Resolution Unit
column	720	0.5 (deg)
row	360	0.5 (deg)
vertical	1	1 (level)

7.6 Geographic Description

7.7 Keywords

7.7.1 Keywords on Dataset

Keyword Type	Keyword	Keyword thesaurus Name
theme	Atmosphere > Atmospheric Temperature > Surface Air Temperature, Atmosphere > Precipitation > Precipitation Rate, Atmosphere > Atmospheric Radiation > Shortwave Radiation, Atmosphere > Atmospheric Water Vapor > Humidity, Atmosphere > Atmospheric Winds > Surface Winds, Atmosphere > Atmospheric Pressure > Surface Pressure, Atmosphere > Atmospheric Radiation > Longwave Radiation	GCMD_science

7.7.2 Keywords on Project

7.7.2.1 Data Integration and Analysis System

Keyword Type	Keyword	Keyword thesaurus Name
theme	DIAS > Data Integration and Analysis System	No_Dictionary

7.8 Online Resource

File download from DIAS : <https://data.diasjp.net/dl/storages/filelist/dataset:523>

7.9 Data Environmental Information

7.10 Distribution Information

name	version	specification
NetCDF	4	

8. DATA PROCESSING

8.1 Data Processing (1)

8.1.1 General Explanation of the data producer's knowledge about the lineage of a dataset

JCS global daily meteorological forcing is based based on the JRA-55 reanalysis data.

8.1.2 Data Source

Data Source Citation Name	Description of derived parameters and processing techniques used
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9. DATA REMARKS

10. DATA POLICY

10.1 Data Policy by the Data Provider

If data are used, the relevant reference(s) or dataset DOI should be cited. For the reference(s), see the References section.

10.2 Data Policy by the Project

10.2.1 Data Integration and Analysis System

If data provider does not have data policy, DIAS Terms of Service (<https://diasjp.net/en/terms/>) and DIAS Privacy Policy (<https://diasjp.net/en/privacy/>) apply.

If there is a conflict between DIAS Terms of Service and data provider's policy, the data provider's policy shall prevail.

11. LICENSE



CC-BY 4.0 : Creative Commons Attribution 4.0 International [<https://creativecommons.org/licenses/by/4.0/>]

12. DATA SOURCE ACKNOWLEDGEMENT

12.1 Acknowledge the Data Provider

No acknowledgement is required.

12.2 Acknowledge the Project

12.2.1 Data Integration and Analysis System

If you plan to use this dataset for a conference presentation, paper, journal article, or report etc., please include acknowledgments referred to following examples. If the data provider describes examples of acknowledgments, include them as well.

” In this study, [Name of Dataset] provided by [Name of Data Provider] was utilized. This dataset was also collected and provided under the Data Integration and Analysis System (DIAS), which was developed and operated by a project supported by the Ministry of Education, Culture, Sports, Science and Technology. ”

13. REFERENCES

Papers with discriptions about JCS:

Iizumi, T., Iseki, K., Ikazaki, K., Sakai, T., Shiogama, H., Imada, Y., Batieno, B. J. (2024) Increasing heavy rainfall events and associated excessive soil water threaten a protein-source legume in dry environments of West Africa. *Agricultural and Forest Meteorology*, 344, 109783. <https://doi.org/10.1016/j.agrformet.2023.109783>

Iizumi, T., Tsubo, M., Maruyama, A., Tahir, I. S. A., Kurosaki, Y., Tsujimoto, H. (2023) High-temperature indicators for capturing the impacts of heat stress on yield: lessons learned from irrigated wheat in the hot and dry environment of Sudan. *Climate Research*, 89, 85-98. <https://doi.org/10.3354/cr01709>

Iizumi, T., Ali-Babiker, IE.A., Tsubo, M., Tahir, I. S. A., Kurosaki, Y., Kim, W., Gorafi, Y. S. A., Idris, A. A. M., Tsujimoto, H. (2021) Rising temperatures and increasing demand challenge wheat supply in Sudan. *Nature Food* 2, 19–27. <https://doi.org/10.1038/s43016-020-00214-4>

See for the following paper about the details of JRA-55 Reanalysis:

Kobayashi, S., Ota, Y., Harada, Y., Ebata, A., Moriya, M., Onoda, H., Onogi, K., Kamahori, H., Kobayashi, C., Endo, H., Miyaoka, K., Takahashi, K. (2015) The JRA-55 Reanalysis: General specifications and basic characteristics. *Journal of the Meteorological Society of Japan*, 93, 5-48. <https://doi.org/10.2151/jmsj.2015-001>

Harada, Y., Kamahori, H., Kobayashi, C., Endo, H., Kobayashi, S., Ota, Y., Onoda, H., Onogi, K., Miyaoka, K., Takahashi, K. (2016) The JRA-55 Reanalysis: Representation of atmospheric circulation and climate variability. *Journal of the Meteorological Society of Japan*, 94, 269-302. <https://doi.org/10.2151/jmsj.2016-015>

See for the following paper about the details of SI4FD meteorological forcing data used as the baseline of JCS:

Iizumi, T., Takikawa, H., Hirabayashi, Y., Hanasaki, N., Nishimori, M. (2017) Contributions of different bias-correction methods and reference meteorological forcing data sets to uncertainty in projected temperature and precipitation extremes. *Journal of Geophysical Research-Atmospheres*, 122, 7800–7819. <https://doi.org/10.1002/2017JD026613>

See for the following paper about the details of the CDFDM bias-correction method:

Iizumi, T., Nishimori, M., Dairaku, K., Adachi, S. A., Yokozawa, M. (2011) Evaluation and intercomparison of downscaled daily precipitation indices over Japan in present-day climate: Strengths and weaknesses of dynamical and bias correction-type statistical downscaling methods, *Journal of Geophysical Research-Atmospheres*, 116, D01111. <https://doi.org/10.1029/2010JD014513>