Global crop phenological events of major crops

1. IDENTIFICATION INFORMATION

Name	Global crop phenological events of major crops
Edition	version 1
Abbreviation	GCPE
DOI	doi:10.20783/DIAS.643 [https://doi.org/10.20783/DIAS.643]
Metadata Identifier	global_crop_phenology_20002025051415 2159-DIAS20221121113753-en

2. CONTACT

2.1 CONTACT on DATASET

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2.2.1 Data Integration and Analysis System

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5. DATE OF THIS DOCUMENT

2025-05-14

6. DATE OF DATASET

creation : 2022-03-14

7. DATASET OVERVIEW

7.1 Abstract

Using daily weather data for the period 1996 2005 as the inputs to a rule-based agro-climatic resources model, we derive the GPCW, a global dataset of crop phenological windows for maize, soybean, wheat and rice around the year 2000 with a spatial resolution of 0.5° in latitude and longitude. This dataset includes the average dates of sowing, emergence, maturity and harvesting as well as the average dates of silking for maize, flowering for soybean, heading and flowering for wheat, and transplanting, heading and flowering for rice. Distinctions are made between irrigated and rainfed conditions, winter and spring wheat, and single-, dry- and wet-season rice. The daily likelihoods of the occurence of crop phenological events available in the dataset can be converted into peak dates of the occurence of a crop phenological event of interest, with user-defined thresholds.

7.2 Topic Category(ISO19139)

farming

7.3 Temporal Extent

Begin Date	2000-01-01
End Date	2000-12-31
Temporal Characteristics	Daily

7.4 Geographic Bounding Box

North bound latitude	90
West bound longitude	-180
Eastbound longitude	180
South bound latitude	-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	Agriculture > Agricultural Plant Science > Cropping Systems	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:643

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

The rule-based agro-climatic resources model determines likelihoods of the occurence of a crop phenological event of interest at a given location based on the sequence of rules and a 10-yr

period of daily weather data. The rules describe climatic requirements in terms of heat, chilling, moisture and field workability. Rainfed and irrigated conditions are separately considered. The likelihood values indicate a higher possible occurence of a crop phenological event of interest under a given weather pattern and soil hydrologic condition.

8.1.2 Data Source

Data Source Citation Name	Description of derived parameters and processing techniques used

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

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

Mori, A., Doi, Y., Iizumi, T. (2023) GCPE: The global dataset of crop phenological events for agricultural and earth system modeling, Journal of Agricultural Meteorology, 79, 120-129. https://doi.org/10.2480/agrmet.D-23-00004