DIAS Daily 8km Normalized Difference Vegetation Index (NDVI) from 1982 to 2000 over the Japan Islands(beta-version)

1. IDENTIFICATION INFORMATION

Name	Daily 8km Normalized Difference Vegetation Index (NDVI) from 1982 to 2000 over the Japan Islands(beta-version)
Edition	Beta-Version
Abbreviation	D8NDVI-J
DOI	doi:10.20783/DIAS.40 [https://doi.org/10.20783/DIAS.40]
Metadata Identifier	D8NDVI_J20230727051311-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

2023-07-27

6. DATE OF DATASET

publication : 2008-01-10

7. DATASET OVERVIEW

7.1 Abstract

This dataset contains the daily value of the Normalize Difference Vegetation Index (NDVI) from 1982 to 2000 over the terrestrial areas of the Japan Islands that was derived from Pathfinder AVHRR Land (PAL) dataset. The horizontal resolution is 8 x 8 km. To reduce the cloud contamination, the original daily NDVI was temporally smoothed by Temporal Window Operation (TWO) method.

7.2 Topic Category(ISO19139)

biota

7.3 Temporal Extent

Begin Date	1982-01-01
End Date	2000-12-31
Temporal Characteristics	Daily

7.4 Geographic Bounding Box

North bound latitude	55
West bound longitude	110
Eastbound longitude	160
South bound latitude	15

7.5 Grid

7.6 Geographic Description

7.7 Keywords

7.7.1 Keywords on Dataset

Keyword Type	Keyword	Keyword thesaurus Name
theme	Ecosystems	GEOSS
theme	Biosphere > Vegetation > Vegetation Index	GCMD_science
place	Asia > Eastern Asia > Japan	Country

7.7.2 Keywords on Project

7.7.2.1 Data Integration and Analysis System

Keyword Type	Keyword	Keyword thesaurus Name
theme	DIAS &gt; Data Integration and Analysis System	No_Dictionary

7.8 Online Resource

: http://www.godac.jamstec.go.jp/catalog/data_catalog/gd_metaview_e.php?data_name=

file download : https://data.diasjp.net/dl/storages/filelist/dataset:40

7.9 Data Environmental Information

7.10 Distribution Information

name	version	specification
binary	no information	

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

Refer the original "readme" file (pal_tile_readme.pdf) about the detail of the Pathfinder AVHRR Land (PAL) data that was the source dataset for the present data product.

The original NDVI values of PAL data were smoothed by two processes: horizontal smoothing and temporal smoothing (Temporal Window Operation: TWO). Suzuki and Kondoh (2005) (PDF file is in this folder) described about the process of daily NDVI data by TWO over Eurasia. In Suzuki and Kondoh (2005), the window size was set at 15 days, while that of the present dataset for the Japan Islands was set at 20 days.

- Smoothing for Horizontal Domain

Original PAL NDVI data involve noises which are apparent on a NDVI distribution. To reduce those noises, Neighbor 8-pixel Comparison Method (NECM) was applied. If the difference between a NDVI in a pixel (pixel A) and the mean NDVI of the 8 pixels (pixels E) around the pixel A exceeds a threshold, the NDVI at the pixel A is substituted by the mean NDVI of the pixels E. Threshold was set at 0.3.

- Temporal Window Operation (TWO)

To reduce the cloud contamination from the daily NDVI value, we employed the TWO method developed by Park et al. (1999) which is a method to find optimized upper envelop line of the NDVI seasonal change. The temporal resolution of the original time series is conserved after the process.

The algorithm of TWO starts at the beginning of the NDVI (start point) time series, and checks whether the NDVI for the current NDVI is equal to or greater than the previous NDVI value within the window, which includes some NDVI values (the number of values is constant, that is, the window size is fixed) of the time series. If it is higher or equal, current value is assigned as the start point of next window (new window shifted forward). If there is no higher value within the window, select the second biggest value as a next start point of next window and replacing these by linearly interpolated value from current start point to next start point.

We tried TWO with 15 days, 20 days, and 30 days temporal windows, and compared the results over Japan. When the window size was set at 15 days, short term fluctuations of NDVI due to cloud contamination were apparently remained. When the size was set at 30 days, such short term fluctuations were almost completely removed, while the resultant NDVI time series was too insensitive to NDVI seasonal change. Eventually, 20 days were selected for the TWO window size for the phenological analysis in the Japan Island.

8.1.2 Data Source

Data Source Citation Name	Description of derived parameters and processing techniques used
Pathfinder AVHRR Land (PAL) dataset	

9. DATA REMARKS

Data in October, November, and December 1994 are missing.

Cloud contamination still exists.

10. DATA POLICY

10.1 Data Policy by the Data Provider

The content of this dataset should not be redistributed without permission, and should not be used for commercial purposes.

The source should be properly acknowledged in any work obtained with this dataset.

The creators of this dataset are not responsible for any loss or damage caused by using this dataset.

[Reference Requirement]This dataset should be referenced as the following statement. "Suzuki, R. and Iizumi, T. (2007): Daily 8km Normalized Difference Vegetation Index (NDVI) from 1982 to 2000 over the Japan Islands (beta-version). Data Integration and Analysis System in Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan. "

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

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

Park, J.-G., Tateishi, R., and Matsuoka, M. (1999): A proposal of the Temporal Window Operation(TWO) method to remove high-frequency noises in AVHRR NDVI time series data. Journal of the Japan Society of Photogrammetry and Remote Sensing, 38, 36　47. (in Japanese)

Suzuki, R. and Kondoh, A. (2005): Constructing daily 8km NDVI dataset from 1982 to 2000 over Eurasia. Proceedings of International Symposium on Remote Sensing 2005 (ISRS2005), 18　21. (JejuInternational Convention Center, Jeju, Korea)