

Vegetation Phenology Data Based on EVI Time Series

Data Documentation

I. Dataset/atlas content features

i. Abstract

The vegetation phenology data can reflect the plant growth status on a certain extent, which is an important tool for describing global climate change and terrestrial ecosystem responses. This dataset is produced by a professional software--TIMESAT, which runs on the Matlab environment and can extract the vegetation phenology data with vegetation indices time series. Using the method of the time series reconstructions algorithm (S-G filtering), the enhanced vegetation index is selected as source data to various phenology data in this dataset, which covers 4 region (h27v05, h27v06, h28v05 and h28v06). The phenology can be used to vegetation growth factor to monitor the vegetation growth condition.

ii. Elements (content fields)

Table 1 Description of data element content

| Data name | Item (field) | Field name in Chinese | Field measure unit | Field code description | Remarks |
|-------------------|-----------------|--------------------------|--------------------------|-----------------------------|---------------------------------------|
| 2004_amplitude_sl | | | | Year EVI change value | 2004 growth season amplitude |
| 2005_amplitude_sl | | | | Year EVI change value | 2005 growth season amplitude |
| 2006_amplitude_sl | | | | Year EVI change value | 2006 growth season amplitude |
| 2007_amplitude_sl | | | | Year EVI change value | 2007 growth season amplitude |
| 2008_amplitude_sl | | | | Year EVI change value | 2008 growth season amplitude |
| 2009_amplitude_sl | | | | Year EVI change value | 2009 growth season amplitude |
| 2010_amplitude_sl | | | | Year EVI change | 2010 growth |

| | | | | | |
|-------------------|--|--|--|-----------------------------|---------------------------------------|
| | | | | value | season amplitude |
| 2011_amplitude_s1 | | | | Year EVI change value | 2011 growth season amplitude |
| 2012_amplitude_s1 | | | | Year EVI change value | 2012 growth season amplitude |
| 2013_amplitude_s1 | | | | Year EVI change value | 2013 growth season amplitude |
| 2014_amplitude_s1 | | | | Year EVI change value | 2014 growth season amplitude |
| 2015_amplitude_s1 | | | | Year EVI change value | 2015 growth season amplitude |
| 2004_basevalue_s1 | | | | Year EVI basevalue | 2004 growth season basevalue |
| 2005_basevalue_s1 | | | | Year EVI basevalue | 2005 growth season basevalue |
| 2006_basevalue_s1 | | | | Year EVI basevalue | 2006 growth season basevalue |
| 2007_basevalue_s1 | | | | Year EVI basevalue | 2007 growth season basevalue |
| 2008_basevalue_s1 | | | | Year EVI basevalue | 2008 growth season basevalue |
| 2009_basevalue_s1 | | | | Year EVI basevalue | 2009 growth |

| | | | | | |
|-------------------|--|--|---------|-----------------------|---------------------------------------|
| | | | | | season basevalue |
| 2010_basevalue_s1 | | | | Year EVI basevalue | 2010 growth season basevalue |
| 2011_basevalue_s1 | | | | Year EVI basevalue | 2011 growth season basevalue |
| 2012_basevalue_s1 | | | | Year EVI basevalue | 2012 growth season basevalue |
| 2013_basevalue_s1 | | | | Year EVI basevalue | 2013 growth season basevalue |
| 2014_basevalue_s1 | | | | Year EVI basevalue | 2014 growth season basevalue |
| 2015_basevalue_s1 | | | | Year EVI basevalue | 2015 growth season basevalue |
| 2004_end_s1 | | | 16 days | | 2004 growth season end |
| 2005_end_s1 | | | 16 days | | 2005 growth season end |
| 2006_end_s1 | | | 16 days | | 2006 growth season end |
| 2007_end_s1 | | | 16 days | | 2007 growth season end |
| 2008_end_s1 | | | 16 days | | 2008 growth season end |
| 2009_end_s1 | | | 16 days | | 2009 growth season end |

| | | | | | |
|----------------|--|--|---------|--|------------------------------------|
| 2010_end_s1 | | | 16 days | | 2010 growth season end |
| 2011_end_s1 | | | 16 days | | 2011 growth season end |
| 2012_end_s1 | | | 16 days | | 2012 growth season end |
| 2013_end_s1 | | | 16 days | | 2013 growth season end |
| 2014_end_s1 | | | 16 days | | 2014 growth season end |
| 2015_end_s1 | | | 16 days | | 2015 growth season end |
| 2004_length_s1 | | | 16 days | | 2004 growth season length |
| 2005_length_s1 | | | 16 days | | 2005 growth season length |
| 2006_length_s1 | | | 16 days | | 2006 growth season length |
| 2007_length_s1 | | | 16 days | | 2007 growth season length |
| 2008_length_s1 | | | 16 days | | 2008 growth season length |
| 2009_length_s1 | | | 16 days | | 2009 growth season length |
| 2010_length_s1 | | | 16 days | | 2010 growth |

| | | | | | |
|----------------|--|--|---------|----------------------------------|--|
| | | | | | season length |
| 2011_length_s1 | | | 16 days | | 2011 growth season length |
| 2012_length_s1 | | | 16 days | | 2012 growth season length |
| 2013_length_s1 | | | 16 days | | 2013 growth season length |
| 2014_length_s1 | | | 16 days | | 2014 growth season length |
| 2015_length_s1 | | | 16 days | | 2015 growth season length |
| 2004_max_s1 | | | | Year EVI maximum fit value | 2004 growth season maximum fit value |
| 2005_max_s1 | | | | Year EVI maximum fit value | 2005 growth season maximum fit value |
| 2006_max_s1 | | | | Year EVI maximum fit value | 2006 growth season maximum fit value |
| 2007_max_s1 | | | | Year EVI maximum fit value | 2007 growth season maximum fit value |
| 2008_max_s1 | | | | Year EVI maximum | 2008 growth |

| | | | | | |
|-------------------------|--|--|---------|----------------------------------|--|
| | | | | fit value | season maximum fit value |
| 2009_max_s1 | | | | Year EVI maximum fit value | 2009 growth season maximum fit value |
| 2010_max_s1 | | | | Year EVI maximum fit value | 2010 growth season maximum fit value |
| 2011_max_s1 | | | | Year EVI maximum fit value | 2011 growth season maximum fit value |
| 2012_max_s1 | | | | Year EVI maximum fit value | 2012 growth season maximum fit value |
| 2013_max_s1 | | | | Year EVI maximum fit value | 2013 growth season maximum fit value |
| 2014_max_s1 | | | | Year EVI maximum fit value | 2014 growth season maximum fit value |
| 2015_max_s1 | | | | Year EVI maximum fit value | 2015 growth season maximum fit value |
| 2004_middle_position_s1 | | | 16 days | | 2004 growth season middle position |

| | | | | | |
|-------------------------|--|--|---------|--|--|
| 2005_middle_position_sl | | | 16 days | | 2005 growth season middle position |
| 2006_middle_position_sl | | | 16 days | | 2006 growth season middle position |
| 2007_middle_position_sl | | | 16 days | | 2007 growth season middle position |
| 2008_middle_position_sl | | | 16 days | | 2008 growth season middle position |
| 2009_middle_position_sl | | | 16 days | | 2009 growth season middle position |
| 2010_middle_position_sl | | | 16 days | | 2010 growth season middle position |
| 2011_middle_position_sl | | | 16 days | | 2011 growth season middle position |
| 2012_middle_position_sl | | | 16 days | | 2012 growth season middle position |
| 2013_middle_position_sl | | | 16 days | | 2013 growth season middle |

| | | | | | |
|-------------------------|--|--|---------|--|--|
| | | | | | position |
| 2014_middle_position_sl | | | 16 days | | 2014 growth season middle position |
| 2015_middle_position_sl | | | 16 days | | 2015 growth season middle position |
| 2004_start_sl | | | 16 days | | 2004 growth season start |
| 2005_start_sl | | | 16 days | | 2005 growth season start |
| 2006_start_sl | | | 16 days | | 2006 growth season start |
| 2007_start_sl | | | 16 days | | 2007 growth season start |
| 2008_start_sl | | | 16 days | | 2008 growth season start |
| 2009_start_sl | | | 16 days | | 2009 growth season start |
| 2010_start_sl | | | 16 days | | 2010 growth season start |
| 2011_start_sl | | | 16 days | | 2011 growth season start |

| | | | | | |
|---------------|--|--|---------|--|-----------------------------------|
| 2012_start_sl | | | 16 days | | 2012 growth season start |
| 2013_start_sl | | | 16 days | | 2013 growth season start |
| 2014_start_sl | | | 16 days | | 2014 growth season start |
| 2015_start_sl | | | 16 days | | 2015 growth season start |

iii. Temporal cover

The dataset coverage is 2004 to 2015.

iv. Spatial cover

The dataset covers h27v05, h27v06, h28v05 and h28v06 (refers to the standard of MODIS zoning).

II. Subject/industry scope of dataset/atlas**i. Subject scope**

Earth Science

ii. Industry scope

Natural science research and experiment development

iii. Other classifications (optional)**III. Accuracy of dataset/atlas****i. Time frequency**

The time frequency is year by year.

ii. Spatial reference, accuracy, and granularity

The dataset uses UTM zoning projection;

The dataset covers h27v05, h27v06, h28v05 and h28v06 (refers to the standard of MODIS zoning);

The spatial resolution is 250m.

IV. Dataset/atlas storage management**i. Data quantity**

The data quantity is 6.63GB.

ii. Type format

The dataset is stored as hard disk, and data structure type is a raster TIF file.

iii. Update management

Irregular updates

V. Quality control of the dataset/atlas**i. Production mode**

The raw data is reconstructed by EVI time series based on dynamic threshold method, which is

used to extract various phenological parameters year by year.

ii. Data sources (condition selection)

The MODIS/EVI sources from MODIS website.

iii. Methods of the data acquisition and processing (condition selection)

Based on the Timesat software platform, the S-G filter algorithm is used to perform spatial filtering on the EVI time series data. Based on this, the corresponding phenological parameters are extracted with the dynamic threshold method.

VI. Sharing and usage method of the dataset/atlas

i. Sharing methods and restrictions

Fully shared

ii. Contact information of the sharing service (condition selection)

online link address: <http://drr.ikcest.org/info/9b45c>

The service is as follows:

Name: Wang xuecheng

Mailing address: Chaoyang District, Beijing Datun Road on the 11th

Zip code: 100101

E-mail: wangxc.15s@igsnr.ac.cn

iii. Conditions and methods of usage

ArcGIS

VII. Intellectual property rights of the dataset/atlas

i. Property rights (optional)

“Vegetation phenology data based on EVI time series” owned by institute of geographic sciences and natural resources research, CAS.

ii. Reference method of the dataset/atlas

Vegetation phenology data based on EVI time series. Disaster Risk Reduction Knowledge Service of International Knowledge Centre for Engineering Sciences and Technology (IKCEST) under the Auspices of UNESCO, 2017.6.30. <http://drr.ikcest.org/info/9b45c>.

iii. Usage contacts of the datasets/atlas

Contact person

Name: Wang xuecheng

Mailing address: Chaoyang District, Beijing Datun Road on the 11th

Zip code: 100101

E-mail: wangxc.15s@igsnr.ac.cn

VIII. Others (optional)

In addition to the above, other information must also be explained.

| Data documentation author information | | | |
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