

**A dataset of spring sandstorm distribution on the Mongolian Plateau (2000-2021)****Data Documentation****I. Dataset/atlas content features****i. Abstract**

The Mongolian Plateau is one of the cradles of sandstorms in Asia, among which the Gobi region of Mongolia and the desert region of western inner Mongolia are to blame for the frequent sandstorms in China and Mongolia in recent years. First, based on meteorological observation data about sandstorms and text data of news events, we collected 76 sandstorm events on the Mongolian Plateau from 2000 to 2021 in the study. Second, we downloaded MODIS data of corresponding spatiotemporal regions, which were screened and processed in combination with the cloud size. And we preprocessed the MODIS data for geometric correction with MRTK plugin in the ENVI software, Then, we constructed the DSDI of dust index and extracted the spatial distribution information of dust to obtain the of spring sandstorm distribution of Mongolian Plateau. With the Arc GIS software for random selection of verification points, we used the station record, text data, image enhancement, visual interpretation to complete the accuracy evaluation. The overall classification accuracy reaches 85.24% with a Kappa coefficient of 0.7636. This dataset can directly reflect the spatial distribution of sandstorms on the Mongolian Plateau, which can provide detailed and reliable data support for the control of sandstorm disasters, At the same time, it can also back up decision-making process of controlling the risk of sandstorm disasters on the Mongolian Plateau

**ii. Elements (content fields)**

The data set is packaged as. Compression package in 7z format, size 6925 KB. There are 21 files in the compressed package, and the files are named as DSDI- \*\* - \*\* - \*\*.shp.\*\*-\*\*-\*\* It represents the date of the sandstorm.

**iii. Temporal cover**

2000 - 2021

**iv. Spatial cover**

87°44'E -126°04'E, 37°24'N-53°23'N.

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

Environmental science and resources science and technology, etc.

**ii. Industry scope**

Geographical information services, remote sensing surveying and mapping services, etc.;

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

Annual.

**ii. Spatial reference, accuracy, and granularity**

Spatial reference: GCS\_WGS\_1984;

Spatial resolution: 1km.

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

6.76M

**ii. Type format**

.Shp

**iii. Update management**

Irregular updating

**V. Quality control of the dataset/atlas**

**i. Production mode**

MODIS data were used to build dust and sandstorm detection index(DSDI), and extracted the spatial distribution information of dust to obtain the of spring sandstorm distribution of Mongolian Plateau. The data processing environment mainly includes ENVI and ArcGIS.

**ii. Data sources (condition selection)**

MODIS data

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

Obtain MODIS data of corresponding spatiotemporal regions, which were screened and processed in combination with the cloud size. And we preprocessed the MODIS data for geometric correction with MRTK plugin in the ENVI software. We constructed the DSDI of dust index and extracted the spatial distribution information of dust to obtain the of spring sandstorm distribution of Mongolian Plateau. With the Arc GIS software for random selection of verification points, we used the station record, text data, image enhancement, visual interpretation to complete the accuracy evaluation. The overall classification accuracy reaches 85.24% with a Kappa coefficient of 0.7636.

**VI. Sharing and usage method of the dataset/atlas**

**i. Sharing methods and restrictions**

Fully opened sharing

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

Online link address:

Contact Information for Service:

Name: Service group of Disaster Risk Reduction Knowledge Service System of IKCEST

Address: 11A, Datun Road, Chaoyang District, Beijing, 100101, China, Institute of Geographic Sciences and Natural Resources Research, CAS.

Zip Code: 100101

E-mail: ikcest-drr@reis.ac.cn

**iii. Conditions and methods of usage**

The dataset can be read by ArcGIS and ENVI software.

**VII. Intellectual property rights of the dataset/atlas**

**i. Property rights (optional)**

The property of the dataset belongs to the Institute of Geographic Sciences and Resources, Chinese Academy of Sciences.

**ii. Reference method of the dataset/atlas**

A dataset of spring sandstorm distribution on the Mongolian Plateau (2000-2021)[DS/OL]. V1. Science Data Bank, 2022[2025-06-10]. <https://cstr.cn/31253.11.sciencedb.06924>. CSTR:31253.11.sciencedb.06924.

**iii. Usage contacts of the datasets/atlas**

Name: Service group of Disaster Risk Reduction Knowledge Service System of IKCEST

Address: 11A, Datun Road, Chaoyang District, Beijing, 100101, China, Institute of Geographic Sciences and Natural Resources Research, CAS.

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**VIII. Others (optional)**

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

