# Surface disturbance (trajectory of Karachi urban expansion) of China-Pakistan Economic Corridor (2000-2020)

## Data Documentation

**I.    Dataset/atlas content features**

**i.    Abstract**

This data set is the surface disturbance (trajectory of Karachi urban expansion) of the China-Pakistan Economic Corridor from 2000 to 2020. It mainly records the expansion time of the urban built-up area. There are 9883 records in 1 .shp file. They are produced by the Institute of Geographical Sciences and Natural Resources Research of the Chinese Academy of Sciences and can be used for urban expansion studies to provide a basis for the urbanization research of Karachi, Pakistan.

**ii.    Elements (content fields)**

This dataset was named as "Surface disturbance (trajectory of Karachi urban expansion) of China-Pakistan Economic Corridor", which included 1 data file. There are mainly 2 fields for different years and they are described as table 1.

Table 1 Description of data element content

| Data name | Item (field) | Field name in Chinese | Field measure unit | Field code description | Remarks |
|---|---|---|---|---|---|
| Data set of surface disturbance (trajectory of Karachi urban expansion) of China-Pakistan Economic Corridor | Shape*; ID; year | | | | |

**iii.    Temporal cover**

2000-2020

**iv.    Spatial cover**

Karachi, Pakistan.

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

**i.    Subject scope**

Earth sciences

**ii.    Industry scope**

Urbanization monitoring

**iii.    Other classifications (optional)**

**III.  Accuracy of dataset/atlas**

**i.    Time frequency**

1 yars.

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

This dataset used the WGS_1984_UTM_Zone_42N coordinate system.

## IV. Dataset/atlas storage management

### i. Data quantity

The volume of the dataset is 5.17 MB.

### ii. Type format

This dataset was stored in hard disk with formats of ".shp".

### iii. Update management

Unscheduled update.

## V. Quality control of the dataset/atlas

### i. Production mode

First, the urban built-up object areas in 2000 and 2020 were obtained using object-oriented segmentation method. Second, we applied Landsat-based detection of trends in disturbance and recovery (LandTrendr, LT) algorithm and multiple bands/indices to extract annual spatiotemporal information. This process was implemented effectively with the support of the cloud computing platform of Earth Observation big data. The overall accuracy of time information extraction, the kappa coefficient, and average detection error were 83.76%, 0.79, and 0.57 a, respectively.

### ii. Data sources (condition selection)

The original data was from the USGS official website.

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

### i. Sharing methods and restrictions

Full and open 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@lreis.ac.cn

### iii. Conditions and methods of usage

This dataset can be opened using ArcGIS.

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

### i. Property rights (optional)

Intellectual property of the dataset belonged to Institute of Geographic Sciences and Natural Resources Research, CAS.

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

Data set of surface disturbance (trajectory of Karachi urban expansion) of China-Pakistan Economic Corridor (2000-2020). Disaster Risk Reduction Knowledge Service of International Knowledge Centre for Engineering Sciences and Technology (IKCEST) under the Auspices of UNESCO, 2021.09.25.

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

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

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## VIII.     Others (optional)

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

| Data documentation author information | | | |
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