

## **Islamabad 10m Sentinel Cloudless Quarterly Dataset (2017-2020)**

### **Data Documentation**

#### **I. Dataset/atlas content features**

##### **i. Abstract**

This data set is a 10m Sentinel cloudless quarterly data set for Islamabad from 2017 to 2020, a total of 16 issues. The original data is the Sentinel ten-day data released by the Copernicus Data Center of ESA, after the cloudless algorithm, spatio-temporal filtering, and invalid threshold. It is obtained after cloud judgment, cloud removal, and data patching by removing and pixel-based median filtering. The data format is TIF format with a spatial resolution of 10 meters.

##### **ii. Elements (content fields)**

The data folder is named "quarter", the figure is named "SentinelYYYYXX", YYYY represents the year, and XX represents the quarter. This data set uses the "cloudless in the world" image cloud removal algorithm, according to the front and back multi-temporal data, using pixel-based spatio-temporal filtering algorithm, invalid threshold removal and pixel-based median filtering, etc., and finally get cloud-free products. Dimensionless.

##### **iii. Temporal cover**

2017-2020.

##### **iv. Spatial cover**

Islamabad, Pakistan.

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

##### **i. Subject scope**

Earth sciences, remote sensing, etc.

##### **ii. Industry scope**

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

##### **iii. Other classifications (optional)**

(Other categories can be applied, but should reflect the dataset/atlas characteristics.)

#### **III. Accuracy of dataset/atlas**

##### **i. Time frequency**

Quarterly data.

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

The spatial reference of this dataset is GCS\_WGS\_1984, with a spatial resolution of 10 meters and a spatial granularity of sub-cities

#### **IV. Dataset/atlas storage management**

##### **i. Data quantity**

1 GB

##### **ii. Type format**

TIF

##### **iii. Update management**

Irregularly updated

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

##### **i. Production mode**

Using Sentinel 2 Sentinel time series remote sensing data from the ESA Copernicus Data Center, Islamabad is obtained after cloud determination, cloud removal, and data patching through cloud-free

algorithm, spatio-temporal filtering, invalid threshold removal and pixel-based median filtering, etc. The regional 10-meter cloudless quarterly product data set. The data processing environment mainly includes Matlab, ArcGIS

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

Sentinel2 remote sensing data released by the Copernicus Data Center of ESA.

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

The data is downloaded from the ESA Copernicus Data Center (<https://scihub.copernicus.eu/dhus/#/home>) website. The format is tif, the spatial resolution is 10m, Islamabad.

This study uses Sentinel2 sentinel 2 day data synthesis to obtain the 2017-2020 Islamabad 10-meter Sentinel cloudless quarterly data set. Aiming at the collected and sorted Sentinel raw data, this research has developed a set of "No Clouds in the World" image cloud removal algorithm. This algorithm can use the pixel-based spatiotemporal filtering algorithm to effectively obtain the image based on its front and back multi-temporal data. Cloud data. The cloud removal algorithm can ensure the authenticity and accuracy of the data, and has a high accuracy rate in cloud judgment, cloud removal, and data repair, providing a strong technical guarantee for the production of cloudless quarterly products. Its processing flow mainly includes time series data collection, time range determination, spatiotemporal filtering, invalid threshold removal and pixel-based median filtering, etc., to generate cloudless quarterly products.

**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)**

<http://satsee.radi.ac.cn/cfdata/cloudless/pakistan/>

Contact Information for Service:

Name: Yong Ma

Address: No.9 Dengzhuang South Road, Haidian District, Beijing

Zip Code: 100094

E-mail: [mayong@aircas.ac.cn](mailto:mayong@aircas.ac.cn)

**iii. Conditions and methods of usage**

The dataset can be read by ArcGIS software

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

**i. Property rights (optional)**

The property rights of the 2017-2020 Islamabad 10-meter Sentinel Cloudless Quarterly Data Set belong to Aerospace Information Innovation Research Institute, Chinese Academy of Sciences.

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

Chen Fu, Ma Yong, Shang Erping, Yao Wutao, Jiang Liyuan, Zhang Shuyan and Jiang Chengzhou. Aerospace Information Innovation Research Institute, Chinese Academy of Sciences. 2017-2020 Islamabad 10m Sentinel Cloudless Quarterly Dataset. 2021.07.

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

(The contact persons or agencies, who curate the data and provide a data sharing service, should be listed, including their name, address, postcode, telephone, and e-mail).

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**VIII. Others (optional)**

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

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