A Big Earth Data Platform for Three Poles

**Physical and chemical characteristics data set of atmospheric dust in Yadong, Qinghai Tibet Plateau (2021)**

1、Description

The data set includes basic temperature, humidity and pressure wind meteorological elements, black carbon concentration, scattering coefficient, particle size spectrum data and chemical composition analysis. Automatic weather station can measure temperature, relative humidity, air pressure, wind direction, wind speed and accumulated precipitation. AE-33 black carbon meter (hereinafter referred to as AE-33) can online measure the concentration of black carbon aerosol in the 370nm, 470nm, 520nm, 590nm, 660nm, 880nm and 950nm bands of TSP (total suspended particulate matter) in the atmosphere, and the mass absorption cross sections used are 18.47, 14.54, 13.14, 11.58, 10.35, 7.77 and 7.19 m2/g respectively. The official observation period is from June 12, 2021 to August 31, 2021, with a time resolution of 1 minute. The table data has been processed subsequently and is hourly data. The Integrated Nephelometer can measure the scattering coefficient of PM2.5 in the atmosphere at 450nm, 550nm and 700nm on line. The official observation period is from June 12, 2021 to August 31, 2021, with a time resolution of 10 seconds. The table data has been processed subsequently and is hourly data. Aerodynamic Particle Size Spectrometer (hereinafter referred to as APS) can measure 0.5-20 in the atmosphere online μ The number concentration particle size distribution spectrum of particles within m (aerodynamic diameter) particle size range has 50 particle size channels. The official observation period is from June 12, 2021 to August 31, 2021, with a time resolution of 5 minutes. The table data has been processed subsequently and is hourly data. The scanning electromobility particle size spectrometer (SMPS) can measure the particle size distribution of 13.6-514 nm (Stokes diameter) in the atmosphere online; TSI 3752 Condensed Nucleus Particle Counter (CPC) is used to measure the number and concentration of particles. The official observation period is from June 29, 2021 to August 31, 2021, with a time resolution of 5 minutes. The table data has been processed subsequently and is hourly data. The domestic medium flow sampler was used to collect the 90mm diameter quartz filter membrane, water soaked quartz filter membrane and Teflon filter membrane of TSP particle size section. The samples can be used for the analysis of chemical components such as elemental carbon, organic carbon, water-soluble ions and metal elements. The sampling period is from June 23, 2021 to August 29, 2021. The sampling starts at 11:00 a.m. and takes 71 hours each time.

2、Keywords

Theme：Aerosol mass concentration,Atmospheric Quality,elemental composition,Aerosol,size distribution
Discipline：Atmosphere
Places：Yadong
Time：2021

3、Data details

1.Scale：None

2.Projection：

3.Filesize：5.69MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：27.42 | - |
| west：88.9 | - | east：88.9 |
| - | south：27.42 | - |

5、Time frame:2021-06-11 16:00:00+00:00--2021-08-31 03:59:59+00:00

6、Reference method

References to data:

SHI Jinsen, ZHANG Lei, HUANG Jianping, TIAN Pengfei. Physical and chemical characteristics data set of atmospheric dust in Yadong, Qinghai Tibet Plateau (2021). A Big Earth Data Platform for Three Poles, doi:10.11888/Atmos.tpdc.2728462022

References to articles:

Zhang, L., Tang, C., Huang, J., Du, T., Guan, X., & Tian, P., et al. (2021). Unexpected high absorption of atmospheric aerosols over a western Tibetan Plateau site in summer. Journal of Geophysical Research: Atmospheres, 126, e2020JD033286. https://doi.org/10.1029/2020JD033286

7、Supporting project information

Second Tibetan Plateau Scientific Expedition Program

8、Data resource provider

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