A Big Earth Data Platform for Three Poles

**Data on the concentrations of persistent organic pollutants and total suspended particulate in the atmosphere at a station in Southeast Tibet (2008-2011)**

1、Description

This data set contains data on the concentrations of persistent organic pollutants (POPs) and total suspended particulate (TSP) in the atmosphere at a station in southeastern Tibet (Lulang). The samples were collected using an atmospheric active sampler equipped with a tandem fibreglass membrane-polyurethane foam sampling head. The gaseous POPs and TSPs were collected. The sampling period for each sample was 2 weeks. The types of observed POPs include organochlorine pesticides (OCPs), polychorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). Only gaseous concentrations were detected for OCPs and PCBs, while both gaseous concentrations and particulate concentrations were detected for PAHs.
All of the data contained in the data set are measurement data. The samples were collected in the field at the Integrated Observation and Research Station of the Alpine Environment in Southeast Tibet. The sampler was an atmospheric flow active sampler equipped with a tandem fibreglass membrane-polyurethane foam sampling head, in which the fibreglass membrane was used to collect TSPs and the polyurethane foam was used to adsorb gaseous pollutants in the atmosphere. During the sampling period, the sampler was run every other day for approximately 24 hours each time, and each sample was collected for 2 weeks. The atmospheric volume collected for each sample was 500-700 cubic metres. Both gaseous and particulate POP samples were prepared and analysed in the Key Laboratory of Tibetan Environment Changes and Land Surface Processes, CAS. The sample preparation steps included Soxhlet extraction, silica-alumina column purification, removal of macromolecular impurities by a GPC column, concentration to a defined volume, etc. The analytical test instrument was a gas chromatography/ion trap mass spectrometer (Finnigan-TRACE GC/PolarisQ) produced by Thermo Fisher Scientific. The column used to separate OCPs and PCBs was a CP-Sil 8CB capillary column (50 m × 0.25 mm × 0.25 μm), and the column used to separate PAHs was a DB-5MS capillary column (60 m x 0.25 mm x 0.25 μm).

The total suspended particulate concentration in the atmosphere was determined by the gravimetric method, and the accuracy of the weighing balance was 1/100,000 g.

The field samples were subjected to strict quality control with laboratory blanks and field blanks. The detection limit of a given compound was 3 times the standard deviation of the concentration of the corresponding compound in the field blank; if the compound was not detected in the field blank, the detection limit of the method was determined by the lowest concentration of the working curve. For a sample, concentrations above the detection limit of the method are corrected by subtracting the detection limit; concentrations below the detection limit of the method but higher than 1/2 times the detection limit are corrected by subtracting half the method detection limit; and concentrations below 1/2 times the detection limit are considered undetected. The recovery rate of PAH laboratory samples was between 65-120%, and that of OCPs was between 70-130%; the sample concentrations were not corrected by the recovery rate. In the table, undetected data are marked as BDL; data marked in black italics are data corrected by subtracting 1/2 the method detection limit.

2、Keywords

Theme：Organic pollutants,Atmospheric Trace Gase,Environment Pollution and Control
Discipline：Atmosphere,Human-nature Relationship
Places：Southeast Tibet, Lulang
Time：2008-2011

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.07MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：29.0 | - |
| west：94.0 | - | east：94.0 |
| - | south：29.0 | - |

5、Time frame:2008-11-06 16:00:00+00:00--2011-10-05 16:00:00+00:00

6、Reference method

References to data:

WANG Xiaoping. Data on the concentrations of persistent organic pollutants and total suspended particulate in the atmosphere at a station in Southeast Tibet (2008-2011). A Big Earth Data Platform for Three Poles, doi:10.11888/AtmosphericEnvironment.tpe.249414.file2018

References to articles:

Sheng J.J., Wang X.P., Gong P., Joswiak D.R., Tian L.D., Yao T.D., Jones K.C. Monsoon-driven transport of organochlorine pesticides and polychlorinated biphenyls to the Tibetan Plateau: three year atmospheric monitoring study. Environmental Science Technology, 2013, 47: 3199-3208.

Wang, X.P., Gong, P., Sheng, J.J., Joswiak, D.R., &Yao, T.D. (2015). Long-range atmospheric transport of particulate polycyclic aromatic hydrocarbons and the incursion of aerosols to the southeast Tibetan Plateau. Atmospheric Environment, 115, 124-131.

7、Supporting project information

8、Data resource provider

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