A Big Earth Data Platform for Three Poles

**A database of radiogenic Sr-Nd isotopes at the "three poles”**

1、Description

The radiogenic isotope composition of strontium (Sr) and neodymium (Nd) on surface of the Earth are a powerful tool for tracing dust sources and sinks on surface of the Earth. To differentiate the spatial variability of aeolian dust sources in key cryospheric regions at the three poles (including the ‘Third Pole’ covering the high mountain area in Asia, the Arctic and Antarctica). A dataset of the Sr-Nd isotopic compositions from the terrestrial extremely cold or arid environments in this study was compiled as the similar method by Blanchet (2019). The database identified on snow, ice, sand, soil (loess) and sediment from the modern dust samples and paleoclimatic records of the three poles based on 43 different references with 967 data points in total. There are 274 data points from the third pole, 302 data points from the Arctic, and 391 data points from Antarctica. The sampling and measurement methods, and quality of these data are recognized and introduced. In each pole, geographical coordinates and other information are provided. The main scientific purpose of this dataset is to provide our own measurement and collect documentation of the Sr-Nd dataset, which will be useful for determining the sources and transport pathways of dust at the three poles and to investigate whether there are multiple dust sources for each of the poles. These datasets provide detail exhaustive documentation of the isotopic signature from the three poles at specific time intervals, which would be useful for understanding the dust source or sink of the three poles.

2、Keywords

Theme：Soil,Element content,Holocene,Isotope,Snow,Sediment,Snow/ice chemistry,Global Change,Drought,Land Surface Parameter,Ice-core,Loess,Glacier(Ice Sheet),Paleoclimate Reconstruction
Discipline：Terrestrial Surface,Palaeoenvironment,Cryosphere
Places：Arctic, Third Pole, Antarctic
Time：Holocene, Modern

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.2MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：90.0 | - |
| west：0.0 | - | east：180.0 |
| - | south：90.0 | - |

5、Time frame:1996-12-31 16:00:00+00:00--2021-03-31 16:00:00+00:00

6、Reference method

References to data:

Du Zhiheng. A database of radiogenic Sr-Nd isotopes at the "three poles”. A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2721002022

References to articles:

7、Supporting project information

CASEarth:Big Earth Data for Three Poles（grant No. XDA19070000）

8、Data resource provider

name: Du Zhiheng
unit: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences
email: duzhiheng10@163.com