A Big Earth Data Platform for Three Poles

**The desertification risk map of the Arabian Peninsula in 2020**

1、Description

The gridded desertification risk data of The Arabian Peninsula in 2021 was calculated based on the environmentally sensitive area index (ESAI) methodology. The ESAI approach incorporates soil, vegetation, climate and management quality and is one of the most widely used approaches for monitoring desertification risk. Based on the ESAI framework, fourteen indicators were chosen to consider four quality domains. Each quality index was calculated from several indicator parameters. The value of each parameter was categorized into several classes, the thresholds of which were determined according to previous studies. Then, sensitivity scores between 1 (lowest sensitivity) and 2 (highest sensitivity) were assigned to each class based on the importance of the class’ role in land sensitivity to desertification and the relationships of each class to the onset of the desertification process or irreversible degradation. A more comprehensive description of how the indicators are related to desertification risk and scores is provided in the studies of Kosmas (Kosmas et al., 2013; Kosmas et al., 1999). The main indicator datasets were acquired from the Harmonized World Soil Database of the Food and Agriculture Organization, Climate Change Initiative (CCI) land cover of the European Space Agency and NOAA’s Advanced Very High Resolution Radiometer (AVHRR) data. The raster datasets of all parameters were resampled to 500m and temporally assembled to the yearly values. Despite the difficulty of validating a composite index, two indirect validations of desertification risk were conducted according to the spatial and temporal comparison of ESAI values, including a quantitative analysis of the relationship between the ESAI and land use change between sparse vegetation and grasslands and a quantitative analysis of the relationship between the ESAI and net primary production (NPP). The verification results indicated that the desertification risk data is reliable in the Arabian Peninsula in 2021.

2、Keywords

Theme：Desertification,Grassland ecosystem,Others,Precipitation,Evaporation,Desert,Land Use/Land Cover,Desert, sand,Land Surface Parameter,Remote Sensing Technology,Desertification,Geomorphology,Visible remote sensing,Aeolian landform,Grassland,Land cover products  
Discipline：Terrestrial Surface,Remote Sensing Technology  
Places：The Arabian Peninsula, The desertification risk  
Time：2020

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：8.2MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：40.0 | - |
| west：30.0 | - | east：62.0 |
| - | south：10.0 | - |

5、Time frame:2019-12-31 16:00:00+00:00--2020-12-30 16:00:00+00:00

6、Reference method

References to data:

XU Wenqiang. The desertification risk map of the Arabian Peninsula in 2020. A Big Earth Data Platform for Three Poles, 2021

References to articles:

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program

8、Data resource provider

name: XU Wenqiang  
unit:   
email: xuwq@ms.xjb.ac.cn