Depth to bedrock map of China

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1. Introduction

We developed depth to bedrock (DTB) map of China at a spatial resolution of 100 meters for use in Earth System researches and other applications as well (Yan et al. 2018). Uncertainty map of estimation is provided for reference when using the dataset. This product is developed under an automated soil mapping framework. This dataset is based on Observations interpreted from borehole logs in China (ca. 6382 locations). Additional pseudo-observations generated by expert knowledge were added to fill in large sampling gaps. The model training points were then overlaid on a stack of 133 covariates including climatic images, DEM-derived parameters, land cover and land use maps, MODIS surface reflectance bands, vegetation indices images and harmonized world soil database. Spatial prediction models were developed using random forest and Gradient Boosting Tree algorithms. The uncertainty estimation is developed by quantile regression forests model. The final predictions were generated at the spatial resolution of 100 m as an ensemble prediction of the two independently fitted models. The dataset is also aggregated to lower resolutions (1km and 10km).

2. Data description

2.1 Coordinate system of the dataset
The coordinate system is WGS_1984.

2.2 geotiff format
We offered three versions with different resolution, i.e., 3 seconds (100m), 30 seconds (~1km) and 5 minutes (~10km). The spatial coverage is from 73°E to 136°E and from 18°N to about 54°N.

3. Data Usage

The data in geotiff format can be easily used by many programming language and GIS softwares. Here we gave R as an example:

3.1 R language

```
library(rgdal)
GDALinfo("BTB_CHINA_1k.tif")
t <- readGDAL("BTB_CHINA_1k.tif ")
```

4. Citation

Details about the dataset are in the peer-reviewed paper. Full acknowledgement and referencing of all sources must be included in any documentation using any of the material contained in this datasets, as follows:

Fapeng Yan, Wei Shangguan, Jing Zhang and Bifeng Hu, 2018. Depth-to-Bedrock Map of China at a Spatial Resolution of 100 Meters. Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2018-103, in review, 2018.

5. Contact

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