A Big Earth Data Platform for Three Poles

**Scientific Expedition Album of different types and thickness of unconsolidated sediments in the Yarlung Tsangpo River Basin (2020)**

1、Description

Focusing on the objective of estimating the total amount of unconsolidated sediments in the Yarlung Tsangpo River Basin (YTRB), we marked a series of Quaternary sections of unconsolidated sediments in the whole basin to measure their thickness. The dataset presents a collection of field photos of unconsolidated sediments obtained in the scientific expedition in YTRB in 2020. Specifically, this dataset comprises of 16 composite first–class sub basins, from upstream to downstream, including Dangque–Laiwu Tsangpo, Resu–Lierong Tsangpo, Chaiqu–Menqu, Xiongqu–Wengbuqu, Jiada Tsangpo, Pengji Tsangpo–Sakya Chongqu, Duoxiong Tsangpo, Shabu–Danapu, Nianchu River, Xiangqu–Wuyuma, Manqu, Nimuma–Lhasa River, Gonggapu–Luoburongqu, Niyang River, Yigong Tsangpo–Palong Tsangpo, and Xiangjiang River Basin. A total of 584 sites of unconsolidated sediments were marked.
The atlas displays different types of unconsolidated sediments, such as alluvium, eluvium, diluvium, colluvium, eolian, lacustrine and moraine deposits, showing their spatial distribution in hillsides, foothills, floodplains, terraces, alluvial–diluvial fans and glacier fronts. With a scale of 1m benchmarking, it shows the significant difference in distribution of thickness. Generally, the thickness of the eluvium on the upper part of the hillside is about 0.3–2.5m, and the thickness of the alluvium is difficult to bottom out. The thickness of diluvium in the gentle area of the piedmont with steep slope is usually between 5 and 10 m, while the thickness of the deposit at the piedmont gully mouth is related to the scale of the pluvial fan, which can reach tens of meters thick and only 3 to 4 meters thin. From the upstream to the downstream, the thickness of alluvium varies greatly. The bedrock in the canyon area is exposed, and the thickness is almost 0. However, the thickness of alluvium in the upstream river valley is large and difficult to see the bottom interface; The maximum thickness of measured moraine deposits can reach more than 20 m. Aeolian deposits are common in the middle and upper reaches, with a wide range of thickness, ranging from a few meters to more than 20 meters.
The dataset provides a wide variety of in–suit photos and measurements of unconsolidated sediments covering the whole basin, showing their characteristics of spatial distribution and genetic types, which lays a material foundation and prior knowledge for further detailed characterization and investigation of unconsolidated sediments. This work presents data for estimating the total accumulation of solid debris deposited in the YTRB, and provides a basis for assessing the risk of natural disasters related to unconsolidated sediments and formulating scientific preventive measures.

2、Keywords

Theme：Fluvial sediments,Quaternary sediments,Land Use/Land Cover,Earth SurFace Processes,Unconsolidated sediments,erosion,Sedimentary Record,Quaternary Geology and Geomorphology
Discipline：Terrestrial Surface,Solid earth
Places：Yarlung Tsangpo River
Time：Quaternary

3、Data details

1.Scale：None

2.Projection：

3.Filesize：5.37MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：31.28 | - |
| west：82.01 | - | east：97.1 |
| - | south：27.81 | - |

5、Time frame:None--None

6、Reference method

References to data:

WANG Chengshan , LIN Zhipeng, BAI Yalige, HU Taiyu, HAN Zhongpeng, WANG Xinhang. Scientific Expedition Album of different types and thickness of unconsolidated sediments in the Yarlung Tsangpo River Basin (2020). A Big Earth Data Platform for Three Poles, doi:10.11888/SolidEar.tpdc.2725082022

References to articles:

7、Supporting project information

Second Tibetan Plateau Scientific Expedition Program

8、Data resource provider

name: HAN Zhongpeng
unit:
email: hanzp@cugb.edu.cn

name: BAI Yalige
unit:
email: yaunxili@126.com

name: WANG Xinhang
unit:
email: 13051822722@163.com

name: HU Taiyu
unit:
email: taiyuhu0109@163.com

name: LIN Zhipeng
unit:
email: linzhipeng@cugb.edu.cn

name: WANG Chengshan
unit: China University of Geosciences, Beijing
email: ---