OpenTopography Data Description Worksheet

Please provide the information below in order to help streamline the OpenTopography data ingestion process and insure data are properly acknowledged and attributed. If the information requested is explicitly specified in dataset metadata it is not necessary to duplicate it below (e.g. coordinates). For examples from other OT-hosted data see: *opentopography.org/data*.

1. DATASET FULL NAME *(MAX LENGTH = 75 CHARACTERS)*

High Resolution Topography of West Helanshan Fault, Northern China

2. RECOMMEND DATASET SHORT NAME *(MAX LENGTH = 15 CHARACTERS E.G., ISMEP_BC)*

WHLSF_BI

3. OVERVIEW DESCRIPTION *(ONE OR TWO SHORT PARAGRAPHS – 3200 CHARACTERS MAX)*

This dataset comprises a 2-m-resolution digital elevation model (DEM) (WorldView3-DEM.tif) and 0.5-m-resolution orthophotograph (WorldView3-DOM.png) of the West Helanshan Fault (Northern China) which is a Holocene active right-lateral strike-slip fault located at the junction of the Tibetan Plateau, Alashan, and Ordos blocks. The dataset covers a 6 km wide swath along an approximately 50 km long section of the fault (the dataset extent can be found in West_Helanshan_Fault.kmz). The DEM was built from the WorldView-3 panchromatic stereo images acquired on 5 July 2018 based on the photogrammetry method, and the orthophotograph was created based on the generated DEM. Two local areas along the fault are heavily obscured by clouds in the WorldView-3 images. Thus, we used a small four-rotor Unmanned Aerial Vehicle (UAV), the Motoarsky MS670, to acquire images of the two areas on 27 September 2018. Based on the Structure-from-Motion (SfM) method, we finally obtained DEM with a spatial resolution of 0.1 m (UAV-DEM1.tif and UAV-DEM2.tif) and orthophotograph with a spatial resolution of 0.03 m (UAV-DOM1.png and UAV-DOM2.png) for the two local areas. More details of this dataset can be found in Bi, H., Zheng, W., Lei, Q., Zhang, P., Zeng, J., & Chen, G. (2020). Surface slip distribution along the West Helanshan Fault, Northern China and its implications for fault behavior. Journal of Geo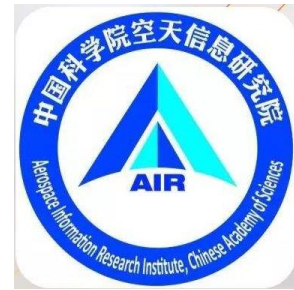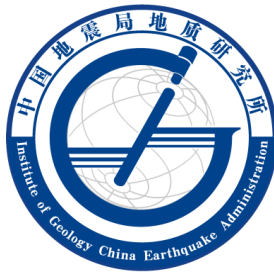physical Research: Solid Earth, doi: 10.1029/2020JB019983. (https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2020JB019983).

4. HORIZONTAL COORDINATE SYSTEM *(E.G. UTM Z12N WGS84 METERS)*

WGS84 UTM Zone 48N

5. VERTICAL COORDINATE SYSTEM *(E.G NAVD88)*

WGS84

6. LOGOS *(URLS OR ATTACHEMENTS, INC. PREFERRED DISPLAY ORDER)*

9. DATASET KEYWORDS *(MAX LENGTH = 200 CHARACTERS)*

The West Helanshan Fault, Northern China, WorldView-3, Unmanned Aerial Vehicle (UAV), Photogrammetry, Structure-from-Motion (SfM)

10. PROJECT ROLES *(INCLUDE ORGANIZATION URLS AND PREFERRED ABBREVIATIONS OR ACRONYMS)*