A Big Earth Data Platform for Three Poles

**Pan-Third Pole Water Vapor Sounding (2009-2019)**

1、Description

As the “water tower of Asia”, the Tibetan Plateau has a profound impact on the global natural environment and climate change. Therefore, analyzing the distribution characteristics of troposphere-stratospheric water vapor over the Qinghai-Tibet Plateau is an important part of understanding the water vapor source and change characterize. In situ observations are limit in this region, and the water vapor sounding data set is needed. Therefore, we carried out balloon-borne measurements at Lhasa and Kunming over the Qinghai-Tibet Plateau, and then obtained the vertical distribution of water vapor in the troposphere and lower stratosphere over the Qinghai-Tibet Plateau. The dataset is named “Pan-Third Pole Water Vapor Sounding”, which is mainly the water vapor profile data obtained by balloon sounding conducted at Lhasa and Kunming in August from July 2009 to 2019. Altitude (Altitude), Water vapor (H2O), temperature (Temp), potential temperature (K), and air pressure (Press) from near the surface to 20 km are obtained by conventional balloons soundings payloaded with the Cryogenic Frost Point Hygrometer (CFH) and radiosonde (iMet). Data is transmitted in real time to the ground receiving station via a radiosonde.

2、Keywords

Theme：Water vapor,Temperature,Temperature profiles,Altitude,Geopotential height,Atmospheric Water Vapor
Discipline：Atmosphere
Places：Lhasa, Kunming
Time：2009-2019

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.01MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：30.0 | - |
| west：91.0 | - | east：102.5 |
| - | south：25.0 | - |

5、Time frame:2009-07-31 16:00:00+00:00--2019-08-30 16:00:00+00:00

6、Reference method

References to data:

BIAN Jianchun . Pan-Third Pole Water Vapor Sounding (2009-2019). A Big Earth Data Platform for Three Poles, doi:10.11888/Atmos.tpdc.2725042022

References to articles:

Bian, J., Pan, L.L., Paulik, L., V¨omel, H., & Chen, H. (2012). In situ water vapor and ozone measurements in Lhasa and Kunming during the Asian summer monsoon. Geophys. Res. Lett. 39, L19808. https://doi.org/10.1029/2012GL052996.

Li, D., Vogel, B., Bian, J., Müller, R., Pan, L.L., Günther, G., Bai, Z., Li, Q., Zhang, J., Fan, Q., & V¨omel, H. (2017). Impact of typhoons on the composition of the upper troposphere within the Asian summer monsoon anticyclone: the SWOP campaign in Lhasa 2013. Atmos. Chem. Phys. 17, 4657–4672. https://doi.org/10.5194/acp-17-4657-2017.

Ma, D., Bian, J., Li, D., Bai, Z., Li, Q., Zhang, J., Wang, H., Zheng, X., Hurst, D. F., & Vömel, H. (2022). Mixing characteristics within the tropopause transition layer over the Asian summer monsoon region based on ozone and water vapor sounding data, Atmospheric Research, 271, 106093, https://doi.org/10.1016/j.atmosres.2022.106093.

7、Supporting project information

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

8、Data resource provider

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