Cold and Arid Regions Science Data Center

WATER: Dataset of eddy covariance observations at the Dayekou Guantan forest station

UUID: 578c801f-8630-4711-a77c-d5c7e8c6c6bd

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Abstract

The dataset of eddy covariance observations was obtained at the Dayekou Guantan forest station (E100°15′/N38°32′, 2835m), south of Zhangye city, Gansu province, from Dec. 27, 2007 to Dec. 31, 2009. Guantan forest station was dominated by the spruce 15-20m high and the surface was covered by moss 10cm deep. All the vegetation was in good condition.

The original observation items included the latitudinal wind speed Ux (m/s), the latitudinal wind speed Uy (m/s), the longitudinal wind speed Uz (m/s), the ultrasonic temperature Ts (°C), co2 consistency (mg/m^3), h2o consistency (g/m^3), air pressure (KPa) and the abnormal ultrasonic signal (diag_csat). The instrument mount-height was 20.02m, the ultrasound direction was at an azimuth angle of 74°, the distance between Li7500 and CSAT3 was 30cm and sampling frequency was 10HZ.

The dataset was distributed at three levels: Level0 were the raw data acquired by instruments; Level1, including the sensible heat flux (Hs), the latent heat flux (LE_wpl), and co2 flux (Fc_wpl), were real-time eddy covariance output data and stored in .csv month by month; Level2 were processed data in a 30-minute cycle after outliers elimination, coordinates rotation, frequency response correction, WPL correction and initial quality control. The data were named as follows: station name +data level+data acquisition date. As for detailed information, please refer to Meteorological and Hydrological Flux Data Guide and Eddy Covariance Observation Manual.

Keywords

Theme: CO2 flux, the latent hear flux, sensible hear flux, meteorology and hydrology, eddy covariance,
Place: the Heihe River Basin, Dayekou Guantan forest station, Dayekou watershed foci experimental area, the forest hydrology experimental area,
Temporal: 2009-12-31, 2007-12-27,
Discipline:
Statrum:

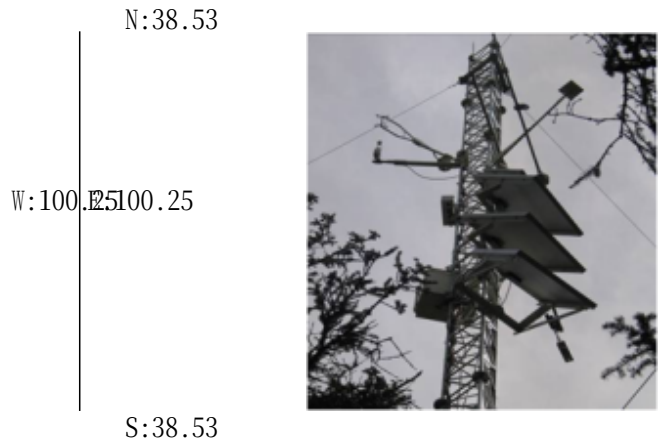
ISO 19115 Category

Category: climatologyMeteorologyAtmosphere

Detail

Project: +proj=longlat +datum=WGS84 +no_defs
Data Volume(MB): 47.7
Data Format:

Position and Thumbnail



Temporal Range

Start: 2007-12-27
End: 2009-12-31

Citation

1. Li X, Li XW, Li ZY, Ma MG, Wang J, Xiao Q, Liu Q, Che T, Chen EX, Yan GJ, Hu ZY, Zhang LX, Chu RZ, Su PX, Liu QH, Liu SM, Wang JD, Niu Z, Chen Y, Jin R, Wang WZ, Ran YH, Xin XZ, Ren HZ. Watershed Allied Telemetry Experimental Research. Journal of Geophysical Research, 2009, 114(D22103), doi:10.1029/2008JD011590.
2. Liu SM, Li X, Xu ZW, Che T, Xiao Q, Ma MG, Liu QH, Jin R, Guo JW, Wang LX, Wang WZ, Qi Y, Li HY, Xu TR, Ran YH, Hu XL, Shi SJ, Zhu ZL, Tan JL, Zhang Y, Ren ZG. The Heihe Integrated Observatory Network: A basin-scale land surface processes observatory in China. Vadose Zone Journal, 2018, 17:180072. doi:10.2136/vzj2018.04.0072

Recommended Publications

1. Liu SM, Xu ZW, Wang WZ, Bai J, Jia Z, Zhu M, Wang JM. A comparison of eddy-covariance and large aperture scintillometer measurements with respect to the energy balance closure problem. Hydrology and Earth System Sciences, 2011, 15(4): 1291-1306. doi:10.5194/hess-15-1291-2011.
2. Tian X, Li ZY, van der Tol C, Su Z, Li X, He QS, Bao YF, Chen EX, Li LH. Estimating zero-plane displacement height and aerodynamic roughness length using synthesis of LiDAR and SPOT-5 data. Remote Sensing of Environment, 2011, 115(9): 2330-2341. 10.1016/j.rse.2011.04.033.
3. Xu T, Liu S, Xu L, Chen Y, Jia Z, Xu Z, Nielson J. Temporal Upscaling and Reconstruction of Thermal Remotely Sensed Instantaneous Evapotranspiration. Remote Sensing. 2015, 7(3):3400-3425. doi:10.3390/rs70303400

DOI

doi:10.3972/water973.0294.db

Funding

1. The CAS (Chinese Academy of Sciences) Action Plan for West Development Project：Watershed Airborne Telemetry Experimental Research (WATER)(No: KZCX2-XB2-09)
2. National Program on Key Basic Research Project (973 Program)：Theory and method for a synthetic retrieval of terrestrial ecological variables from both active and passive remote sensing approaches(No: 2007CB714400)

Limitation

1. The dataset is generated from the "Watershed Airborne Telemetry Experimental Research (WATER) “, the user must have a clear statement in the article of the original data source and adopt the reference style providing by the metadata in the References section.

Online Resources

1. WATER data report http://westdc.westgis.ac.cn/doc/数据总体报告v1.pdf
2. WATER Website http://water.westgis.ac.cn
3. metadata link http://westdc.westgis.ac.cn/data/578c801f-8630-4711-a77c-d5c7e8c6c6bd
4. Environmental and Ecological Science Data Center for West China http://westdc.westgis.ac.cn

Contacts

1. Point of Contact
Ma Mingguo Organization: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences
Address: China Lanzhou
Zip code: 730000 Phone: Email: mmg@lzb.ac.cn

2. Principal Investigator
Ma Mingguo Organization: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese

Academy of Sciences
Address: China Lanzhou
Zip code: 730000 Phone: Email: mmg@lzb.ac.cn

3. Publisher
Wu Lizong Organization: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences
Address: China Lanzhou
Zip code: 730000 Phone: 0931-4967298 Email: wulizong@lzb.ac.cn