Cold and Arid Regions Science Data Center

WATER: Dataset of eddy covariance observations at the Yingke oasis station

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Abstract

The dataset of eddy covariance observations was obtained at the Yingke Oasis station from 27 Dec. 2007 to 31 Dec. 2009. The observation site is located in an irrigation farmland in Yingke (E100°24′37.2″/N38°51′25.7″, 1519.1m), Zhangye city, Gansu province. The experimental area, situated in the middle stream Heihe river basin and with windbreaks space of 500m from east to west and 300m from south to north, is an ideal choice for its flat and open terrain.

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 was 2.81m, the ultrasound direction was at an azimuth angle of 0°, the distance between Li7500 and CSAT3 was 30cm and the sampling frequency was 10HZ/s.

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 files 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, eddy covariance, meteorology and hydrology,
Place: the Heihe River Basin, Yingke oasis station, Yingke oasis foci experimental area, the arid region hydrology experimental area,
Temporal: 2007-12-27,
Discipline:
Statrum:

ISO 19115 Category

Category: climatologyMeteorologyAtmosphere

Detail

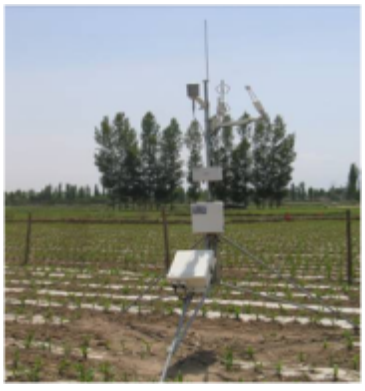
Project: +proj=longlat +datum=WGS84 +no_defs
Data Volume(MB): 41.1
Data Format:

Position and Thumbnail

N:38.86

W:100.41 E:100.41

S:38.86



Temporal Range

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

Citation

Liu Qiang, Ma Mingguo, Wang Weizhen, Huang Guanghui, Zhang Zhihui, Tan Junlei. WATER: Dataset of eddy covariance observations at the Yingke oasis station. Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences. 2008. doi:10.3972/water973.0278.db

Recommended Publications

1. Xin X, Liu Q. The Two-layer Surface Energy Balance Parameterization Scheme (TSEBPS) for estimation of land surface heat fluxes. Hydrology and Earth System Sciences, 2010, 14(3): 491-504.
2. 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
3. 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.

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2. The CAS (Chinese Academy of Sciences) Action Plan for West Development Project：Watershed Airborne Telemetry Experimental Research (WATER)(No: KZCX2-XB2-09)

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 Website http://water.westgis.ac.cn
2. Environmental and Ecological Science Data Center for West China http://westdc.westgis.ac.cn
3. metadata link http://westdc.westgis.ac.cn/data/d8ec9e64-a6e0-48b9-a389-5042138426e1
4. http://westdc.westgis.ac.cn/doc/涡动相关通量观测指导手册.pdf

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
Liu Qiang Organization: Institute of Remote Sensing Applications, Chinese Academy of Sciences
Address: China Beijing No. 20 Datun Road, Olympic Science & Technology Park of CAS, Beijing
Zip code: 100101 Phone: Email: liuqiang@irsa.ac.cn

3. 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

4. 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