**Water vapor isotope experiment was conducted at Heihe site (arid artificial oasis), Zhangye, China (38.85N, 100.37E) from May 2012 to Sep 2012.**

## 1. Time stamps

Data files are stored in hourly resolutions using start and end time stamps (YYYYMMDDHHmm).

## 2. Data format

Data files are CSV formatted.

## 3. Time zone convention

Time is reported in UTC.

## 4. Missing data

Missing data is replaced with -9999.

## 5. Variable definitions

| Column | Description | Unit | Equipment | Height (m) | Additional description |
|---|---|---|---|---|---|
| Column 1 | Start time | – | – | – | UTC |
| Column 2 | End time | – | – | – | UTC |
| Column 3 | Water mixing ratio | ppmv | Picarro L1102-i | 1.6 | – |
| Column 4 | Water vapour isotopic ratio (18O) | per mil | Picarro L1102-i | 1.6 | Normalized to V-SMOW; Humidity dependence correlation: Dripper system |
| Column 5 | Standard deviation of 18O | per mil | Picarro L1102-i | 1.6 | Hourly |
| Column 6 | Water vapour isotopic ratio (D) | per mil | Picarro L1102-i | 1.6 | Normalized to V-SMOW; Humidity dependence correlation: Dripper system |
| Column 7 | Standard deviation of D | per mil | Picarro L1102-i | 1.6 | Hourly |
| Column 8 | Air temperature | Celsius (°C) | – | – | – |

| | | | | | |
|---|---|---|---|---|---|
| Column 9 | Relative humidity | <=1 | – | – | – |
| Column 10 | Air pressure | kPa | – | – | – |
| Column 11 | Precipitation | mm | – | – | – |
| Column 12 | Net radiation | W/m2 | – | – | – |
| Column 13 | Wind speed | m/s | – | – | – |
| Column 14 | Wind direction | degree (°C) | – | – | – |
| Column 15 | Air temperature | Celsius (°C) | – | 2 | ERA5 |
| Column 16 | Relative humidity | <=1 | – | 2 | ERA5 |
| Column 17 | Air pressure | kPa | – | 2 | ERA5 |
| Column 18 | Precipitation | mm | – | – | ERA5 |
| Column 19 | Net radiation | W/m2 | – | – | ERA5 |
| Column 20 | Wind speed | m/s | – | – | ERA5 |
| Column 21 | Wind direction | °C | – | 10 | ERA5 |

## 6. Reference papers

Huang, L. and Wen, X., 2014. Temporal variations of atmospheric water vapor δD and δ18O above an arid artificial oasis cropland in the Heihe River Basin. Journal of Geophysical Research: Atmospheres, 119(19).

Wen, X., Yang, B., Sun, X. and Lee, X., 2015. Evapotranspiration partitioning through in-situ oxygen isotope measurements in an oasis cropland. Agricultural and Forest Meteorology.

## 7. Site contact

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