

Comment on “A database of water and heat observations over grassland in the north-east of Japan” by Wenchao Ma et al.

Anonymous Referee #2

### General Comments

Paper describes a useful long term dataset and I think the authors have put a great deal of work into data management.

I have slight concerns about the doi'd 'Asset' data: <http://www.ied.tsukuba.ac.jp/en/edps/database-doi/> which are available as .dat files because .dat files need processing and do not contain header rows; indeed the headers for this data need to be added separately. Why did the authors not publish the data as MS Excel in the same way that the data available from the ESSD supplement (daily data) - opens with no processing and contains a header row? This may just be my preference and still think it's a valuable dataset.

### Specific comments

I have had to remove 'the' in the manuscript where it spoils the flow of words.

### Technical corrections

Page 1

Line 10 from a well maintained

Line 11 include ~~the~~ shortwave radiation, ~~the~~ air and dew point temperatures at three elevations, ~~the~~ soil temperature

Line 12 depths, ~~the~~ sensible shortwave, net radiation, ~~the~~ air and dew point temperatures at three elevations, ~~the~~ soil

Line 13 ~~the~~ sensible heat flux

Line 14 ~~the~~ four

Line 15 presented here. ~~The m~~Monthly

Line 17 We ~~have~~ validated the data ~~quality~~ by

Line 22 and ~~the~~ percent bias

Line 23 values ~~give an obvious~~ show a positive trend in ~~the~~ precipitation

Line 24 over the ~~previous~~ past 37 years

Line 25 detected for ~~the~~ wind speed

Page 2

Line 1 ~~the~~ historical

Line 3 from a well-maintained

Line 12 for estimating ~~the actual~~

Line 13 effect ~~of the~~

Line 19 - 21 By assessing the observed evaporation in 2001, the results estimated from the Penman, energy budget eddy covariance, and energy-balance Bowen ratio methods were presented (Yubasaki et al., 2005), which improved understanding of the variation in evaporation from a conversion in the fraction of pasture at the site into turf. Consider revising sentence. I don't understand what you mean

Line 21 the understanding

Line 22 Yamanaka et al. performed carried out quality control of the data

Line 23. The validation of the water budget was

Line 25 where a model for the estimation of the precipitation on the grassland of the EDP department was developed, showing a good adaptability with a model taking into account the canopy, stem and evapotranspiration components based on observations from the EDP database. Consider revising sentence. I don't understand what you mean

Line 26 The In addition, latent heat flux was also assessed

Line 27 with the flux behaviour

Line 28 into the temporal variation, and an the assessment of the measurement accuracy

Line 29 not only above the ground

Line 31 observations of the soil

Page 3

Line 1 A wide variety of studies on ecology and vegetation were broadly conducted

Line 4 (1989) estimated the turbulent fluxes using the eddy-covariance method for assessing the effect of the to investigate the effect of

Line 6 Being a well maintained observation site, the grassland gives provides

Line 9 conducted experiments for investigation of to investigate the

Page 4

Line 5 site consist of a grass covered circular field 160m in diameter at an altitude of

Line 7 of 30-m height at a height of 30 metres

Figure 1 I can't read the axis titles or legend on (d)

Line 17 top few metres – can you be more exact here?

Page 5

Line 1, 2, 3 vegetation names need a capital for first word e.g. *Imperata cylindrica* and please check spellings for accuracy

Lines 4 and 5 The similarity of grass species, and their depth, as well as their and leaf-area index (LAI), were also explicitly confirmed annually each year by two different surveys.

Line 4 to 9 – are these the two surveys. This is a bit confusing because it states each year on line 4 and then 'two years later' on line 7. Consider revising this whole paragraph to make it clearer.

Line 10 Since 2006, the grass has been mown twice each year (in summer and winter); since 2006 ~~and~~ dead plants and grass clippings were redistributed.

Table 1. would be best viewed on one page please

Page 6

Line 14 Data collected from supersonic anemometer–thermometers ~~are~~ was used to obtain the

Line 15 ~~These observational data~~ The data are freely available for download from ~~open to the public~~ and ~~are~~ the Center for Research in Isotopes and Environmental Dynamics (CRIED) website (<http://www.ied.tsukuba.ac.jp/en/edps/database-doi/>) (formerly known as TERC) as hourly, monthly and annual summaries. Since 2003, the temporal resolution is at 10 second, 30 minutes, 60 m and 24 hour intervals. ~~through our website (")~~, which is ~~renewed~~ updated every minute

When calculating averaged data (Asanuma et al., 2004) at least 24 records at 30 m were required. Readings with less than 20 records were discarded and data with between 20 and 24 records were annotated as incomplete (Ohba and 20 Yamanaka, 2007). In addition to the missing data, the dates of equipment maintenance, construction and mowing information are recorded in the maintenance log ([http://www.ied.tsukuba.ac.jp/yosoku/kansoku/hojyo\\_log/](http://www.ied.tsukuba.ac.jp/yosoku/kansoku/hojyo_log/)).

Page 9.

Line 2. Data quality was ~~has been~~

Line 19 the shortwave radiation

Page 10

Line 9 ~~slightly difference~~ differs slightly

Differences in shortwave radiation are mainly governed by solar radiation, whereas absorption and reflection may be caused by atmospheric conditions (clouds)

Line 12 the wind speed

**In the data provided as ESSD Supplement:**

Column heading spelling mistake: **Air temperature** should be **Air\_temperature**