

Overall impression

The paper examines the value of using historical weather records from diaries and pressure data to reconstruct past cold air disturbances (East Asian Winter Monsoon) over central Japan. Although this seems well-achieved to me, I would have liked to see a stronger outcome from this work. For instance, an historical case study is presented for 1851/2, yet in the conclusion it is argued that we still have much uncertainty about the apparent warm anomaly in the 1850s. So in that regard, it is disappointing that the paper, despite these efforts, is unable to shed much insight on past climate. I think it would very much strengthen the paper to temporally expand the 19th century record (analysis), which could then provide more substantive information on climate of the past – which I feel the current paper does not adequately achieve. For instance, it would be valuable to say something about longer-term changes (shifts) etc concerning the East Asian Winter Monsoon – and implications for climate over Japan...but this is currently not the case with the paper.

The methodological process seems robust enough to me and valuable. But as I argue for above, it really needs more done with it than only a look at 1851/2, and from which not too much is learnt.

Moderate concerns

The paper is reasonably well written but does require considerable editing with tightening up of text to meet the expectations of an international publication. In some places there are successive short sentences (each not overly informative). In such instances sentences could be combined to form slightly longer and more informative sentences, and thus provide for a better ‘flowing’ text. One example would be lines 112 to 115.....too many short sentences...these could be combined and tightened up into a couple of sentences or so. But this is only an example – the entire paper would need to be carefully edited for this issue. I think a very thorough edit is required.

While I do not have a problem writing in the first-person plural – I find there is excessive use of the word ‘We’ in this manuscript ...in some cases 2 or more successive sentences using ‘we’ several times.

Written tense:

Too much of the paper is written in the past tense (which is not appropriate). I understand that in sections such as ‘methodology’ one writes in the past tense when referring to data that ‘were collected’ and specific analyses that ‘were’ undertaken etc. However, for the most part, the paper should be written in the present tense. Just a couple of examples to illustrate my point (but there are more than only these):

Lines 106/8: *“First, we investigated the temporal evolution of circulation fields and synoptic weather patterns for the present day (1968–1980). Subsequently, we investigated the East Asian winter monsoon activity....”* it would be better here (and elsewhere – where relevant [e.g. abstract etc]) to write in the present tense as you are currently investigating this through your publication presentation – even though the analysis in preparation for the paper is past tense. Hence I suggest write as: *“First, we*

investigate the temporal evolution of circulation fields and synoptic weather patterns for the present day (1968–1980). Subsequently, we investigate the East Asian winter monsoon activity....”

Another example from lines 120/1: “The other four locations (red circles in Fig. 1) were in the Pacific Ocean side, where dry weather prevailed.” The four locations still exist today, so one cannot write as ‘were’ but should rather be written as ‘are’. Dry weather prevailing on the leeward side is not something that happened only during past climates, but still happens today, hence one cannot write it as past (i.e. ‘prevailed’) tense. It should read as ‘prevails’.

Figures:

Figure 1: Needs a scale bar.

Figure 2: This Figure (map) requires some quality improvement. Please shade terrestrial areas to differentiate from Oceanic areas. If not indicating elevation (as you do in Figure 1), then at least provide a grey scale to differentiate. Add names of Seas/Oceans. Needs a scale bar.

Figures 3 & 4. Need some indication of spatial context....so suggest adding some longitudinal/latitudinal values.

Smaller technical items:

Title: Instead of “Combined analysis of....” – I suggest rather say “Analysis of.....”

Line 39: “....an effective detection of outbreaks arising” = a rather vague sentence. What type of outbreaks? Cold air outbreaks? Please specify.

Line 74: would read better as: “Historical Weather Data bank, based on information.....”

Lines 78/9: “*Daily weather documents were documented simultaneously at various locations in Japan. Therefore, they are useful for reconstructing daily synoptic weather patterns.*” This is all a bit vague. It is not clear if these ‘weather documents’ are something the paper aims to present or if reference is made to a previous study that has documented these records ...and if so, what are these documents and who presented them?

Line 84: “..... in the Sea of Japan side.” – would read better as: “..... on the windward (Sea of Japan) side of Japan.” This may need to be addressed elsewhere in the paper where reference is made to ‘Sea of Japan side’.

Lines 92/3: “Meanwhile, we recovered several early instrumental surface pressure series during the 19th century in Japan (Können et al., 2003; Zaiki et al., 2006, 2018).” This is again a bit vague here.....would be good to say more precisely for WHEN exactly (covering which years?)....and broadly for which area(s) of Japan? – is it central Honshu for instance?

Lines 94/6: “Recently, we newly recovered surface air pressure observations in Beijing for the period 1841–1855, reported in “*Annuaire 95 magnétique et météorologique du Corps des ingénieurs des mines de Russie*” and “*Annales de l’observatoire physique central*” <https://doi.org/10.5194/cp-2021-33> Preprint. Discussion started: 12 April 2021 c Author(s) 2021. CC BY 4.0 License.4 de Russie” (Zaiki et al., 2008).” **All this detail is not necessary as it can be obtained from the reference list. So rewrite as: “Recently, we newly recovered surface air pressure observations in Beijing for the period 1841–1855 (Zaiki et al., 2008).”**

Line 145: should be ‘Dutch’

Line 180/1: should rather read as: “observations to compare with those in the.....”

Line 191: I would suggest rather write it as: “.....selected 1 January 1868 to 31 December 1980 as the analysis period.”

Lines 204/5: “three types: snowfall, rain, and fine or cloudy, according to the methodology of Yoshimura (2013).” Strictly speaking this is not correct as a fine (i.e clear sunny) day is not the same weather type as a ‘cloudy’ day. So it should really be four types, not three.

Sub-section title: **3.2 Analysis of sequence of circulation fields and weather pattern for the present day**
This seems a bit longwinded – needs a tightened up sub-section title. In fact, the titles of other sections and sub-sections could all do with some careful editing and tightening up.