The manuscript titled “Holocene Asian monsoon evolution revealed by a pollen record from an alpine lake on the southeastern margin of the Qinghai-Tibetan Plateau, China” is an interesting and valuable piece of work and adds new data to the existing base of studies and knowledge concerning the late glacial–Holocene evolution of the Asian monsoon system. Especially the very high resolution of pollen-analyzed samples is impressive and reflects the great efforts invested. Nevertheless, I raise some concerns regarding the content of the manuscript text and the compilation of figures. All my comments and suggestions are listed below. In addition, the authors claim that the language has been checked by Jan Bloemendal. However, there are lots of mistakes of different kind remaining in the text. I have tried to correct these errors and improve the wording for a better understanding, but final proof-reading by a native speaker is an absolute “must”.

Comments to the manuscript text:

General comments:

- Please use age units in text and figures consequently: either “cal ka BP” or “cal yr BP”

- I suggest revision of the description of the pollen analysis (description of the pollen assemblage zones in chapter 4.2). See also comments in the table below.

- One of the strong points of this study is the high resolution pollen analysis. The authors should point out the number of analyzed samples in chapter 3.2.

- I suggest to incorporate chapters 5.1.1-5.1.7 in chapter 5.1 (Two-sentence chapters are generally inappropriate) and to add some more discussion to the now rather interpretative style of this chapter. This chapter could examine the long-term Holocene evolution of the recognized changes in the pollen record in relation to the results of other studies. A suitable title could be “5.1 Holocene vegetation and climate evolution”.

Specific comments:

Page	Line(s)	Comment
4753	14-16	This is a repetition to what you’ve previously said in lines 7-8
4753	16	Change “sits” to “sites”
4753	16	Please check the use of “synchronous”. Is this what you really mean? Maybe just replace it with “uniform”.
4753	22	Change “sediments” to “sediment” and “differs” to “differ”
4753	23	Please make clear that it is the proxy which reacts sensitive and not the reconstructed “data”.
4753	24-25	Change “real differences in local precipitation responses to the ISM are also possible” to “there is also the potential of local differences in ISM precipitation response”
4754	1	Delete “that originates”
4754	3	Change to “the Asian summer monsoon in China”
4754	19	“in China” might be deleted here

4754	21	What do the 2 parameters dominate? Please clarify.
4754	21	Write “South China”
4754	21-22	Delete “including southwestern China”, It is clear that “south China” already includes southwestern China.
4754	26	Start new paragraph at “Wuxu Lake…”
4754	28	Please provide a reference for the mentioned altitude.
4754	27-29	The altitude of the lake does not affect the sensitivity of the vegetation to climate change. Please rewrite/clarify.
4755	6	Change “separated” to “characterized”
4755	9	Write “steep elevation gradients”
4755	9	Please define “summer”
4755	10	Write “The regional vegetation”
4755	12	Write “shrubs and meadows”
4755	17	According to the figure it flows into Jiulong River.
4755	19-20	Replace “*Quercus pamosa*; and *Betula utilis*, *Betula platyphylla*, *Salix* and *Rhododendron* occur in the secondary canopy” with “*Quercus pamosa* with *Betula utilis*, *Betula platyphylla*, *Salix* and *Rhododendron* occurring in the secondary canopy”
4755	21	Write “shrubs”
4755	22-23	Replace “activity, with occasional Tibetan yak herdsmen using it for summer grazing.” with “activity. Occasionally, Tibetan yak herdsmen use the area as grazing grounds during summer.”
4755	23	Write “station”
4755	23-26	Add this information to the climate information given earlier in this subchapter.
4756	5	Replace “refrigerated” with “stored”
4756	9	Delete “18”
4756	11	Delete 2nd “the”
4756	14	Delete “addition of”
4756	15	Write “cloths”
4756	16	Delete “finally”
4756	19	Write “terrestrial pollen grains”
4756	19	Replace “species” with “pollen type”
4757	7	Delete “phase”
4757	17	Replace “sediments” with “plant remains” if this is what you’ve dated.
4757	21	Delete “final”
4758	2-3	Please specify the 214 pollen types correctly and completely. Note that ferns produce spores.
4758	4	Write “contributions of”
4758-4760		Integrate chapters 4.2.1-4.2.8 as paragraphs into chapter 4.2
4758	16	Delete “their”
4758	16	Replace “for” with “throughout”
4758	16	Delete “Finally,”
4758	17	Replace “a high abundance” with “at high abundances”
4758	20	Delete “the representation of”
4758	21	Replace “and their replacement by” with “to the benefit of”
4758	21	Delete “from”
4758	22	Delete 2x “about” or use words like “about” or “circa” consequently.

4758	22	Replace "… 2%." with "… 2%, respectively."
7458	23	Can't see the "generally over 30%" *Betula* pollen in this zone
7458	24	Replace "to" with "as in"
4758	23-24	To me it seems that there is a rise in *Pinus* after 11.3 cal ka BP.
4759	2-3	Strictly speaking, this statement rather applies to zone 2.
4759	5-6	Regarding *Tsuga* representation, there is no difference between zone 2 and 3a. The authors should try to focus on the significant and visible trends.
4759	8-9	Again, there is clearly no gradual decrease in *Carpinus* in this zone!
4759	11-12	How about *Thalictrum*?
4759	13	Delete "however" and start a new sentence.
4759	13-14	Actually, *Pinus* is the dominant arboreal taxon in the record.
4759	15	Delete comma after "slightly"
4759	18-19	But the most obvious decrease is seen in *Carpinus* pollen percentages.
4759	19	Change "relative" to "relatively"
4759	20	Change "percentage" to "percentages"
4760	2-4	But Ericaceae and *Hippophae* are (correctly) included in the arboreal group
4760	4-5	This sentence sounds odd. Please formulate a new sentence after "… around 70%".
4760	6	Replace "the slightly increased representation" with "a slight increase in the representation"
4760	9-10	Looking at the herbaceous taxa curve, I can't see any decrease compared to the previous zone. Overall, herbs percentages seem to be slightly increased.
4760	11	Replace "by" with "to"
4760	12	Delete "The herbaceous taxa exhibit a stable composition,"
4760	19-20	Replace "alpine shrub and meadow" with "alpine shrubs and meadows"
4761	2	Add "taxa" after "broadleaved"
4761	2	Replace ";" with ","
4761	9	Replace "previously-defined zonation" with "defined pollen zones"
4761	8-9	Put "(Fig. 4b)" after "five groups"
4761	7-9	If they correspond, why don't you explain which PCA groups correspond to which pollen zone?
4761	9-12	Replace "from zones" with "of zones"
4761	13	Add the reference for the software you used.
4761	18	Add "modern" before "tree-line"
4761	19	Replace "be sensitive" with "react sensitively"
4761	19-20	Replace "lake sediment surface pollen" with "lake surface pollen" in this place and throughout the text
4762	3	Delete "the"
4762	4	Add comma after "Thus"
4763	16	Delete both commas
4763	17	Replace "replaced" with "replacing"
4763	22	Replace "indicate" with "indicates"
4763	23	Delete "somewhat"
4764	4	Delete "the"

4764	5	Replace “,” with “.”
4764	6	Replace “decreases” with “decrease”
4764	7	Replace “indicate” with “indicates”
4764	8	Replace “whiles increases” with “while increase”
4764	9	Replace “suggest” with “suggests”
4764	9-10	Replace “The climate was ameliorated compared to the preceding interval, with humid summers and warm winters.” with “With humid summers and warm winters the climate was more favorable compared to the preceding interval.”
4764	11-11	“The minor but distinct” is contradictory. Please change.
4764	15	Delete the second “first”
4764	15	Delete the comma and “and, put a full stop and Start a new sentence “Since the winter…”
4764	18	Replace “proxy of” with “proxy for”
4765	9-11	Were, according to your opinion, the discrepancies only or mainly controlled by the advance or retreat of desert? Please rephrase/clarify.
4765	20	Add “be” after “may”
4765	24	Replace “The model” with “A model”
4765	29	Here I think you actually mean the Holocene period and not exactly the last 12 ka. If so, please write “during the Holocene period”.
4766	1	The 5.3 heading would be not quite consequent since you also compare your results to other studies and reconstructions in the previous chapter. I suggest deleting this heading and changing the following chapter numbers accordingly. E.g. chapter 5.3.1 becomes 5.3 and 5.3.2 becomes 5.4 etc.
4766	2	Talking about the context of the YD/Holocene transition, the community commonly refers to the onset of the Holocene “initial warming” which “initiated” the end of the YD. Thus, I would suggest naming the heading “Timing of the Holocene onset”.
4766	3-21	I agree that, regarding the state of the art research in monsoon Asia and the North Atlantic region, the Holocene onset appears to be contemporaneous. However, I’m not aware that this onset is accepted to have happened around 11.5 ka BP. There are other records which suggest an earlier initial Holocene ISM strengthening. Leipe et al. (2014) mention a set of ISM records in their discussion (see figure and text), which suggest such earlier Holocene onset. This should be also taken into account in your discussion. At the moment it sounds like that the ISM onset at a large spatial scale ca. 11.5 ka BP is widely accepted.
4766	13	Start a new paragraph after “(Stuiver et al., 1995).”
4766	14-16	Please revise this sentence. It is not easy to read and to understand.
4766	17	Replace “to lag climate by” with “may lag climate change by”
4766	18-20	I personally don’t understand what you mean by this sentence. Please rephrase.
4766	20	Have you checked if this time lag can be explained by a dating error range? How about the 1-sigma range, too? Maybe the lag is within this error range. If so you should mention this in the text.

4766	24	Write “strengthened”
4766	26	Delete “the”
4767	9	Add comma after “Thus”
4767	12	Replace “, coincident” with “coinciding”
4767	13	Change to “insolation”
4767	21	It would be advantageous for the reader if you added the location of the sedimentary records.
4767	27	Delete “which”
4768	17	I don’t understand what you mean with “dynamic blocking effect”. What is dynamic about this effect?
4768	19-20	As the name suggests, the QTP is a plateau and thus mainly not characterized by steep terrain.
4768	22	I think not “confine”, but “block” is the proper word here.
4768	22	If you talk about moist summer monsoon winds you should mention this. E.g. “…summer monsoon windward side…”
4768	19-26	But such rain-shadow effect is also a very influential feature in the marginal zones of the QTP. You might want to say here, that sites on the QTP are often too far away from the moisture source and that these sites receive less moisture during times of reduced ISM activity. If it’s this what you want to say, please clarify this in this section.
4769	12	Add “differences” after “solar insolation”
4769	14	Replace “and in winter warmth” with “(i.e. winter temperature)
4769	18	Replace “relative” with “relatively”
4770	4-7	Please try to make the sentence shorter. I.e. split it into several sentences. The colon can be omitted.
4770	10	Replace “was reached and maintained” with “persisted”
4770	12	I think by “timing” you mean “onset”. If so, please change.
	7-9	
4770	9-14	From the discussion I understood that you explain the longer duration of high moisture levels by the marginal location of your site on the QTP, i.e. the relatively close location to the moisture source compared to other site situated on the QTP. Only referring to rain-shadow effect doesn’t appear to be a sufficient explanation here. A bit poor and simplistic is also the interpretation of the recognized inconsistencies by “discrepancies in local rainfall response”. On the one hand you see a late onset of the optimum phase compared to other ISM reconstructions. On the other hand this optimum phase last longer than in other regions. In this case, rain-shadow effects would promote local rainfall (during the middle Holocene) around your site but could also hinder the penetration of rainfall (during the early Holocene) into the region. It would be beneficial for the quality of your article, if you could rethink your interpretations regarding this issue.
4770	13	The word “genuine” is not needed in this context.

Comments to figures:

Try to avoid mentioning information twice in the figure captions. E.g. in the caption for Fig. 1a “Location of Wuxu Lake” and “location of Wuxu Lake”. Please also check the other figures.

Fig. 1a
- Looking at the arrows which are supposed to schematically illustrate the pathways of the summer monsoon systems, it seems like the region around Huguang Maar Lake and Dongge Cave is mainly influenced by the EASM. In fact, it is mainly influenced by the ISM. See Dykoski et al. (2005) citing Yihui et al. (2004). Although it is a schematic illustration, it is necessary to put a bit more effort into the outline of the arrows marking the monsoon systems. Maybe also choose another blue color for the EAWM.

Fig. 1b
A bit more precision is also recommended for this figure: It seems that the arrow is not associated with “Wuxu Lake”. Why the Yalong Rivers ends somewhere above the map scale. Please adjust the position of the scale bar and the label. In addition, see my comment in the above table.

Fig. 3
- Make sure the figure is plotted in landscape. Try to increase the font size especially of the pollen types and the other parameters. Reduce the amount of minor tick marks on the Age-axis.
- use either “Herbs” or “Herbaceous”
- Please check the spelling of all taxa names. At least *Sanguisorba* is spelled incorrectly.
- Delete the line which crosses the labels of the x-axes.
- Properly label the x-axes

Fig. 4
- Correct spelling of *Sanguisorba.*
- use either “*Actinidia*” or “Actinidiaceae” consequently throughout the text and in the figures. The Actinidiaceae family contains more that one genus!
- Write “(b) Sample scores…”

Fig. 5
- In the text you mention 12.3 ka, here it is 12.2 ka.

Fig. 6
- For a more direct and better understanding of the illustrated curves, I recommend to add information about what different trends show in terms of climate. E.g. by means of arrows which indicate increase/decrease in EAWM circulation (this also applies to Fig. 7 and 8). Briefly say what the PCA axis represents. E.g. “PCA axis 1 interpreted as a proxy for…”

Fig. 7
- “ISM proxy from Wuxu Lake” and “Sample scores on PCA axis 2” is a repletion and of little informational value for the busy reader.
- Specify the meaning of PCA axis 2 in the caption

Fig. 8

- The axis for the summer and winter insolation intensity cannot be the same.

References:

Dykoski CA, Edwards RL, Cheng H, et al. (2005) A high-resolution, absolute-dated Holocene and deglacial Asian monsoon record from Dongge Cave, China. *Earth and Planetary Science Letters* 233(1–2): 71-86.

Leipe C, Demske D and Tarasov PE (2014) A Holocene pollen record from the northwestern Himalayan lake Tso Moriri: Implications for palaeoclimatic and archaeological research. *Quaternary International* 348: 93-112.

Yihui D, Chongyin L and Yanju L (2004) Overview of the South China sea monsoon experiment. *Advances in Atmospheric Sciences* 21(3): 343-360.