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Interactive comment on "Relative roles of local disturbance, current climate and palaeoclimate in determining phylogenetic and functional diversity in Chinese forests" *by* G. Feng et al.

G. Feng et al.

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Dear Referee,

First of all, thank you very much for giving us such positive comments and the good suggestions of improving this manuscript. We have carefully considered all of these and hope you will find the revisions satisfactory. Please find our point by point responses below.

1. The authors put emphasis on distinguishing between trees and shrubs but do not present many results (e.g. a functional dendrogram for trees vs. shrubs). Hmax has been shown to differ significantly between trees and shrubs on a global scale (e.g.

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Kattge et al. 2011) and some results shown here (Table 4) support this notion. It would thus be extremely interesting to present results in this manuscript, also distinguishing between different growth forms in more detail.

As we already stated in the first paragraph of discussion, the growth-form specific relations were weaker and less consistent, so we actually didn't put a lot emphasis on distinguishing between trees and shrubs. But still we have a paragraph (last paragraph in page 14668) for the discussion of the difference between trees and shrubs, especially for functional diversity.

2. It is not clear how many species Hmax could be found for. In 2.1.3, the authors state that data was assembled for a total of 958 species but the values given in brackets for trees and shrubs respectively add up to only 720!

The definitions of tree or shrub are from the flora, where for some species they may show both types, i.e., one species maybe tree or shrub. So, totally we have Hmax information for 958 species, among which 559 are definitely tree, 161 are definitely shrub and 238 are not clear.

We will change the content in the brackets into "n=559 tree spp., 161 shrub spp. and 238 spp. without a clear growth form assignment".

3. Figure 2 is not clear. Results are only mentioned once but not explained. The second line, first plot should be NRIPHY_ang_pr vs. MAT, not Anomaly. It would be good to show which plots the points correspond to.

For the caption of Figure 2, we would add more information: "NRIFUN: functional (Hmax) NRI, and NRIPHY: phylogenetic NRI, based on either presence-absence (pr) or abundances (ab) with gymnosperms (gym) or only considering angiosperms (ang)". We changed the second line, first plot into NRIPHY_ang_pr vs. MAT, and also showed which plots the points correspond to (Fig .1).

But for the explanation of this figure, we would argue that we have already explained it

well, e.g., line 17-24, page 14667 for NRIFUN results, and line 12-20, page for NRIphy results.

4. NRI has been shown to be sensitive to overdispersion due to the branching structure of the phylogenies. This might induce considerable bias and should be tested. The Pylocom package offers several ways of doing this (see Webb et al. 2008).

NRI here was calculated as $-1 \times (MPD\_obs - meanMPD\_rnd)/sdMPD\_rnd$, where MPD mainly reflects the deep phylogenetic structure in a phylogeny tree. In other words, MPD is usually thought to be more sensitive to the tree-wide patterns of phylogenetic over-dispersing or clustering (Webb et al., 2002; Swenson, 2009) than to the structure near the tips. As the deeper parts of the phylogenetic used are well supported, coming from Angiosperm Phylogeny Group III classification, we do not believe there should be any important bias in our NRI measures.

5. Discuss why relationships between MAT and NRIPHY_ang_pr and NRIPHY_ang_ab are reversed comparing the Spearman correlations and the Pseudo R2 for the GLMs.

Spearman correlations indicate the strength and the sign of relationships (i.e., they can be negative or positive), while pseudo R2's purely indicate the strength and are always positive.

6. The phylogenetic trees presented in Fig.A1 and A2 are illegible in the printed version. Please improve.

The two trees (Fig.A1 and A2) will be put in the supplement, which will only exist as an electronic file. So hopefully this would not be a problem anymore.

We will make all the corrections indicated above in the revised manuscript.

Yours sincerely, Gang Feng, on behalf of all authors

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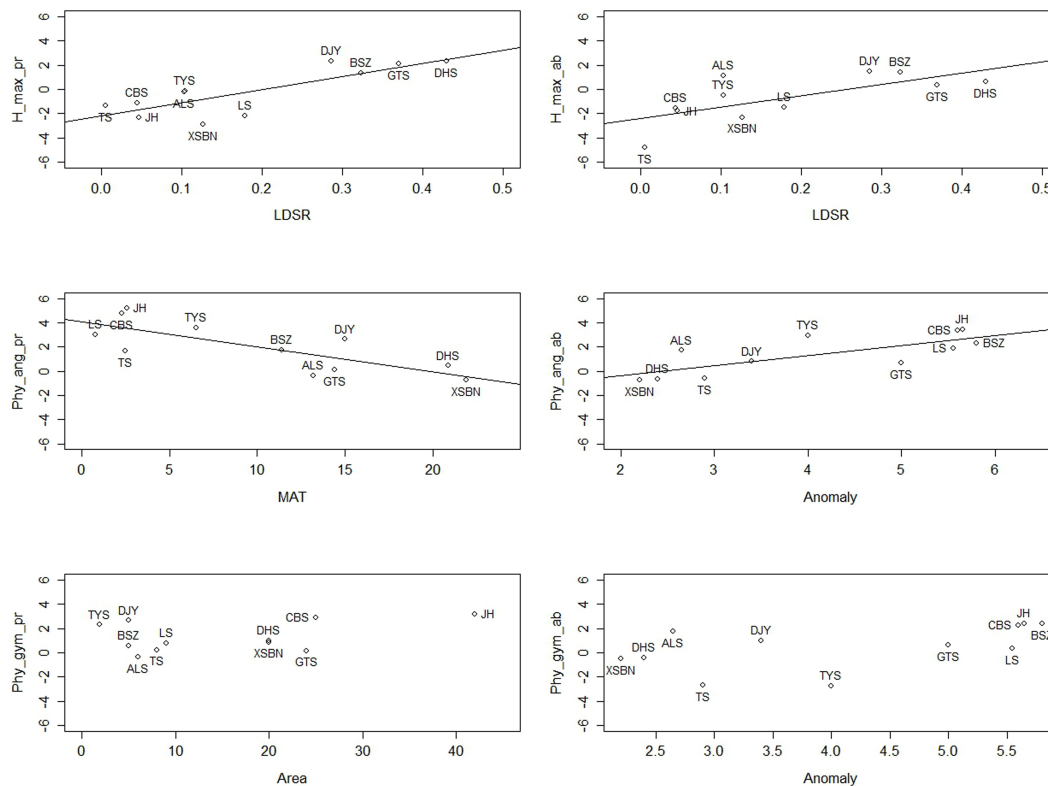Printer-friendly Version

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Fig. 1.