

# ***Interactive comment on “Wind regimes during the Last Glacial Maximum and early Holocene: evidence from Little Llangothlin Lagoon, New England Tableland, eastern Australia” by James Shulmeister et al.***

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## General comments:

I enjoyed reading this paper about a neglected field area for research into past climates, specifically past wind directions. The question asked is a useful one, and the paper has a research aim which will clearly add new knowledge to our understanding of past climate. The data are new. The concepts and tools used are existing ones but properly applied and interpreted. The methods used include geomorphological analysis, OSL dating and GPR which are appropriate and clearly outlined. However a few more def-

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initiations would be helpful for clarifying the interpretations (see below). Generally the overall presentation is well written and clear. The language is fluent and precise. The mathematical aspects of the paper are well-presented. The supplementary material is very useful and clearly presented.

#### Specific comments:

The paper does address relevant scientific questions dealing with static wind directions over the last 20 thousand years or so, in north eastern NSW, Australia. However the significance of the research question could be emphasised more in the first section. As a research aim “Understanding the history of the westerlies” is rather general. What do we already know about this from previous research? What will be the main message of this paper? Should be in the first paragraphs.

The conclusion is substantial with regard to this case study and its wider implications for wind flow history in eastern Australia. However it could be strengthened by a sentence or two about the broader implications of the findings ie. Why does a constant pattern matter to climate generally?

The Discussion section needs a preliminary few sentences which remind the reader of the questions being addressed by the data, otherwise there is a very sudden jump to Spit/Barrier Berm discussions.

Results are generally sufficient to support interpretation but some of the interpretations need further explanation (for non geographers) to be absolutely convincing. For example the difference between lunettes and berms is not really explained, as both seem to be formed by wind and wave action? (line 49). The difference between these needs to be more explicit, for example, in lines 240 -242, presumably the shape and the particle size is important for interpreting the difference, but the reader needs to be told the defining characteristics of these. Again in line 371 the term ‘foredune ridge’ is used. How does this fit with the other findings?

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The references to related work are appropriate and properly credited. However I think the authors could more clearly indicate their new contribution by adding a few sentences about any related work on the westerly winds further south. How does Llangothlin differ from these?

The title could reflect the findings (not just the methods) of the paper more closely, allowing searchers to quickly ascertain relevance. eg. By using 'Constant wind regimes...' The abstract is good, although the last sentence does not really appear to be discussed in the text of the paper. Technical comments: Below is a list of minor clarifications to the paper:

Line 119 'drug' should be 'dragged' line 300 not jointed wire rush (NZ only) but Tall spike rush (*Eleocharis sphacelata*). Line 324 'times' should be 'time' Line 328 'aboriginal' should be 'Aboriginal' as is conventional for Australian Aboriginal Line 335 'dune activation..'Not quite clear- presumably this is due to wave transport and deposition of sediments? Line 347 In dry phases (as currently) vegetation also persists, even if not swampy Clarification of the position of basalt and granite outcrops would also help understand the context of the deposits. For instance, west of the lagoon is basalt (line 58) east is granite (l59) but on line179 east is basalt.

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