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Interactive comment on "Evaluating the atmospheric drivers leading to the December Flood 2014 in Schleswig-Holstein, Germany" *by* Nils H. Schade

Anonymous Referee #2

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Referee comments to the manuscript

Evaluating the atmospheric drivers leading to the December Flood 2014 in Sch leswig-Holstein, Germany

presented by Nils H. Schade

In this article, atmospheric conditions were studied, which caused the severe flooding in Schleswig-Holstein in December 2014. The topic is interesting and important having a direct value for human activity. Two classifications of large-scale atmospheric circulation and two indices of precipitation and moisture conditions were used. The main disadvantage of the paper is its descriptive nature. A number of characteristics and

maps have been presented but their analysis, synthesis and discussion is lacking. The objectives, tasks and hypotheses of the study are not clearly formulated. I'll answer to the general questions of the journal and then I'll make my more detail comments and suggestions. 1. Does the paper address relevant scientific questions within the scope of ESD? Partly. 2. Does the paper present novel concepts, ideas, tools, or data? Some. 3. Are substantial conclusions reached? Partly. 4. Are the scientific methods and assumptions valid and clearly outlined? Yes. 5. Are the results sufficient to support the interpretations and conclusions? Yes. 6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes. 7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes. 8. Does the title clearly reflect the contents of the paper? Yes. 9. Does the abstract provide a concise and complete summary? Yes. 10. Is the overall presentation well structured and clear? Yes. 11. Is the language fluent and precise? Revision of the language is needed. 12.Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes. 13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No. 14. Are the number and quality of references appropriate? More or less, yes. 15. Is the amount and quality of supplementary material appropriate? Yes.

Remarks and suggestions 1. The term "westerly situation" widely used in this paper seems a bit strange for me. I think that "westerly circulation" is meant here. Classifications of general weather situations are more like circulation classifications (page 3 line 13). 2. Page 1 line 18. I prefer to use "precipitation event" instead of "event precipitation". 3. Page 1 line 27. There should be December, not Dezember. 4. Page 2 line 13-14. The sentence should be revised. Which physical conditions of the North Sea are the dominant factors? 5. Page 3 line 14. What does mean the abbreviation BSH? 6. I have a question how much the used circulation classifications were objective or subjective. It is written that the second classification was objective. But is the Jenkinson-Collison classification subjective? 7. Page 3 line 21. I am not sure which

term is used in English: "cyclonality" of "cyclonicity". Please, make clear it. 8. In the section 2.2 many data sources were listed. Which variables were used in this study, it was not indicated. 9. Trend analysis was not mentioned in the introduction. Why it was included into this study? Trends are not related to the 2014 flooding event. The significance of the trends is not estimated at all. Without it we cannot talk about trends. 10. It is not correct to express wind speed using the Beaufort scale. It will be better to do it using m/s. 11. I think that there are too many subchapters in the chapter 3. I recommend to use two hierarchic levels, not three. 12. Page 5, line 24. There is written that the LWT seems more appropriate. How much is this statement justified? On which facts is it based? 13. A misunderstanding is related to the title 3.1.4 Gauge data. Are the data from rain gauges? In fact, there is information about water level measurements. Gauge data were not described in the section of data and methods. 14. Page 8 lines 3-4. This sentence was not understandable for me. 15. It was difficult to understand the use of severity indices. What they show and how they could be compared? 16. The main results of the study are not clearly and shortly concluded

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