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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Risk assessment of sea ice disasters on fixed jacket platforms in the Liaodong Bay" *by* Ning Xu et al.

Anonymous Referee #1

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The paper Risk assessment of sea ice disasters on fixed jacket platforms in the Liaodong Bay focused on how to quantify the risk potentially caused by sea ices to the jacket platforms in the three sea areas in the Liaodong Bay. This work analyzed in great details the formation mechanism of sea ice hazards including their sources and modes. Two calculation methods based on the so-called overall risk assessment and multi-mode risk assessment were proposed and were applied to 10 jacket platforms located in three sea areas of Liaodong Bay. This work has great practical significance and can raise wide interests from the corresponding offshore engineering fields.

Before consideration of this paper for publication, some issues must be further explained/improved by the authors. One major issue is that the authors have not included corresponding citations in the text, though it is presumed that some parameter num-

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Discussion paper

bers are suggested by traditional books. It is thus difficult for readers to figure out how and where those parameters or indices values are calculated or selected. It is also difficult to judge which parts were originally proposed by the authors. Another major issue is that only the literature from Chinese researchers/engineers is mentioned. How the international community is treating the similar problems? What are the existing methods used in practices to evaluate the risk indices? This is not clear yet to readers.

Many small issues for the authors' reference: Page 2, Line 6: It should be ';' after Li et al., 2018. Page 2, Line 12: It should be Guo et al. (2018). Page 4: In Figure 2 it is better mark (a)-(e) on the photo as well. Page 5, Line 4: 'According to the synthetic index method, . . .', reference? Page 5, Line 17: Add (Eq. (2)) after 'the overall risk Ie is calculated'. Pages 5-6: The position of Eqs. (1)-(3) should be adjusted to the corresponding text places. Page 5, Lines 20-21: Note that parameter name should be italic. Page 6: Please provide references to Eqs. (4) and (5). Page 7, Line 2: The parameter should be italic. Page 7, Lines 5-16: References should be provided on how to calculate force, including the source of Eq. (6). Page 8: What are the differences between Eqs. (7) and (8)? Reference? Page 8, Line 10: What are the hot spots? Page 8, Line 11: Note parameter name should be italic. Page 9, Line 9: 'According to Technical Guidelines for Risk Assessment and Zoning of Sea Ice Disasters, . . .', reference? Page 9, Table 2: The last column, delete 'cm'. Page 10, Line 6: It should be Yue et al. (2007b). Page 10, Table 3: The last column, section numbers are not right. Page 11: Add reference to Eq. (9). Page 11, Lines 7-8: Note parameter names should be italic. Page 11, Line 9: Correct the double ')' after 2007b. Page 11, Lines 16-17: Reference for Eq. (12)? Parameter name italic? What is frequency ratio? Page 12, Lines 3-7: Parameter names italic? What is Δ_st? Page 12, Lines 13-14: f2 or f? What does fundamental frequency mean? Page 12, Lines 15-19: Reference? Page 12: Please explain where 0.5 comes in Eq. (19). Reference? Page 13, Line 2: Please provide the reference. Page 13: The numbering for Table 7 and Table 8 should be exchanged since the latter was mentioned first in the text. Page 13: In the original Table 7, weight coefficients should not be bold. Page 14: In the original Table 7, last

row, the position of 100% is not right. Page 14: In the original Table 8, could the authors explain why the weights are not added to 1? Page 15: The section name 4.6 should be bold. Page 15: Reference for Table 10? Page 16: Maybe the authors consider rotating Tables 11 and 12 90 degrees so that the readers can more easily read? Page 18: In Table 13 the parameter name should be italic. Page 19, Line 5: The label for the amplification factor is wrong. Pages 20-21: Reference style is not consistent.

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