

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

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11ijN (1) comments from Referees Normally, the ice condition is relative weak in the Bohai Bay. In my knowledge, the ice type includes level ice, rafted ice and small ridges. My only concern is that for a given ice thickness if the ice type may influence the risk assessment.

(2) author's response This paper focus on the structural risk induced by level ice, based on the formation mechanisms of sea ice disasters, which is the level ice failure process while interacting on structures and level ice force on structures. There are mainly three mode of ice force, corresponding to different limit rules: (a)limit stress (b) limit momentum (c)limit force

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For the Bohai Sea, the level ice and rafted ice would follow the limit stress rules. While the ridge would mainly follow limit momentum rule. Since the mechanisms of rafted ice and structure interaction process was similar with level ice, the authors think the method could also be used on rafted ice, while the variance of ice property parameters value should be paid attention.

(3) author's changes in manuscript. Some words are added in the section "CONCLUSION" page 20 Line 6-9. "This paper focus on the structural risk induced by level ice, based on the formation mechanisms of sea ice disasters, which is the level ice failure process while interacting on structures and level ice force on structures. The method could also be used on rafted ice because of the similar ice-structure interaction process with level ice. While the variance of ice property parameters value should be paid attention."

2ijjñ (1) comments from Referees Furthermore, some language corrections own to be dealt with. Line 9, page 1, the risk assessment should be a risk assessment. Line 14, page1, facility should be facilities. Line 22, page 1, occurred should be occurs. Line 13, page 2, parameters of should be parameters, i.e.,. Line 17, page 2, application should be engineering. Line 23, page 1, respectively should be individually. Line 24, page 2, good condition should be healthy condition. Line 27, page 2, iced should be icy. Line 2, page 3, more serious than should be heavier than. Line 10, page 2, forms should be categories. Line 14, page 2, form should be category. Line 14, page 5, "was established with the risk calculation model to" to "with the risk model was established to". Line 10, page 6, delete "the interactions between". Line 16, page 6, "contacts with" should be "contacts". Line 5, page 7, "it will generate" to "it generates". Line 10, page 8, "will fail" to "fails". Line 20, page 8, "loosened" to "weakened". Line 10, page 10, "will collapse" to "collapses". Line 8, page 12, "additionally" to "carefully". Line 18, page 13, "sea ice disasters" to "structures".

(2) author's response All the listed errors have been revised, and English of the whole article has been revised.

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(3) author's changes in manuscript. All the listed errors have been revised, and English of the whole article has been revised.

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-280/nhess-2018-280-AC3-supplement.pdf>

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-280>, 2018.



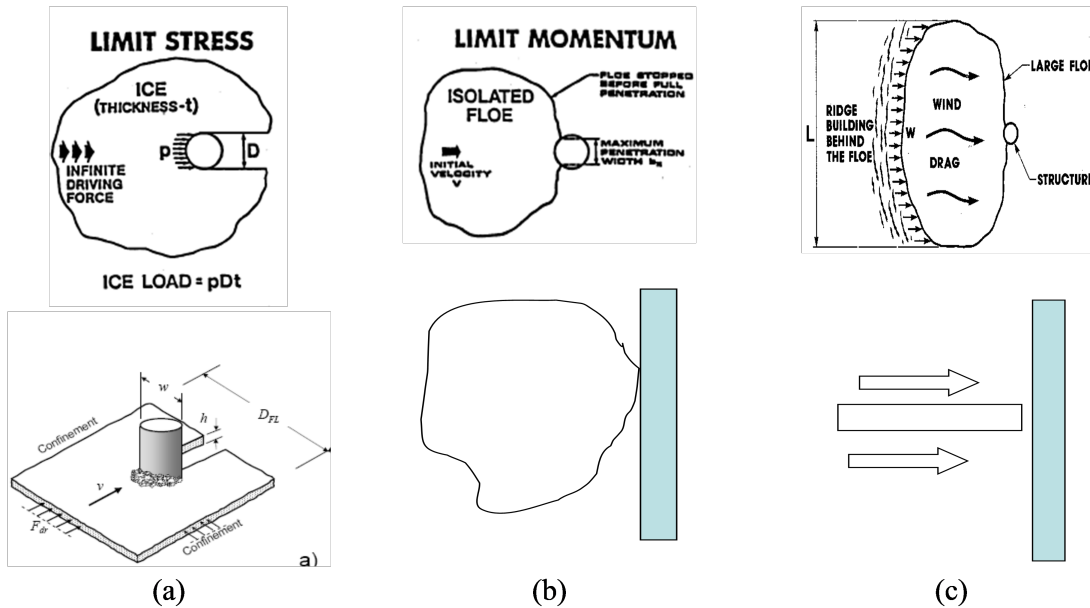


Fig. Three limit rules for calculating extreme ice force: (a)limit stress (b) limit momentum (c)limit force

Fig. 1.