Hydrol. Earth Syst. Sci. Discuss.,
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Hydrology and Earth System Sciences
Discussions

Interactive comment on "A water risk index for portfolio exposure to climatic extremes: conceptualization and an application to the mining industry" *by* Luc Bonnafous et al.

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Dear Dr. Wang, Thank you very much for your comment. You definitely caught the direction, significance and initial nature of the work that we intended. - Regarding the issue of presenting devising risk index in part 2 from more hydrological perspectives, it is something that we can discuss a little bit. We are currently in the process of gathering data on failed tailings dams to attempt to build our understanding of this issue. Overall, it has been a challenging process, we have been limited by data access in that regard, and this and the fact that overtopping is one of the major reason behind dam failures led us to consider precipitation data. However, we definitely hope to include more hydrological considerations in a later paper. - Regarding the return

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level of the Queensland floods, this changes a lot from station to station. For instance, using the high quality data from the Australian Bureau of Meteorology (BMO, 2016): http://www.bom.gov.au/climate/change/hqsites/, the highest 30-day cumulative rainfall of the December 2010-February 2011 period corresponds to an approximately 8.5 year return-level in Barcaldine, a 3-year return level in Macknade and almost a yearly occurrence in Winton. - The production loss assumptions were once again based on discussion we have had with experts rather than empirical analysis due to the lack of data access. For the Queensland floods, we noticed the distribution in the figure below regarding the percent change in production between 2010 and 2011, based on data reported from 38 mines. However, since the within year production data is not available it is not clear how one can assign the production losses to floods, even if we were able to use satellite remote sensing to identify which mines were inundated to what degree. - Regarding how “geographical variability” or “discrepancy” is associated with different ranking, we were referring to the V versus CV measure rather than the S versus R. Thank you for pointing this out, it will be made clearer.

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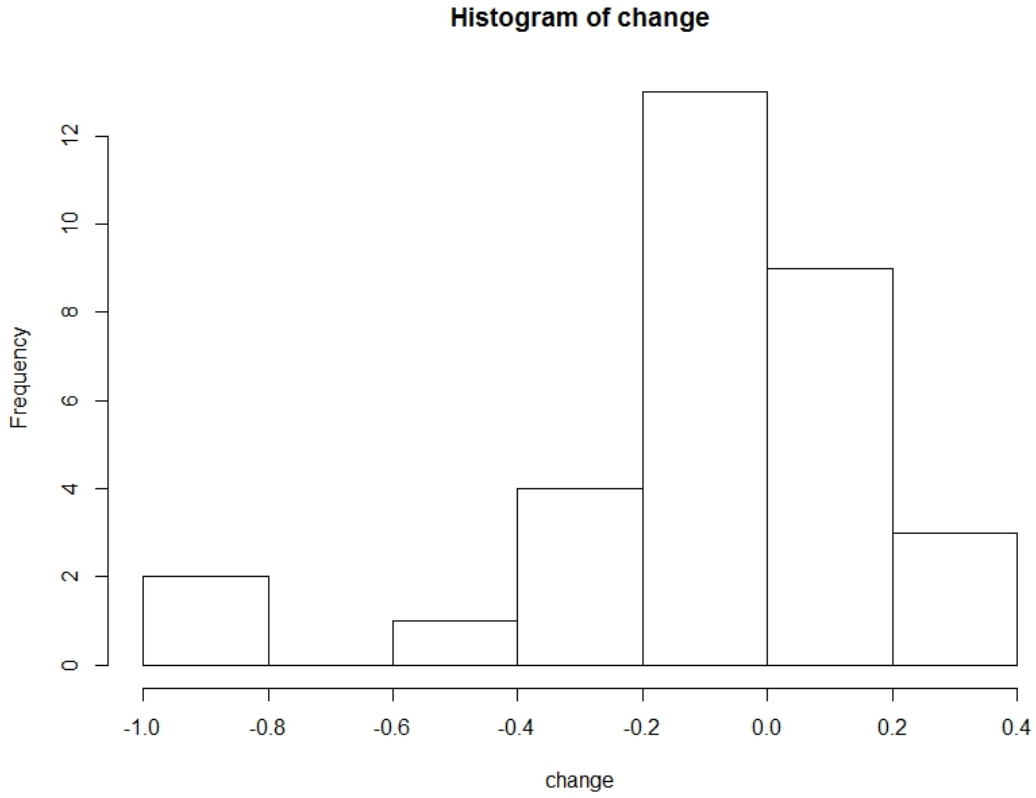
Histogram of change
Frequency
0
2
4
6
8
10
12
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4
change

Fig. 1.