

Comments:

In this study, the authors presented an approach based on Analytic Hierarchy Process (AHP) and the Difference Method (DM) to assess multi-hazard susceptibility to identify susceptibility areas in the Pearl River Delta region. This is a cutting-edge idea to find geological hazard susceptibility areas, which is quite important and valuable for decision-making and geological hazard management. However, the paper has several crucial faults so that I don't think the current version is good enough to publish in this journal. I leave the decision to the editor to decide the fate of the manuscript.

The first major problem is, the authors did not provide / collect enough data to support their study which makes the results based on the inadequate data unbelievable. For example, the authors only presented datasets of precipitation, topography, geology, etc. Such datasets are enough to assess geological hazard susceptibility? Obviously, no. For instance, soil erosion and landslides have a strong relationship with vegetation cover; without a vegetation cover map, how could the authors provide a correct susceptibility map for landslides or soil erosion? Seawater intrusion also has a strong relationship with freshwater discharge provided by the Pearl River, without hydrological data (e.g., annual mean runoff and long-term runoff fluctuation; besides, insufficient seasonal runoff caused by human activities (irrigation, water impoundment for energy generation) also can lead to seawater intrusion), is it possible to identify regions with high susceptibility to seawater intrusion?

The second problem, which is the key issue, is that the results are questionable. As we all know, for each geological hazard listed in this study, there is a susceptibility map already. We can just compare the results in the study with the maps released by government or previous studies. For example: Zhao et al. (2014) released a susceptibility map for landslides for the whole Guangdong Province (obviously include the entire delta area of the Pearl River):

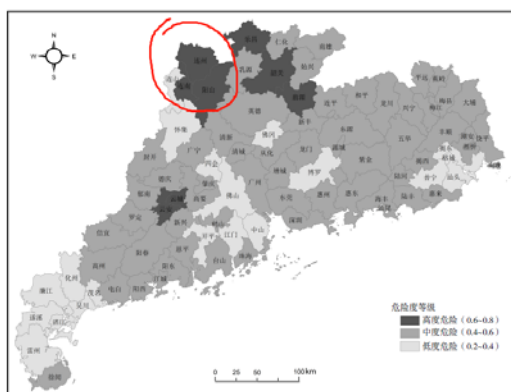
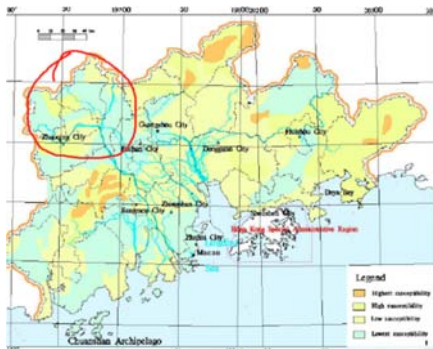


图1 广东省崩塌、滑坡和泥石流灾害危险度图
Fig.1 Hazardousness of collapse, landslide and debris flow hazards of Guangdong Province

(Figure 1 from Zhao et al. (2014))



The authors' result missed to identify the circled area as the high susceptibility area for landslides.

According to the investigation by Geological Survey Bureau of China (http://www.cigem.cgs.gov.cn/cgkx_4859/201703/t20170316_424756.html), the high susceptibility areas for ground subsidence in the Pearl River Delta area are in Foshan, Guangzhou, Jiangmen, Zhongshan, Zhuhai and Shenzhen. However, the result map provided by the authors didn't identify Shenzhen as the high susceptibility areas. In fact, ground subsidence events in Shenzhen have been reported by many studies.

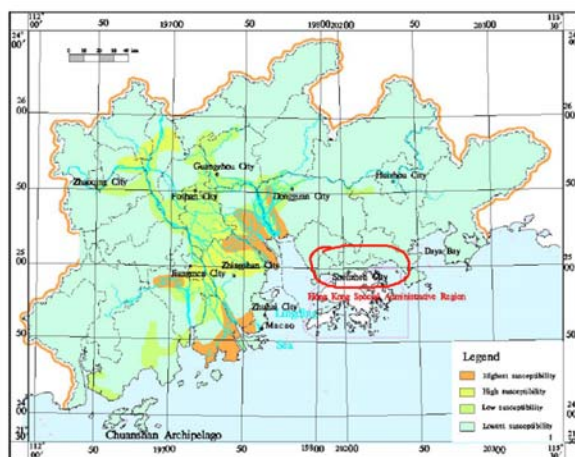
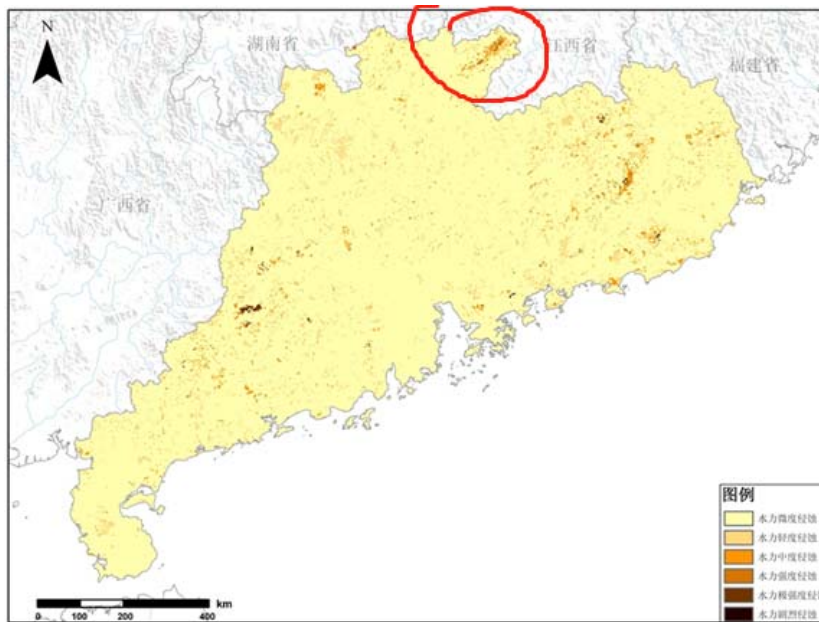


Fig.10 Ground subsidence susceptibility map of the study area

For soil erosion susceptibility map, we can also get the soil erosion map for the Guangdong Province via the link (<http://www.dsac.cn/DataProduct/Detail/20080604>):



The soil erosion map provided by the study also failed to identify the circled area as the high susceptibility area for landslides.

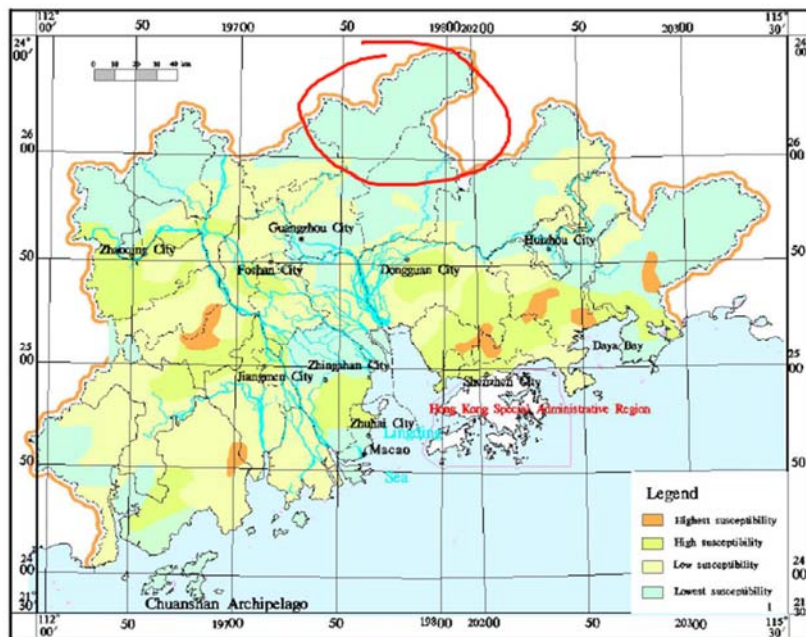


Fig.11 Water and soil erosion susceptibility map of the study area

All in all, I think the results provided by the authors are quite unbelievable.

The third problem is that the manuscript has too many English grammatical mistakes, the authors MUST carefully check each sentences before next submission. For example (in first six pages I can find near 20 problems):

Line 13: The main scope of this paper [is assess] multi-hazard susceptibility to identify area by using an integrated susceptibility...

Line 29: geo-hazards management

Line 57: loss of human life (lives?), reduce economic consequences (or loss?)

Line 58: it is very meaning (meaningful?) to

Line 61: Since geological hazards are (a?) complex phenomena

Line 65: relative information of different hazards is (an?) important tool

Line 69: a complex process and confronted with a-challenges

Lines 73-74: describe the real relationships of different influencing factors (why you describe the relationships between different influencing factors?, you should investigate the relationship between result with the influencing factors).

Line 77: One widely used method of (for?) susceptibility assessment

Line 79: hazards susceptibility in this (a ?) unit is considered high

Line 91: hazard susceptibility is assessed [with via??] of the Analytic Hierarchy Process

Line 93: The difference (different?) method is used

Line 94: the five aforementioned geohazards (geohazard?) susceptibility assessment

Line 109: Fig.1 The map (what map?) of the study area in The Pearl River Delta Economic Zone

Line 112: The rainfall is characterized by large (high?) precipitation

Line 117: Fig.2 The (spatial distribution of?) precipitation map of the study area

Line 121: The terrain is smooth (flat?),

Line 122: Based on the different genetic (what do you mean genetic? Geological?) type

References:

ZHAO Hongting, LIU Xilin, YU Chengjun, SHANG Zhihai . Risk Assessment and Temporal-Spatial Changes of Collapse, Landslide and Debris Flow in Guangdong[J] . Tropical Geography, 2014, 34 (6) : 804-813 .