Natural Hazards
and Earth System
Sciences

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Discussions

Interactive comment on "Risk assessment of meteorological drought in China under RCP scenarios from 2016 to 2050" *by* Kuo Li and Jie Pan

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Received and published: 3 April 2017

Thank you for your detailed and constructive suggestions. We have modified the article according to the suggestions item by item.

Line 27-29. The repeated sentence is removed.

Line 57. When meteorological drought happens, people should take actions to fight against it through water supply network, water resource management, reservoirs and so on; if the actions are not enough or even wrong, socio-economical drought probably happens. The references are cited in the article. (Wihite, 2000; Wisser et al, 2010)

Lines 66-68. The statement is our own opinion. We summarized it from the definitions

of different drought indexes.

Lines 119-121. HadGEM2-ES is more proper than the other GCMs in East Asia. Many studies have been done using HadGEM in China. (Xu Yinlong et al, 2006; Xiong Wei et al, 2009; Jiang Ying et al, 2010; Yang Honglong et al, 2010)

Lines 144-150. We add one reference in this paragraph. (Hong Wu et al, 2005)

Line 153. In this article, the probability distribution of 12-month SPI is calculated. It is transformed into a normal distribution in order to identify wetter and drier climates situations.

Line 159. The reference is added in the table. (Guttman, 1998)

Line 160. Yes. A meteorological drought event would be triggered when the SPI is below -0.5.

Line 168. The weighting factors are based on experts experience. The weighting values are scored by 20 experts who are familiar with SPI and drought.

Line 169-170. The shape parameter and scale parameter of precipitation distribution are estimated.

Lines 178-180. We have developed the Integrated Index of Drought Hazard. It is based on SPI. According to different weighting factors and the frequencies of SPI, the integrated indexes are developed to evaluate drought hazard. The method is as follows: IIDH=0.1*F1+0.2*F2+0.3*F3+0.4*F4 IIDH is the Integrated Index of Drought Hazard; F1 is the frequency of mild drought; F2 is the frequency of moderate drought; F3 is the frequency of heavy drought; F4 is the frequency of excessive drought.

Lines 195-196. A reference is added. (Houghton et al., 2001)

Line 201. The vulnerability model comes from IPCC report (IPCC, 2007). The reference is added.

Lines 202-204. These statement is our own understanding of vulnerability according to the previous studies all over the world.

Lines 206-216. The selection of vulnerability factors is mainly based on experts experience and it is restricted by the credibility and completeness of data and the independent of factors. The 15 factors are not ranked. The independent of factors is considered before we choose the factors. From the introduction of factors in Table 2, it is clear that we just choose one attribute of each factor. So the interaction of selected factors is avoided as much as possible.

Line 227. The figure is enlarged and the "Y" label is removed.

Line 237. The inclusion of the different parameters is stated from Line 228 to 230. The structure of the expression would reveal the level of exposure index in different counties according to 3 factors(PR, GDP, SRC).

Line 240-242. These data is summarized in a table.

Line 255. The figure is enlarged and the "Y" label is removed.

Line 265. The structure of the expression would reveal the level of sensitivity index in different counties according to 6 factors(PD, ELP, AR, UR, PWR and WCG).

Line 268-270. These data is summarized in a table.

Line 274-282. The statement is summarized by ourselves.

Line 284. The figure is enlarged and the "Y" label is removed.

Line 296. The structure of the expression would reveal the level of adaptive capacity index in different counties according to 6 factors(LFR, EIA, PCI, WPC, WSC and FCR). Line 297-301. These data is summarized in a table.

Line 304-306. The reference is added. (IPCC, 2007)

Line 316-317. In this article, RCP (2.6, 4.5, 6.0, 8.5) scenarios are chosen in order to

compare the different risks under different RCPs in the future.

Line 345-361. These data is summarized in a table.

Line 362-373. These sentences are simplified and clarified.

Line 385. The redundant parenthesis is removed.

Line 417-431. These data is summarized in a table.

Line 434. The reference is added.

Line 437-438. The sentence is removed.

Line 449. It is about the most risky regions threatened by meteorological drought in the future.

Lines 465-466. It comes from the China National Commission for Disaster Reduction.

Lines 475-476. In the methodology section we have explained it.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2016-257, 2016.