[1]邱海军,曹明明,胡胜.1950-2010年中国洪涝灾情的频率规模关系[J].自然灾害学报,2013,04:114-119.

QIU Haijun,CAO Mingming,HU Sheng.The relationship between the frequency and the scale of flood situation in China from 1950 to 2010[J].,2013,04:114-119.

点击复制

工具/TOOLS

引用本文的文章/References

下载 PDF/Download PDF(850KB)

立即打印本文/Print Now

推荐给朋友/Recommend

1950-2010年中国洪涝灾情的频率规模关系

Title: The relationship between the frequency and the scale of flood situation in China from 1950 to 2010

作者： 邱海军； 曹明明； 胡胜

西北大学 城市与环境学院, 陕西 西安 710127

Author(s): QIU Haijun; CAO Mingming; HU Sheng

College of Urban and Environment Science, Northwest University, Xi'an 710127, China

摘要： 本文借鉴相关领域研究概念,对洪涝灾情的1950-2000年的变化动态,特别是频率与规模的关系做了定量的分析,划分了风险的可接受与不可接受区。研究结果发现:(1) 总体上,60年来洪涝灾害的受灾和成灾面积不断增大,而因灾死亡人口和倒塌房屋间数总体上不断减少。(2)洪涝灾害因灾死亡人口数、受灾面积和倒塌房屋间数与累积频率的关系与著名的古登堡-里查德关系类似,呈现良好的幂律关系。(3)通过借鉴地质灾害领域相关可接受风险概念,划定了洪涝灾害的年因灾死亡人口数的可接受与不可接受灾情的界线。(4)本文只是借鉴相关领域研究概念,试探性的对洪涝灾害进行了探索,在将来的研究中还有待继续和深化。

Abstract: This paper analyzes the change of flood situation from 1950 to 2010 and the relationship between flood frequencies and scales with reference to the research concept of related fields, and divides the risk area into acceptable and unacceptable areas. Research results show that: (1) in general, disaster-affected and suffered areas are increased, while population death and collapsed buildings are decreased in the past 60 years; (2) the relationship between population death, disaster-affected/suffered areas,

collapsed building number and accumulative frequency shows good power-law relationship which is similar to the famous Gutenberg-Richard relations; (3) the risk was divided into acceptable and unacceptable areas with reference to the related fields, and draw a line between the acceptable and unacceptable annual casualties due to floods; (4) the tentative division explores the flood hazards in China and needs to be deepened in the future.

参考文献/REFERENCES

[1] 张继权, 李宁. 主要气象灾害风险评估与管理的数量化方法及其应用[M]. 北京: 北京师范大学出版社, 2007. ZHANG Jiquan, LI Ning. Quantitative Methods and Applications of Risk Assessment and Management on Main Meteorotogical Disasters[M].Beijing: Beijing Normal University Press,2007.(in Chinese)

[2] 王静爱, 史培军, 朱骊, 等. 中国沿海自然灾害及减灾对策[J]. 北京师范大学学报: 自然科学版, 1995, 31(3):104-109. WANG Jingai, SHI Peijun, ZHU Li, et al. Natural disaster and response measurement in China coastal zone[J]. Journal of Beijing Normal University, 1995, 31(3): 104-109.(in Chinese)

[3] 温书, 陈平, 达庆利. 我国洪涝灾害受灾及成灾面积的预测分析[J]. 生物数学学报, 2000, 15(4): 452-456. WEN Shu, CHEN Ping, DA Qingli. Prediction and analysis for the disaster area caused by flood and waterlogging in our country[J]. Journal of Biomathematics, 2000, 15(4): 452-456.(in Chinese)

[4] 赵晶, 徐建华. 1950~1997年我国洪涝灾害成灾面积的分形特征研究[J]. 自然灾害学报, 2003,12(1): 31-35. ZHAO Jing, XU Jianhua. Study on fractal characteristics of inundated area of flood disaster in China from 1950 to 1997[J]. Journal of Natural Disasters, 2003,12(1): 31-35.(in Chinese)

[5] 刘会玉, 林振山, 张明阳. 建国以来中国洪涝灾害成灾面积变化的小波分析[J]. 地理科学, 2005, 25(1): 43-48. LIU Huiyu, LIN Zhenshan, ZHANG Mingyang. Wavelet analysis of area affected by flood disa ster in China after 1949[J]. Scientia Geographica Sinica, 2005, 25(1): 43-48.(in Chinese)

[6] 孙力, 安刚, 丁立. 中国东北地区夏季旱涝的分析研究[J]. 地理科学, 2002, 22(3): 311-316. SUN Li, AN Gang, DING Li. The characteristics of summer drought and flood in northeast area of China[J]. Scientia Geographica Sinica, 2002, 22(3): 311-316.(in Chinese)

[7] 周成虎, 万庆, 黄诗峰, 等. 基于GIS的洪水灾害风险区划研究[J]. 地理学报, 2000, 55(1): 15-24. ZHOU Chenghu, WAN Qing, HUANG Shifeng, et al. A GIS-based approach to flood risk zonation[J]. Acta Geographica Sinica, 2000, 55(1):15-24.(in Chinese)

[8] 唐川, 朱静. 基于GIS的山洪灾害风险区划[J]. 地理学报, 2005, 60(1): 87-94. TANG Chuan, ZHU Jing. A GIS based regional torrent risk zonation[J]. Acta Geographica Sinica, 2005, 60(1): 87-94.(in Chinese)

[9] 盛绍学, 石磊, 刘家福, 等. 沿淮湖泊洼地区域暴雨洪涝风险评估[J]. 地理研究, 2010, 29(3): 417-423. SHENG Shaoxue, SHI Lei, LIU Jiafu, et al. Assessment of rainstorm flood risk in the area of lakes and depressions along Huaihe River[J]. Geographical Research, 2010, 29(3): 417-423.(in Chinese)

[10] 冯平, 崔广涛, 钟昀. 城市洪涝灾害直接经济损失的评估与预测[J]. 水利学报, 2001,32(8): 64-68. FENG Ping, CUI Guangtao, ZHONG Yun. On the eveluation and prediction of urban flood economic loss[J]. Journal of Hydraulic, 2001, 32(8): 64-68.(in Chinese)

[11] 孙东永, 畅建霞, 黄强, 等. V/S和Mann-Kendall相结合的方法在洪涝灾情分析中的应用[J]. 西北农林科技大学学报:自然科学版, 2012, 40(4): 230-234. SUN Dongyong, CHANG Jianxia, HUANG Qiang, et al. Application of the combination of V/S and Mann-Kendall method in flood disaster analysis[J]. Journal of Northwest A & F University:Nat.Sci.Ed, 2012, 40(4): 230-234.(in Chinese)

[12] Gutenberg B, Richter C F. Frequency of earthquakes in california[J]. Bulletin of the Seismological