



## **Study on Dongting Lake evolution mechanism Under mankind activities influence**

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The frequent occurrence of extreme climate event (e.g. flood, drought, rainstorm and high temperature) has become the focus of current society recently. Variation of extreme climate can alter water cycle, and thus change the allocation of water resources in time and space as well as its quantity. The water area of Dongting Lake is continuously shrinking and has already been the high-risk region of sediment deposition and flood disaster due to the special geographical position and evolution process. Therefore this paper studies the influence mechanism of extreme climate and hydrological event on water resources of this region under the background of climate change and human activities. Directed by the concept of Harmony between Man and Nature, which is based on Human Survival-Ecological Environment- Social Economic Development, and obeying the natural evolution rule of Dongting Lake wetland, the paper simulates the effect of complicated environment change under the condition of extreme water regime such as underlying surface change and climate change driven by human activities on Dongting Lake evolution from the aspects of geology, hydrology, climate and human activities. The influence style and mechanism of human activities on lake evolution is also analyzed here, and then the change in ecological environment of Dongting Lake is evaluated. All the works can offer scientific basis for flood control of middle and lower Yangtze and for the ecological harmony and economic development of Dongting Lake region.