

Analysis of Livable Environment of Traditional Villages in Hot Summer and Cold Winter Zone Based on CFD Simulation Technology of Wind Environment: A Case Study of Guzhu Village in Jiangxi Province of China

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Abstract

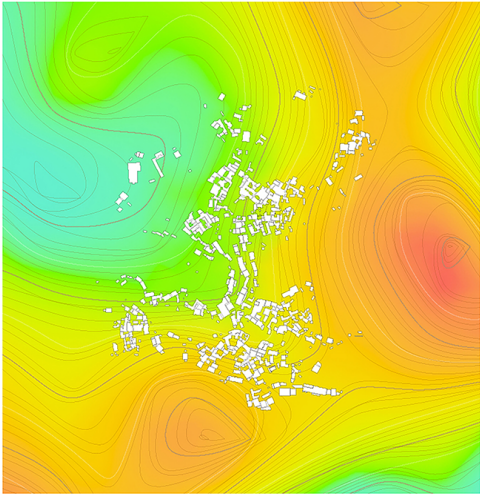
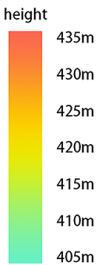
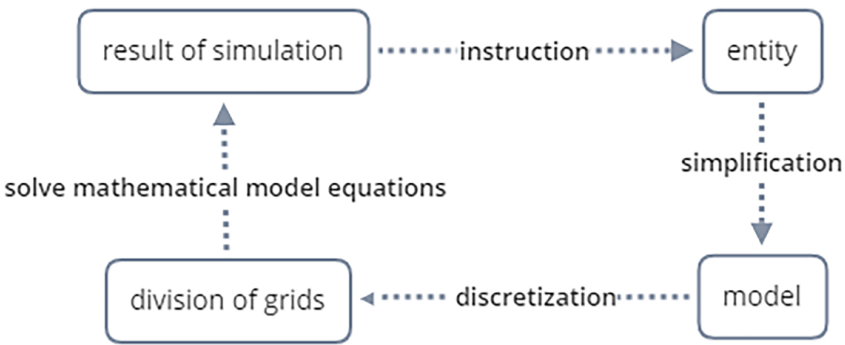
Historical settlements can reflect the harmonious coexistence between ancient people and the local climate & geographical environment. In ancient times, many villages were formed during the period of war. To escape from the war, ancient people moved to places with good climate and suitable environment, and continued to improve their quality of life during the development and construction. The site selection, layout planning, architectural layout and material selection of these settlements have valuable scientific design concepts. Wind environment factors have significant influence on the construction of villages. However, the research about the influence of outdoor wind environment in traditional villages' livable environment is still insufficient. In this paper, a village called Guzhu Village located in typical hot summer and cold winter zone in Jiangxi Province of China is selected to analyze the local climate environment. Computational fluid dynamics (CFD) simulation technology is used to study the selection of places for living in terms of outdoor wind environment. The results of the simulations confirm the habitability of the villages and the need to preserve such treasure.

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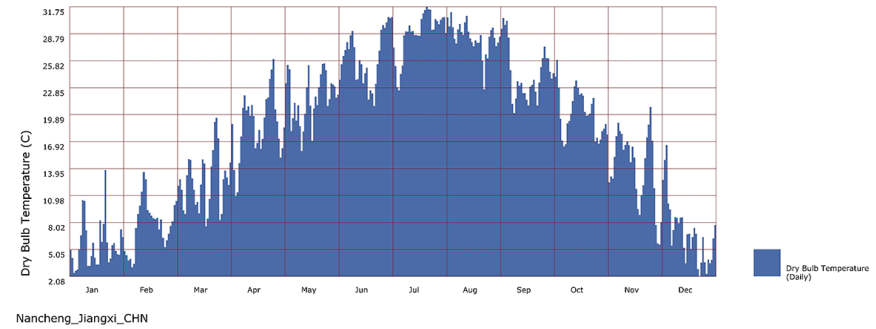
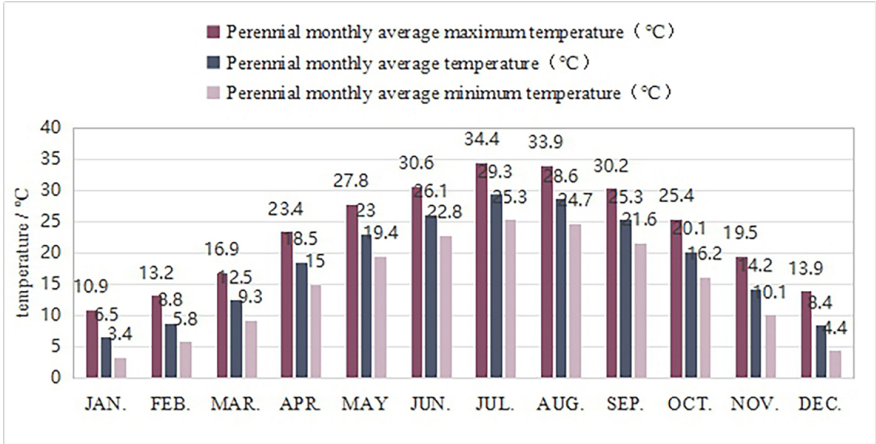
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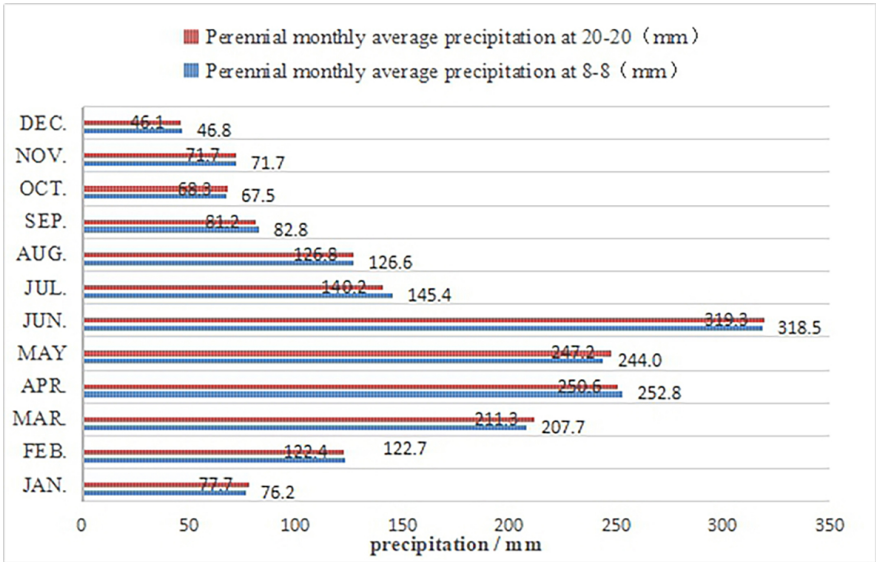
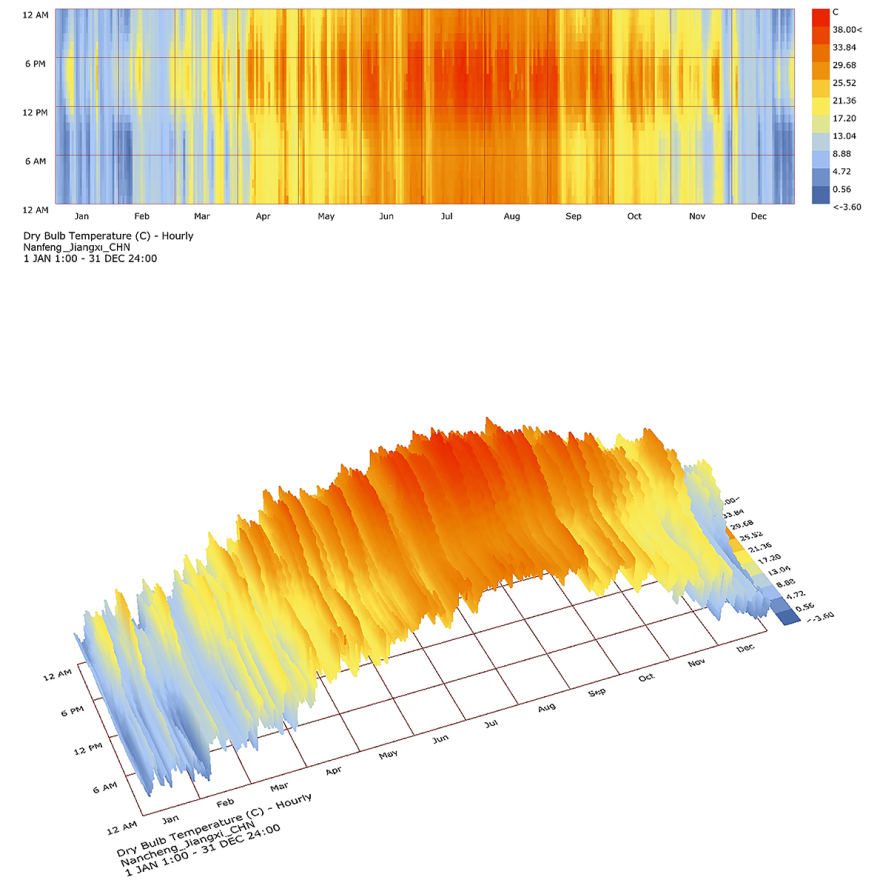
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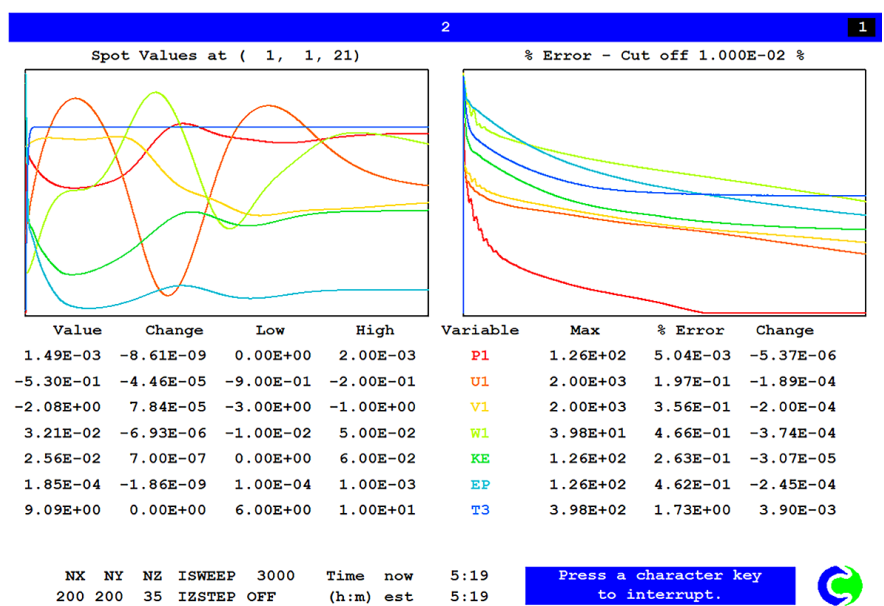
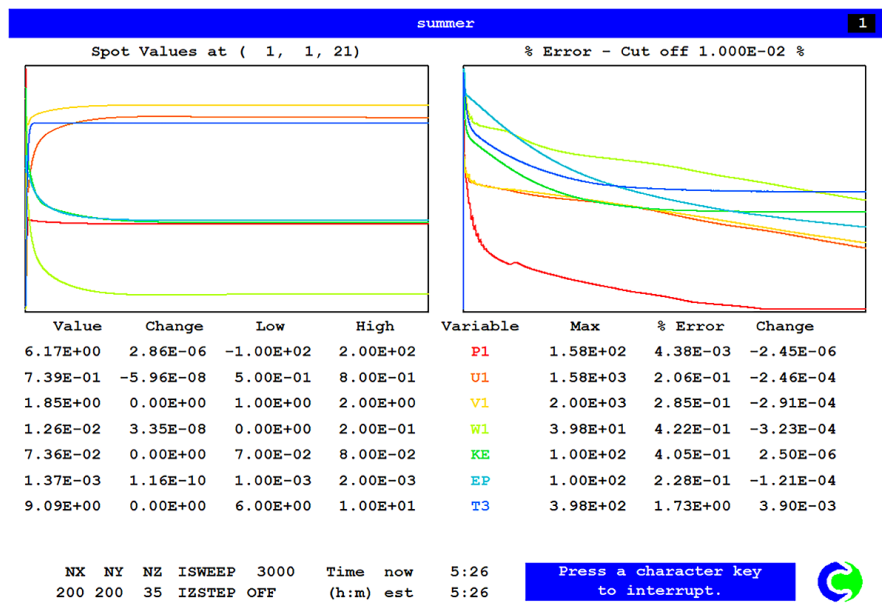
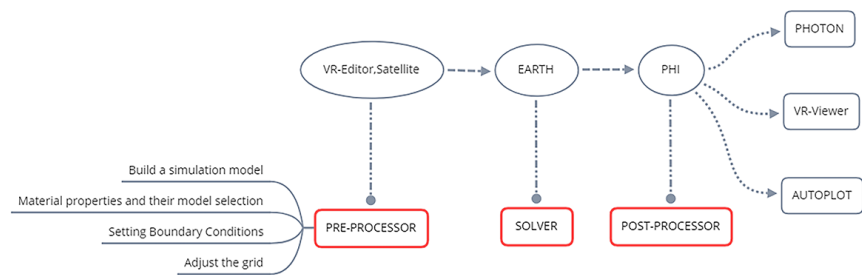
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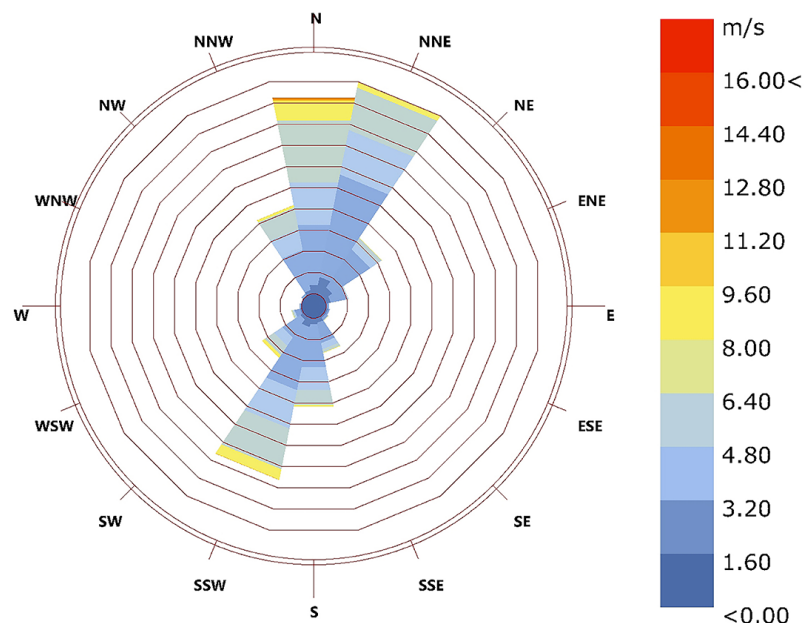












Wind-Rose
 Nanfeng_Jiangxi_CHN
 1 JAN 1:00 - 31 DEC 24:00
 Hourly Data: Wind Speed (m/s)
 Calm for 16.88% of the time = 1479 hours.
 Each closed polyline shows frequency of 1.8%. = 162 hours.

