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Study on Shape Coefficient of Large Statue Building Based on CFD

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Abstract : Wind load is the main control load of large statue structures. Due to the irregular plane and elevation and uneven outer contour, statues' shape coefficient can not pick up from the current code. Currently a common practice is based on wind tunnel test. But this method is time-consuming and high cost. In this paper, based on the fundamental theory of CFD, using fluid dynamics software of Fluent 15.0, a few large statue structure of 40 to 70m high, which are located in china , including large fairy statues and large Buddha statues, are analyzed by numerical wind tunnel. The results are contrasted with the recommended values in load code and the wind tunnel test results respectively. Results show that the shape coefficient has a good reliability by the numerical wind tunnel method of this kind of building. This will has a certain reference value of wind load values for large statues' structure.

Keywords : large statue structure, shape coefficient, irregular structure, wind tunnel test, numerical wind tunnel simulation
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