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2010年智利地震海啸数值模拟及其对我国沿海的影响分析

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Numerical simulation of 2010 Chile tsunami and its impact on Chinese coasts

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摘要

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摘要 2010年2月27日06时34分(北京时间14时34分),在智利中南部近岸(36.1° S, 72.6° W)发生 M_w 8.8级地震,并引发了泛太平洋范围的海啸,太平洋沿岸多个国家的验潮站和海啸监测浮标均监测到了强震引发的海啸;海啸波传播25 h后到达我国沿海.本文利用海啸数值模型对此次地震海啸进行了数值模拟.重点模拟了我国沿海及智利周边区域海啸波的传播特征,结果与观测数据拟合良好.通过对数值模拟结果的分析,定量阐述了智利海啸对我国沿海地区的影响,给出了此次海啸对我国沿海各海区的危险性分布.

关键词: 越洋海啸 数值模拟 影响

Abstract: On February 27 2010, 06:34 UTC, a subduction earthquake of magnitude M_w 8.8 occurred at the southern-central Coastal Chile, generating a tsunami spreading to the entire Pacific Ocean. The epicenter is located at (36.1° S, 72.6° W). An ocean-wide tsunami was triggered soon after the earthquake, which is recorded by tide gauge networks and Deep-ocean Assessment and Reporting of Tsunami (DART) buoys in the Pacific Ocean. The tsunami leading waves arrived in China coasts 25 hours later. The quantitative analysis of this ocean-wide tsunami was studied in detail with numerical tsunami model in this paper. We mainly focus on tsunami propagation scenarios around Chile and China's coastal areas. The simulation results fit well with the observations. Based on the simulation results, the impact of Chile tsunami on China coasts was discussed quantitatively. The evaluation of potential risk along the China coasts was given.

Keywords: Teletsunami Numerical simulation Impact

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