

# **A FAST NUMERICAL MODEL FOR TSUNAMI PROPAGATION AND INUNDATION**

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Recent destructive tsunami (e.g., Sumatra 2004, Japan 2011) caused significant loss of life and property damage. The objective of this study is to develop a numeric model to provide fast and reliable estimate of the propagation and land inundation of a tsunami. The model solves the two-dimensional nonlinear shallow water equations based on the second-order MacCormack scheme, in conjunction with a total variation diminishing (TVD) modification. The model is implemented on the Graphics Processor Unit (GPU) to a significant faster speed compared to traditional CPU. Its performance is demonstrated by applying the model to simulate the 1964 tsunami at Crescent City, California.