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APPLICATION OF A NUMERICAL MODEL TO PREDICT FRESH WATER DEPTH IN ISLANDS DUE TO CLIMATE CHANGE: AGATTI ISLAND, INDIA

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ABSTRACT

Global warming could raise sea level by several tens of centimeters in the next fifty years, about one meter in the century, and several meters in the next few centuries by expanding ocean water, by melting glaciers, and by causing ice sheets to melt or slide into the ocean. Such a rise would inundate deltas, coral atoll islands, and other coastal lowlands, erode beaches, exacerbate coastal flooding and threaten water quality in estuaries and aquifers. Saltwater intrusion is a serious environmental problem to coastal subsurface water systems around the world due to climate change. In the development of subsurface water protection and rehabilitation strategies, mathematical models play an important role in coastal areas. A density dependent model is applied to predict freshwater depth in coastal areas of islands. A case history from a small island, Agatti Island, in the Laccadive Islands of India, is used to illustrate the current modeling methodology and mechanisms of saltwater intrusion due to climate change.

Reference: Bobba, A. G.; Application of a Numerical Model to Predict Fresh Water Depth in Islands Due to Climate Change: Agatti Island, India, Journal of Environmental Hydrology, Vol. 6, Paper 10, December 1998.

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