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IN THE SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY AT THE UNIVERSITY OF HAWAI'I AT MĀNOA

Shoreline prediction: the nightmare of sparse noisy data, non-stationary nonlinear processes and brain-dead models

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MSB 114

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3:00-3:30 pm Coffee Hour
3:30-4:30 pm Seminar

Abstract

Beach loss is of great interest in Hawaii because of tourism and coastal development. Accordingly, planning and permitting agencies want formulas for determining shoreline setbacks for new construction, assuming the expected lifetime of a new building is 70 years. Scientists translate this as: At each alongshore position, what is the setback with probability of flooding < q in the next 70 years, 0 < q < 1 being the flood risk that owners/agencies are willing to accept? The national standard approach to this question has been a simple phenomenological model: For each alongshore position x, fit a line to historical cross-shore position y(x,t) and project it into the future using y(x,t) = r(x) t + b(x). As scientists, we would prefer to use realistic physical models, but as the ancillary data needed for such models are seldom available, the parsimony principle usually forces us to settle for much less. In this talk we'll review some of the simple models examined by the SOEST Coastal Geology Group while surveying Hawaii's beaches for a national study.

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