

## Tsunami Risk Perception in Questionnaires and its use for the Modeling of Start Time Evacuation Behavior

Erick Mas<sup>1\*</sup>, Fumihiko Imamura<sup>1</sup>, Shunichi Koshimura<sup>1</sup>

<sup>1</sup>Grad. Sch. Eng. Tohoku University

Questionnaires are a popular and fundamental tool for acquiring information on human behavior, public knowledge and perception of risk [2]. There is a lack of research in tsunami human behavior [1] specially on the start time decision for evacuation, even though a great improve on technology for early warning has been achieved, still some people decide not to evacuate from tsunami [4,5]. Most of survivals who did not evacuate give as a reason, the fact that the sea did not retreat, no information or warning confirmation came, or they considered themselves in a safe place already, etc. [3]. It is true that, if we do not consider cognitive aspects of the human being during the process of evacuation, the results provided by such models might be far from reality [6]. In this study, Risk Perception (RP) was the key for the construction of the model of start evacuation decision. RP is a subjective judgment of a risk, an idea of how risk could be the situation. It was treated as a dynamic level, from a moment of no threat through a decision stage in which an alteration of the environment is perceived and risk perception rises until the individual has to consider an action (e.g. evacuate or not), this, based on experience, social or external sources of influence and time pressure; and finally enters a last stage of risk recognition where the decision becomes a protective action. For this, a Tsunami Evacuation Behavior Questionnaire was conducted in La Punta, Peru. Risk perception level was calculated for each individual and a risk perception framework for evacuation decision was integrated into a model and verified with actual data from questionnaires. Reference Risk, Prospect Reference Theory, Subjective Judgment Matrices and Bayesian Learning were used as tools to construct this Risk Perception Framework for Tsunami Evacuation Decision. An improvement on predicted times for the sample group was obtained in comparison with traditional models [7]. The proposed risk perception model of decision shows consistency and a promising future in human behavior modeling for tsunami events.

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