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Random Focusing of Tsunami Waves HENRI-PHILIPPE DEGUELDRE, JAKOB J. METZGER, RAGNAR FLEISCHMANN, THEO GEISEL, Max Planck Institute for Dynamics and Self-Organization, Goettingen — When waves propagate through a weakly scattering, correlated random medium, the consecutive effects of small focusing events give rise to the phenomenon called branched flow, producing patterns of high intensity fluctuations. As tsunamis are deflected by underwater structures in the depth profile of the ocean floor, we investigate how it affects tsunami propagation and derive the typical length scale on which the highest waves are to be expected. We show that as a consequence of this effect the inaccuracies in the current knowledge of the ocean floor topography can prevent reliable tsunami forecasts on medium to large length scales.

Henri-Philippe Degueudre
Max Planck Institute for Dynamics and Self-Organization, Goettingen

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