Boulder Dislodgement by Tsunamis and Storms: Version 2.0

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In the past, boulder dislodgement by tsunami and storm waves has been approached with a simple threshold approach in which a boulder was moved if the sum of the acting forces on the boulder is larger than zero. The impulse theory taught us, however, that this criterion is not enough to explain particle dislodgement. We employ an adapted version of the Newton's Second Law of Motion (NSLM) in order to consider the essence of the impulse theory which is that the sum of the forces has to exceed a certain threshold for a certain period of time. Furthermore, a classical assumption is to consider linear waves. However, when waves travel toward the shore, they alter due to non-linear processes. We employ the TRIADS model to quantify that change and how it impacts boulder dislodgement. We present our results of the coupled model (adapted NSLM and TRIADS model). The results project a more complex picture of boulder transport by storms and tsunami. The following question arises: What information do we actually invert, and what does it tell us about the causative event?