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Investigation on Colliding Two Tsunami Run-Ups in December 26th 2004 Indian Ocean Tsunami

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Huge earthquake on December 26th 2004 which is followed by giant tsunami attacked Nangroe Aceh Darussalam through two directions, namely Uleelheue and Lhoknga. Two tsunami run-ups collided approximately in Lampisang village, District of Peukan Lambada which has still essentially flow depth and strong current. Three weeks after the event, International Tsunami Survey Team (ITST) was formed and performed rapid field survey to record Tsunami wave run-up, flow depth, and its direction in several locations. Furthermore, one year later, the small team of local researcher had chance to investigate and make interview witnesses in locations which had tsunami run-up from two directions were met. This paper will describe the result of the field survey in particularly the event of the colliding two tsunami run-ups and its quantitative parameter, such as flow depth, colliding points, number of incident wave, and arrival time. In addition, by using shallow water wave equation with leap-frog scheme, the numerical simulation has been conducted. The result of the numerical simulation namely, tsunami run-up height, travelling time, and distance penetration were compared with the result of the field survey which was performed. The comparison of the results show that, however the numerical method has still some problems in determination of bottom roughness value, by giving reasonably value, it has comparatively good agreement with field survey result.