Oral | Symbol M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS23_2PM1]tsunami deposit

Convener:*Kazuhisa Goto(International Research Institute of Disaster Science (IRIDeS),Tohoku University), Masanobu Shishikura(Active Fault and Earthquake Research Center, GSJ/AIST), Yuichi Nishimura(Graduate School of Science, Hokkaido University), Chair:Masanobu Shishikura(Active Fault and Earthquake Research Center, GSJ/AIST)

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After the 2011 off the Pacific coast of Tohoku Earthquake and tsunami, the tsunami deposit is reconsidered as very important and useful tool for future tsunami risk assessment. However, identification criteria of the tsunami deposit are not yet established. Moreover, it is still uncertain how to use the tsunami deposit in the risk assessment. In this session, we discuss the deposits that were formed by the tsunamis generated by earthquake and other mechanisms. The talks on the risk assessment using the tsunami deposits are also welcome.

3:45 PM - 4:00 PM [MIS23-PO6_PG]Relationship between the inundation limit and the maximum extent of the sandy tsunami deposit in Sendai Bay coasts

3-min talk in an oral session

*Tomoya ABE¹, Kazuhisa GOTO², Daisuke SUGAWARA² (1.Department of Geography, Nagoya University, 2.IRIDeS, Tohoku University)

Keywords:2011 Tohoku-oki tsunami, Sendai Bay coast, Inundation limit, Maximum extent of sandy tsunami deposit

Maximum landward extent of the sandy tsunami deposits can be regarded as the minimum inundation limit. Before the 2011 Tohoku-oki tsunami, recent post-tsunami field surveys along low-lying coastlines showed that sandy tsunami deposits commonly extend to approximately over 90% of the actual inundation limit (MacInnes et al., 2009). On the other hand, after the 2011 Tohoku-oki tsunami, some researches of the 2011 tsunami pointed out that the significant gap (0.6-2.0 km) between the inundation limit and the maximum landward extent of the sandy tsunami deposit where the inundation distance was more than 2.5-3.0 km (Goto et al., 2011; Abe et al., 2012; Shishikura et al., 2012). However, it is uncertain why the gap appeared. This study focuses on the relationship between the maximum extent of sandy tsunami deposits and inundation limit of the 2011 Tohoku-oki tsunami. Inundation limits of the Tohoku-oki tsunami were assessed over 15 shore-normal transects in the Sendai Bay coast. Inundation distances of the 15 transects were found to range from 0.60 to 5.07 km. The maximum limit of the sand layer extended to 2.3-3.0 km (55-74% of the inundation distance) along 6 transects in the wide coastal plain in the northern-middle part of the Sendai Plain. Absence of the sandy tsunami deposits over 3.0 km inland may explained by the limitation of the sand supply from sand beach and sand dune.