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Estimation of liquefaction uisng landform classification

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Koarai (2009) suggested the relationship between landform classification and earthquake damage. The suggested classification is detailed classification in lowland compared with classification of land condition map, because of the difference of composited grain size and ground water level in same landform classification. For example, we show the difference of sand dune or edge of sand dune, opened delta or closed delta, and natural levee with root or natural levee without root. In this study, we show the relationship table between landform classification and seismic intensity for liquefaction damage by earthquake (Table.1). This table consists of Wakamatsu et al. (2009)'s landform classification with DEM's analysis. In this table, valid plain is divided into gentle slope (under 1/100) or not, natural levee is divided into high (over 5m) or not, sand dune is divided into edge or not. In this presentation, we will show the results of estimation of liquefaction of past large earthquake using this table.

Table 1 Relationship table between landform classification and seismic intensity for liquefaction damage

Keywords: liguefaction, landform classification, natural levee with root, naturale levee without root

Seismic intensity \ Landform classification	Mountain Hill Volcano Volcanic hill Reef Water	Mountain foot Volcanic foot Rocky upland Loamy upland	Fan Sandy upland	Fan*1 Sand dune	Natural levee*2 Sand bar Back march Valley plain	Delta Natural levee Valley plain*1	Sand dune*3 Lowlands between sand hills Reclaimed land Former river channel River bed
7	0	1	2	3	4	4	4
6strong	0	0	1	2	3	4	4
6weak	0	0	0	1	2	3	4
5strong	0	0	0	0	1	2	3
5weak	0	0	0	0	0	1	2

0:None dangerous
1:dangerous small
2: dangerous middle
3: dangerous large
4: dangerous maximum

*1 gentle slope (under 1/100)
*2 difference in elevation is high (over 5m)
*3 edge of the sand hill adjacent to lowlands