

Topographic characteristic, aftershock distribution, crustal structure in the source region of the western Tottori earthquake

Shintaro Abe[1]; Yasuhira Aoyagi[2]; Ryuji Kubota[3]

[1] ADEP; [2] CRIEPI; [3] Kawasaki Geol. Eng.

We conducted LIDAR investigation by the airplane in the source region of the western Tottori earthquake (Mj7.3) which occurred in 2000. Investigation areas are 6km in width, and 13.5km in length along the source region. DEM (Digital Elevation Model) created from the highly precise survey data is a 2m mesh. We tried to extract lineament from this DEM using numerical analyses, such as Hough transform. As a result, the lineament group of the NW-SE direction and the lineament group of the N-S direction that crossed in NW-SE lineament group were extracted. In this study, we considered the spatial position relations of lineaments group and aftershock distribution and crustal structure. The lineament group of the NW-SE direction is almost overlap with aftershock distribution. In addition, the width of this lineament group is recognized to limit width of the aftershock distribution. On the other hand, the lineament group of the N-S direction is remarkable in the both ends of the lineament group of the NW-SE direction. The area where aftershock distribution scatters in the northern part is corresponded to the area where the lineament group of the N-S direction is remarkable. The lineament groups extracted in this study do not directly continue with the displacement of the reflectors recognized on seismic reflection profile, but they are distributed over the near position each other. Therefore, we think that these lineament groups are deformation of the shallow layers caused by underground cumulative fault displacement.