



Seismically- induced soft sediment deformation structures associated with Ulsan Fault System, Korean Peninsula

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Towards assessing historical seismicity of an area, it is important to study the evidences of paleo-earthquakes particularly in areas of low seismicity like Korean Peninsula. This can be achieved by studying primary and secondary evidences of seismic events. Seismites are one of those indicators for understanding paleo-seismicity. Seismites are deformed layers within a sedimentary sequences by seismic shaking. In recent time, many studies on seismites along many seismically active regions throughout the world suggest seismites could be used as an important indicator for seismic hazard assessment. Detailed study with age dating of seismites can help us in quantification of paleoearthquake along a seismically active area. In this study we have identified some typical earthquake induced soft sediment deformation structures along one of the active fault system in Korean peninsula i.e. Ulsan Fault system. Near Hwasanan-gil (35°57'27.84"N, 129°17'53.12"E) along Ulsan Fault, we observed disturbed varved lamination, folded and micro faulted laminae, mound structure, diapir, water escape and pillar structure etc. These soft sediment deformation structures along the Ulsan Fault system are interpreted as seismites that have been caused by earthquakes as the study area has prehistorically, historical and instrumental seismic events with $M_w > 5$. Also, a major fault striking N-S with dip angle varies from 45° - 65° exposed towards the western part of the section conceal the evidence as seismically originated soft sediment deformation structure. It would be desirable in future to carry out more precise dating of the seismites for detailed understanding of the earthquake chronology of the area. This study will be useful for evaluating the potential seismic hazards along the Ulsan Fault System in the southeastern part of the Korean peninsula.