

HQR023-02

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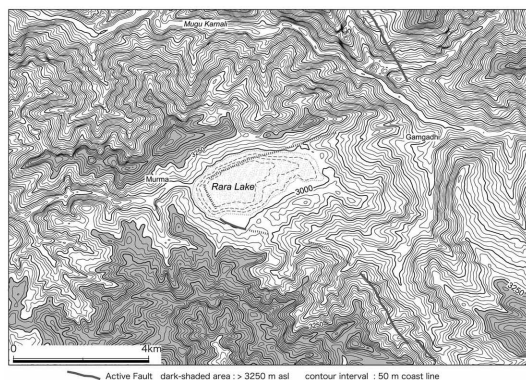
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Rara lake, the largest lake in Nepal Himalaya, as a pull-apart lake embanked by glacial till

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Bathymetric survey of Rara Lake that is the largest lake in Nepal Himalayas was carried out, using an ultra sonic sounder and GPS. The shoreline of Rara Lake is just adjacent to the piedmont line except its southwest corner, where an alluvial fan develops. The alluvial fan is dislocated by an active fault that shows down-throw of eastern side of the fan surface. The bathymetry of the western half of the Rara Lake is box-shaped with a flat bottom deeper than -160 meters below the lake level though the transverse profile of its eastern half shows V-shaped submerged valley. A western margin of the lake is bounded by a steep submerged cliff deeper than 160 meters. It is a continuation of the active fault. The eastern bank of the lake is fringed by narrow embankment composed of the detritus thicker than 100meters. It is very clear that blockage of the mouse of the rhomboid valley has primarily formed Rara Lake due to detritus embankment. How the box-shaped depression in the western end has been formed? The alluvial fan is cut by the active fault that down-threw its eastern side. The active fault is northwestern extension of the Talphi fault (Nakata,1982) that is one segment of the active fault system with dextral displacement along the Main Central Thrust and that steps its trace to Darma fault in the north of Rara Lake. The trace of the active fault clearly continues northwestward to the submerged steep wall of the western fringe of the lake. That implies western half of the lake is tectonic origin due to pull parting that is liable to occur at a step of active faults. Namely, the box-shaped depression located in the western half of Rara Lake has been formed as a kind of pull-apart basin at the step of a series of the dextral active fault, Darma-Talphi active fault system.



Keywords: Rara Lake, Nepal Himalaya, glacial till, embankment, pull-apart lake