七、温泉盆西主边界活动断裂

温泉盆西主边界活动断裂位于唐古拉山北部，总体呈近南北走向，向东倾斜，控制温泉盆地的形成演化，形成青藏高原北部较大规模的盆—山构造地貌单元（吴中海等，2004）。断裂错动山前基岩和中、晚更新世冲、洪积扇，形成线性特征明显的山前多级断坎、多套断层三角面和多期冲、洪积台地。沿温泉盆西主边界活动断裂发育线性排列的中低温温泉及泉华台地，全新世发生 3 期古地震事件，晚期地震破裂切割、错动早期泉华台地，形成不同高度的断层陡坎和多期古地震楔。根据断裂垂直断距和错动地层的 U 系年龄，估算温泉盆西主边界断裂晚第四纪的最大垂直活动速率为~1.1mm/a，最小活动速率>0.3mm/a，平均活动速率为~0.6mm/a。

PART 7 WEST BOUNDARY FAULT OF WENQUAN GRABEN

Wenquan graben is located in north of Tonggula Mts. and west boundary fault of Wenquan graben of eastward dipping controls formation and evolution of the Wenquan basin, formed a larger-scale basin & range tectonics in north Tibetan Plateau in Quaternary. West boundary fault dislocated Jurassic sandstone and limestone of Yanshiping Group, cut Middle-Late Pleistocene alluvial and fluvial fans and formed piedmont terraces overlain by sinter cones and sinter ridges in geothermal fields. At least 3 intense earthquakes occurred in Holocene along west boundary fault of Wenquan graben, formed 3 episodes of seismic scarps and fractures filled with mixture of sands and gravels. Vertical slip rate of the west boundary fault of Wenquan graben ranges from 0.3mm/a to 1.1mm/a with average rate of 0.6mm/a in Late Quaternary.



图 64 温泉断陷盆地的盆—山构造地貌

（镜头向北，摄于 2004 年 7 月）

Fig.64 View northward at basin & range tectono-geomorphic features of Wenquan graben in July of 2004



图 65 温泉盆西主边界断裂错断侏罗纪砂岩

（温泉盆西边界断裂错断侏罗纪砂岩，形成牵引构造，镜头向北，摄于 2003 年 8 月）

Fig.65 View northward at tilted Jurassic sandstone along west boundary fault of Wenquan graben in August of 2003



图 66 温泉盆地 104 道班沿断裂分布的泉华台地

青藏公路 104 道班西侧，沿温泉盆地西侧主边界断裂，发育线性分布的中低温温泉，形成泉华台地；镜头向北西，摄于 2004 年 7 月。

Fig.66 View northwestward at sinter ridges along west boundary fault of Wenquan graben near 104th station of Golmud-Lhasa Highway in July of 2004



图 67 温泉盆地唐古拉兵站西侧边界断裂泉华台地

（镜头向西，摄于 2002 年 2 月）

Fig.67 View westward in February of 2002 at hotspring and sinter terrace along west boundary fault of Wenquan graben in west of Tanggula Binzhan



图 68 温泉盆地西南段垂直主边界断裂的探槽

（探槽横切温泉盆西主边界断裂，镜头向西，摄于 2002 年 7 月）

Fig.68 View westward in July of 2002 at trench perpendicular to west boundary fault of south Wenquan graben



图 69 温泉盆西边界断裂切割晚更新世砂砾石层

断裂切割错断晚更新世砾石层和全新世含砾砂土，形成崩积楔，主断面西侧为灰绿色破碎灰岩，上覆晚更新世砾石；主断面产状为断裂总断距为 2.7m；镜头向南，摄于 2002 年 7 月。

Fig.69 View southward in July of 2002 at west boundary fault of south Wenquan graben with Holocene brown sands filled in the normal fault between dark Jurassic limestone and Late Pleistocene pebbles