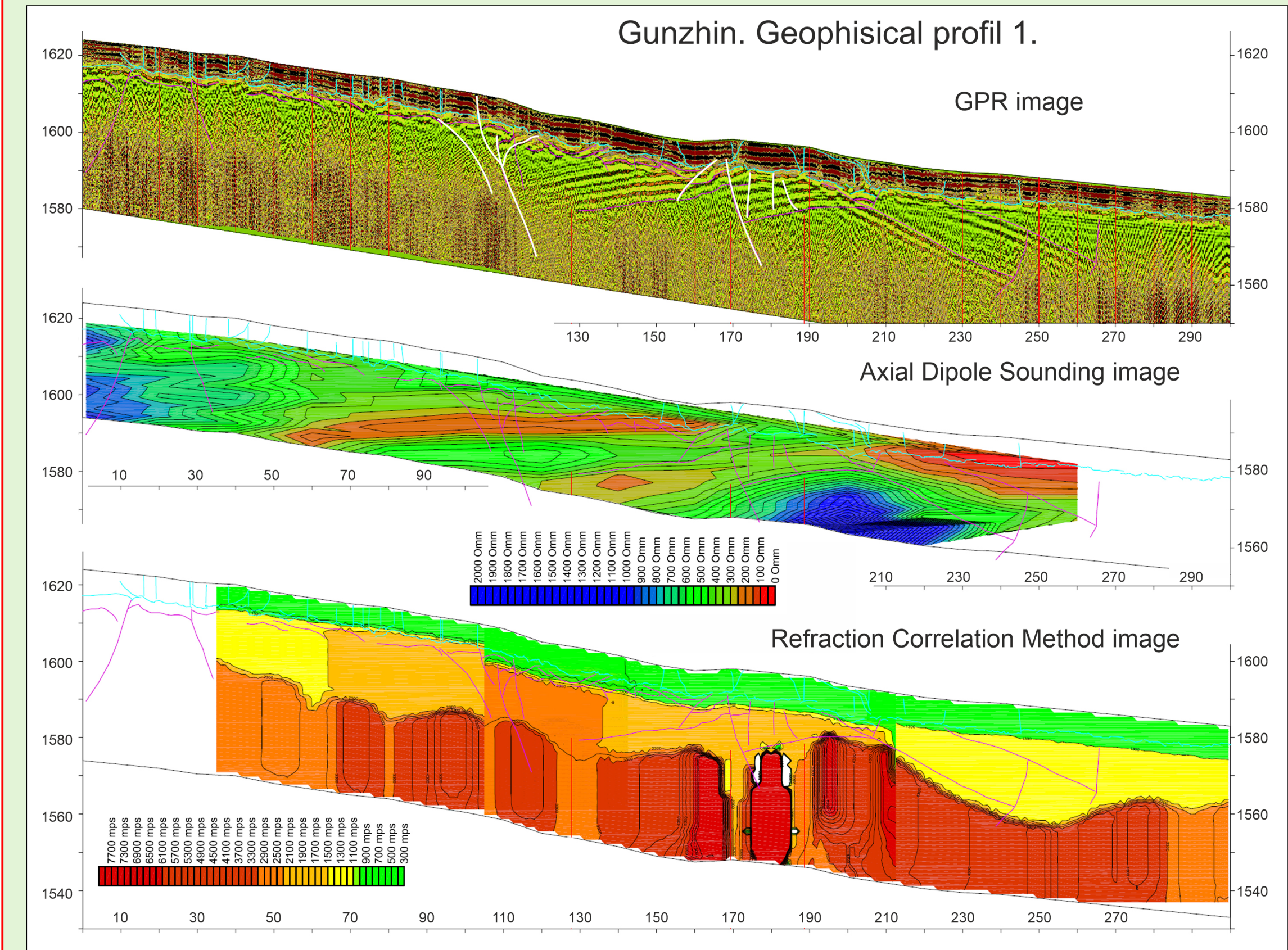
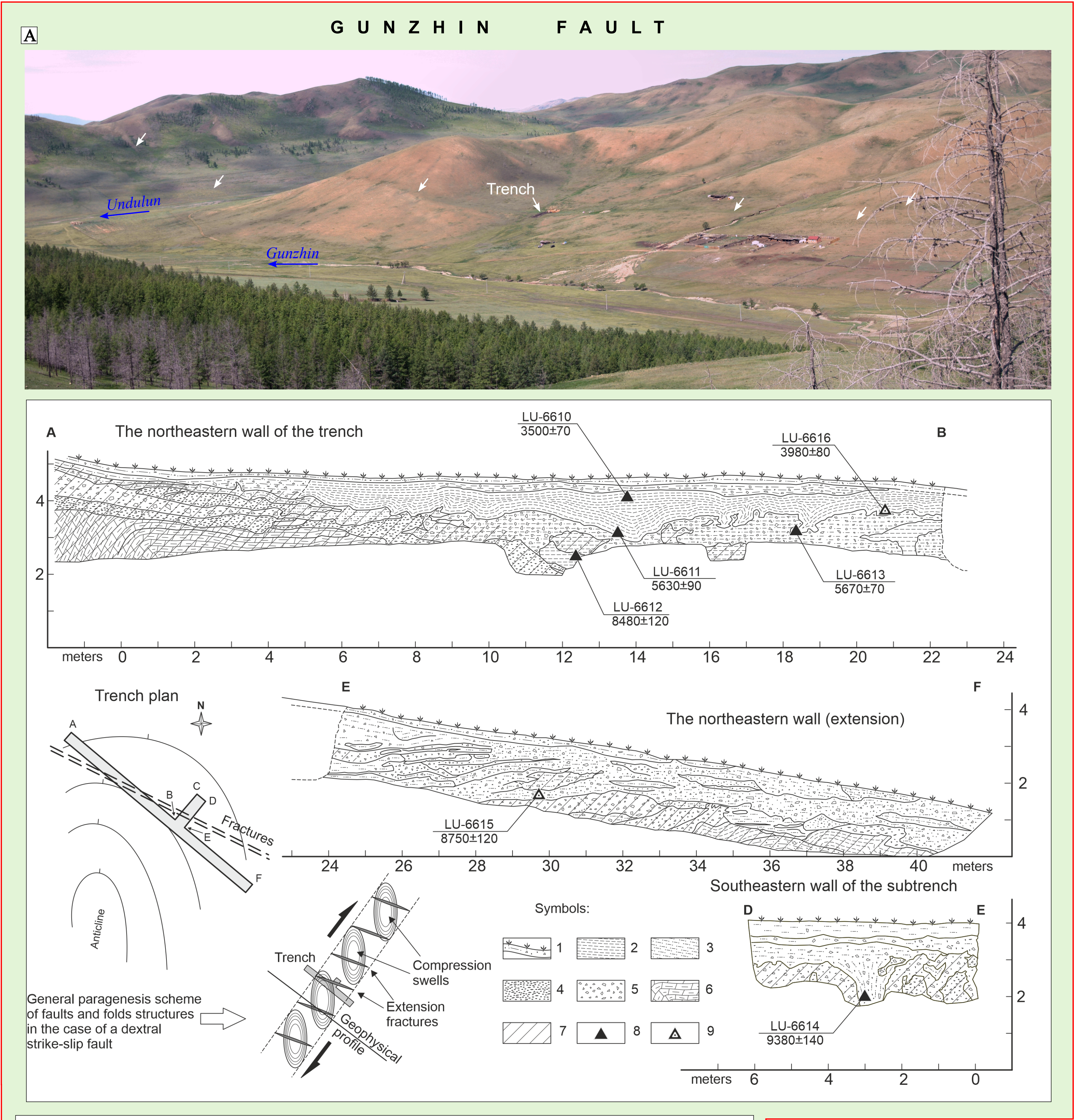
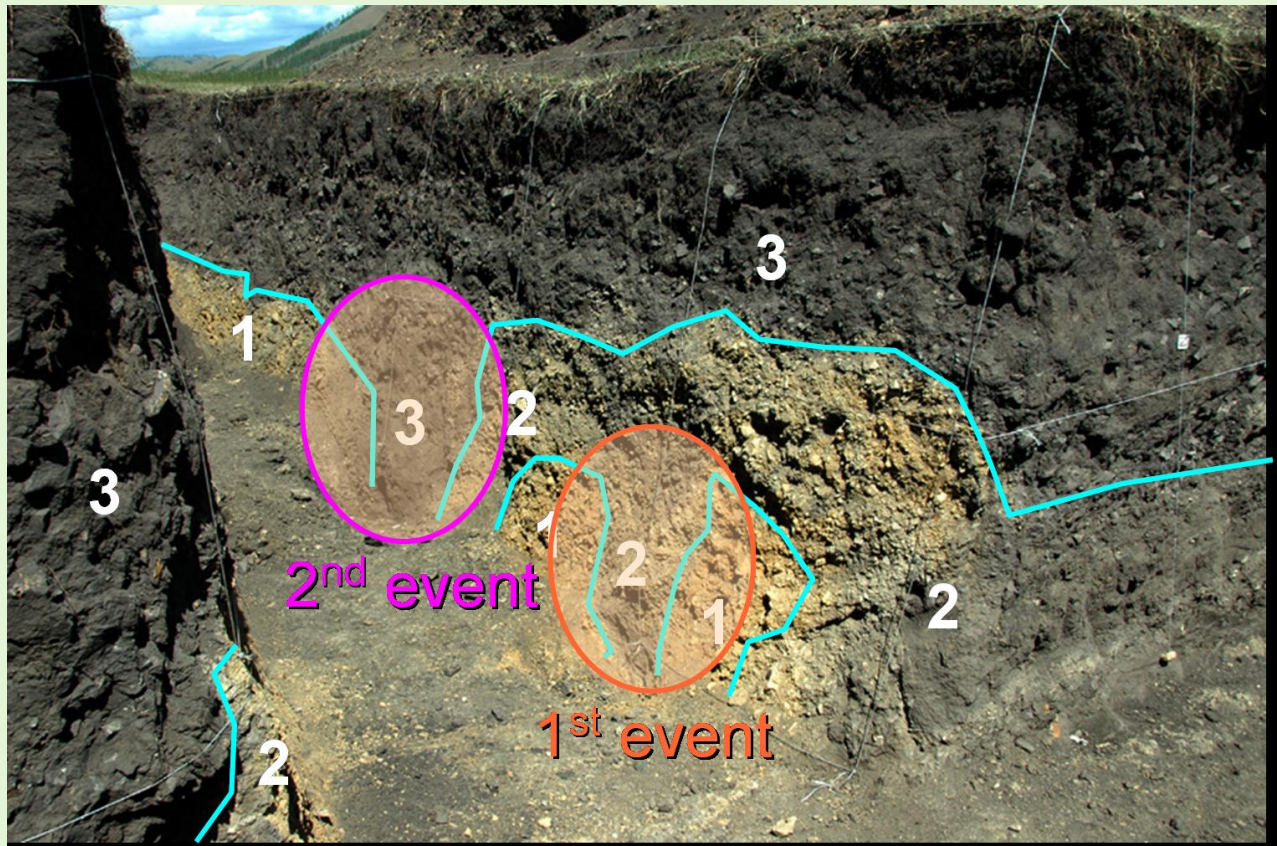


ACTIVE FAULTS AND SEISMIC HAZARD OF ULAANBAATAR

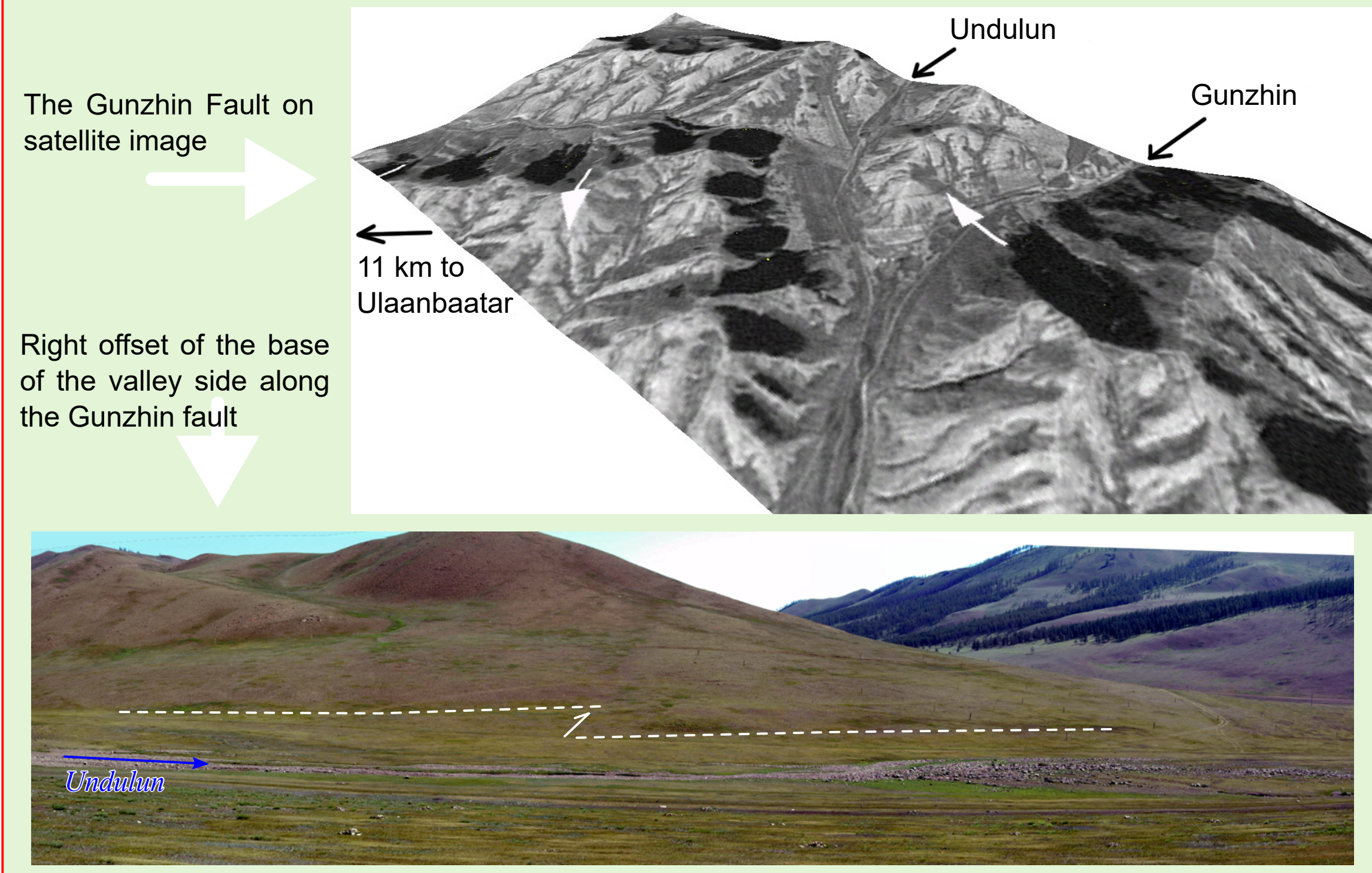
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The Gunzhin Fault is a tectonic structure in the southern Hentei upland. A fragment of this fault, exposed by two paleoearthquakes, is traced northeastward for ~25 km from the northern periphery of Ulaanbaatar. The first comprehensive seismogeological and geophysical studies here were aimed at determining the seismic potential of seismogenic structures on the basis of the dislocation parameters. The length and amplitude of the surface rupture, determined by the results of the survey and trenching, indicate possible future earthquakes here with a magnitude of $M > 7$. The paleoearthquake was dated by the radiocarbon method at 7800–4667 B.C. Dextral strike-slip faults were observed here among active NE-trending faults, suggesting the presence of E–W compressive stress.



Two fractures of different ages in the southeastern wall of the subtrench (wall D-E on the Trench plan). The first fracture (within the orange oval) is filled with brownish ground, dominated by redeposited eluvium (bed 2), and has a low humus content. The later fracture (within the pink oval) is filled with the material of bed 3, which overlies bed 2. Bed 1 is the roof of the disintegrated bedrocks. Scale: The vertical threads in the trench marking are 1 m apart.



The active Kerulen fault borders the Verkhnekerulen basin from the west, one of the largest intermountain depressions of the Khentei upland. Morphometric and trenching methods were applied to estimate the main parameters of seismogenic dislocations and associated Holocene palaeoearthquakes (540–2810, 3170–3720, and 7480–9220 years ago). The maximum palaeoearthquake magnitude (7.5) characterizes the seismic capacity of the potential focal area confined to the Kerulen fault. The new data show the need to revise the potential seismicity concepts of the southern Khentey area and to make appropriate changes in the general seismic zoning maps. The relationship between the dislocations and the modern topography features, as well as deformation of the subsurface sediments in the studied mine openings give evidence of thrusting under the sub-lateral to north-western subhorizontal compression.

