

## MODERN FAULTING AND SURFACE RUPTURE HAZARD IN THE QODS AND PARDISAN TOWNS (QOM)

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Most of the megacities of Iran are facing with the risk of seismic hazards. Surface fault rupture is a major seismic hazard that should be combated by considering setback zone from the faults (e.g. Batatian, 2002). Alongside with many Iranian megacities that demonstrate the inconsideration of fault setback zone in the urban environment, unfortunately, this problem is being repeated in the newly developing towns and developing portions around the megacities such as Tehran, Karaj, Tabriz and Qom. For example, the growth and development of the Qom megacity were done toward southwest and west by the Qods and Pardisan towns, during recent years. In this paper, field observations of fresh road cutting sections and remote sensing studies were used to map active faults in new town to the southwest and west of the Qom.

The study shows that the Qods and Pardisan towns are facing with the surface fault rupture hazard of Khezr, Qom and Sarm right-lateral faults, the left-lateral Qomrud fault (Safaei, 2009) and several other minor faults including F1 to F7. The fault setback zone was not heeded for most portions of these faults. Additionally, considering the total length (~80 Km) of newly recognized Qomrud fault (Safaei, 2009) and its continuation to the Qom city, it poses significant hazard to this megacity.

From seismotectonic viewpoint, the Qom Fault is a right-lateral fault with wide fault zone that is located to the west and southwest of Qom. Sarm, Khezr and F1 faults run parallel with the Qom fault with relatively similar kinematics. Structural investigations on fresh sections of the Qom Fault in the Qods town shows that the fault goes parallel with the bedding of weak gypsiferous and marly layers of “d” and “e” members of the Qom Formation. The weak layers caused that deformation to be distributed in a wide domain. It is possible that portion of the slip along the Qom fault occurs aseismically. There is little information about the interaction between Qom, Khezr, Sarm and Qomrud faults. The existence of several parallel faults in the west and southwest of Qom may represent the deformation of cover sedimentary rocks over a major right-lateral basement fault.

Finally, the paper provides suggestions for recognition of active faults and steps to heed fault setback zone.

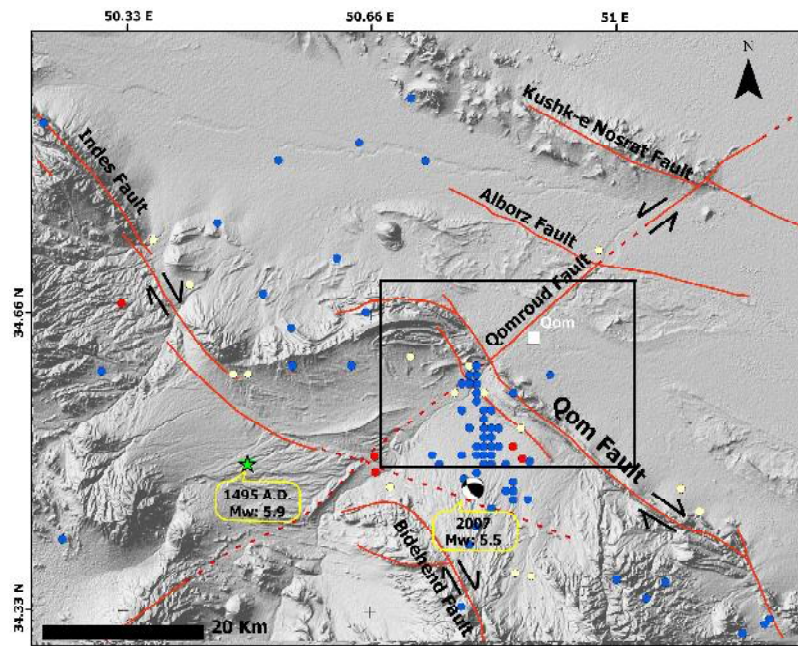


Figure 1. Major faults and earthquakes epicenters in the Qom County and surroundin area that are plotted on the shaded relief map (SRTM). Faults based on Babaahmadi et al. (2009)

## REFERENCES

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