Institute for Advanced Studies
in Basic Sciences
Gava Zang, Zanjan, Iran

European
Geosciences
Union

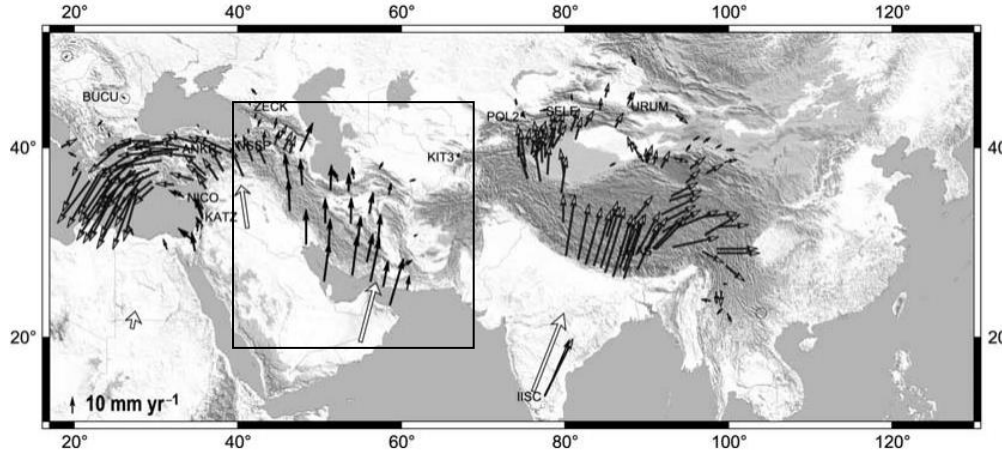
Studying the active tectonics in the northern flank of the Bozqush Mountains, NW Iran

Ali Nasiri[1] and Mahtab Aflaki[2]

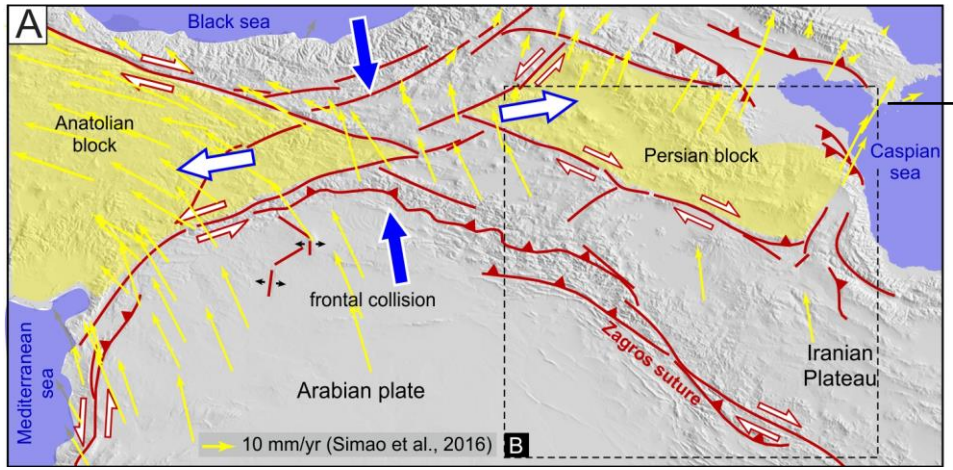
[1]Department of Earth Sciences, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan 45137-66731, Iran (ali.nasiri1373n@gmail.com)
[2]Department of Earth Sciences, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan 45137-66731, Iran (aflaki@iasbs.ac.ir)

Introduction (Tectonics of NW Iran)

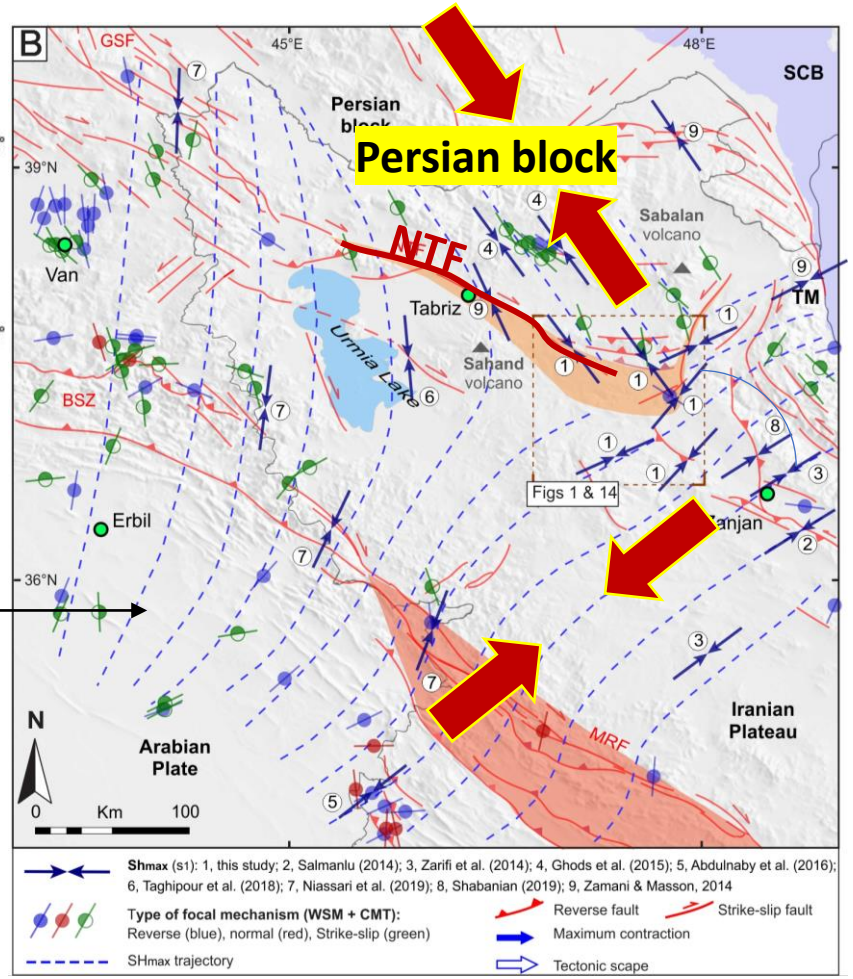
Dextral-slip North Tabriz basement fault (NTF) defines part of the SW boundary of the Persian block.



GPS velocity field, respect to the fixed Eurasian plate (Vernant et al. 2004)



Regional tectonic configuration of interacting blocks and platelets in the N and NW parts of the Arabia-Eurasia collision (Aflaki et al., 2021).



The regional modern stress field and trajectories for the direction of the σ1 stress axis in NW Iran (Aflaki et al., 2021).

Persian block:
Compressional stress regime
NW-SE direction of σ1 stress axis

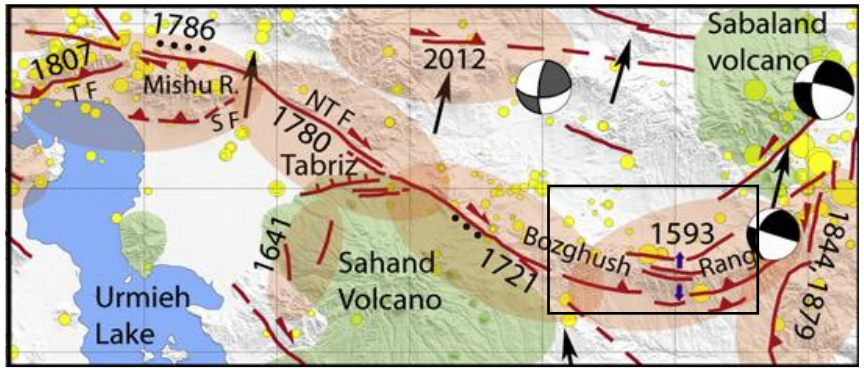
Other parts of the Iranian plateau:
Compressional stress regime
NE-SW direction of σ1 stress

Introduction (Motivation)

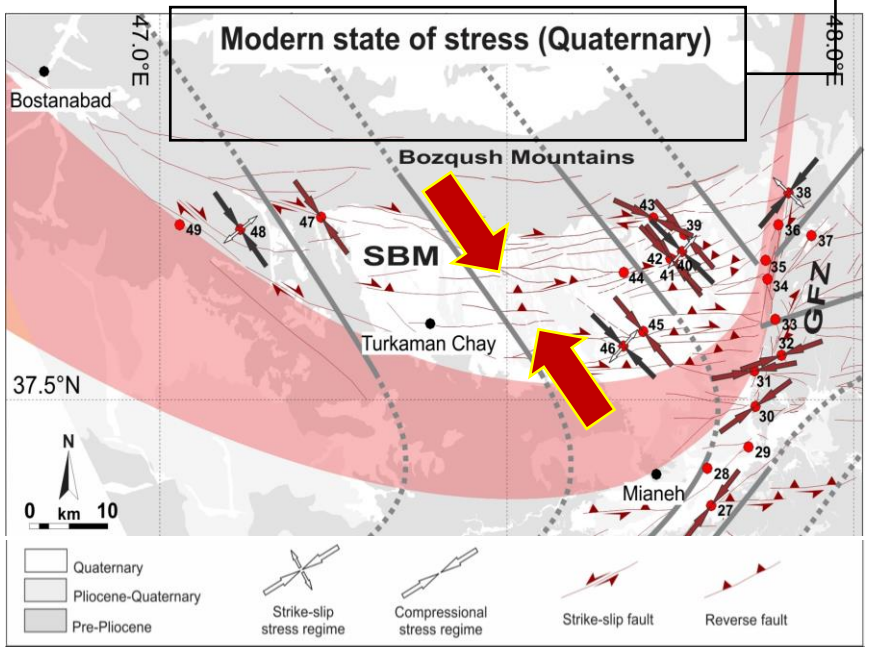
Bozqush mountain is situated in the southern termination of the NTF.

Its deformation controls by the tectonic regime in the Persian block.

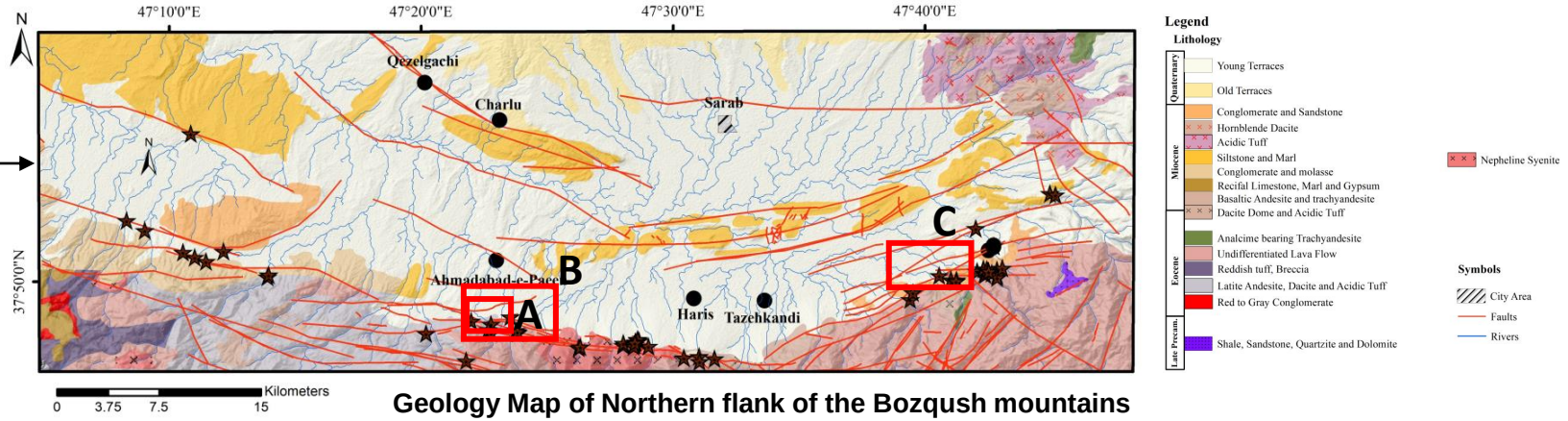
Where is the modern deformation mainly accumulated?
in the northern or southern flank of the Bozqush mountain?



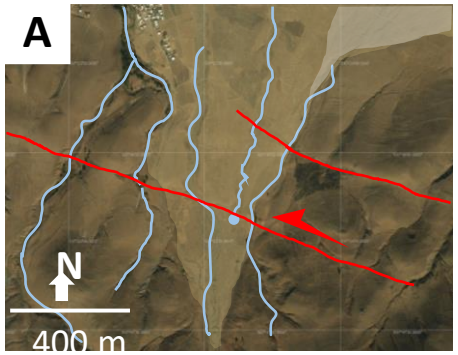
Active tectonic map of NW Iran (Solaymani azad et al., 2015)

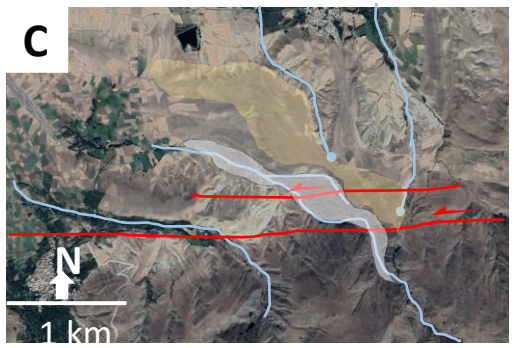


States of modern stress regime in southern flank of the Bozqush mountains (Aflaki et al., 2021)



Geology Map of Northern flank of the Bozqush mountains



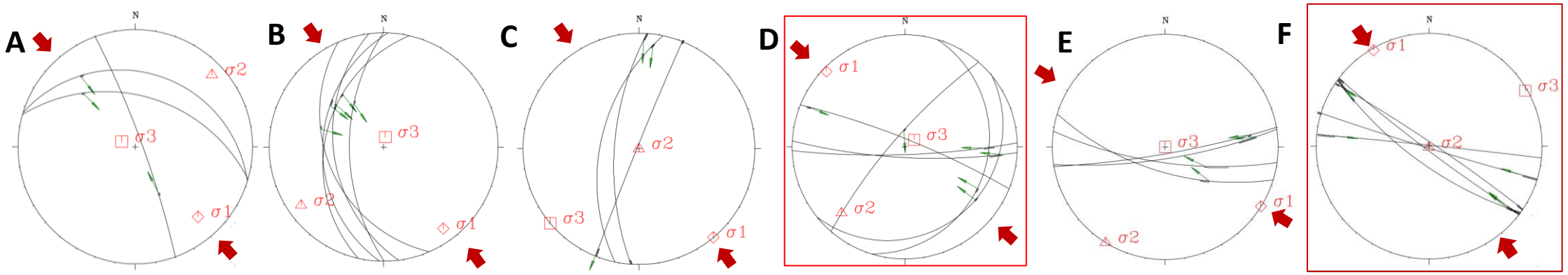


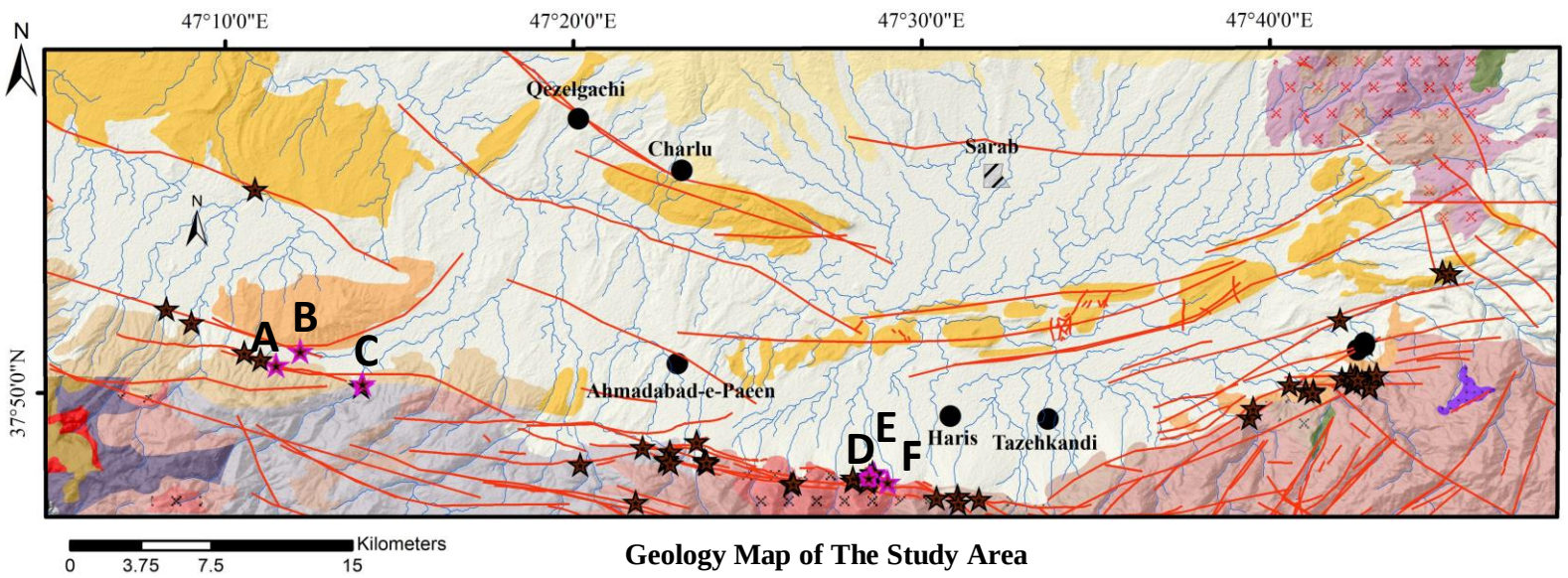
Methodology and results: inversion of fault-slip data

We apply the inversion method to the fault-slip data measured in 35 sites along the northern boundary faults of the Bozqush mountains.

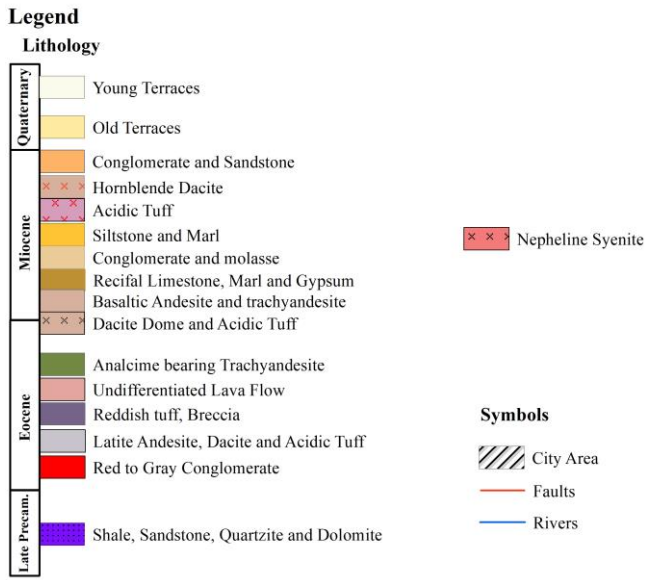
The modern state of stress
(Inversion of fault-slip data)

NW direction of horizontal compression





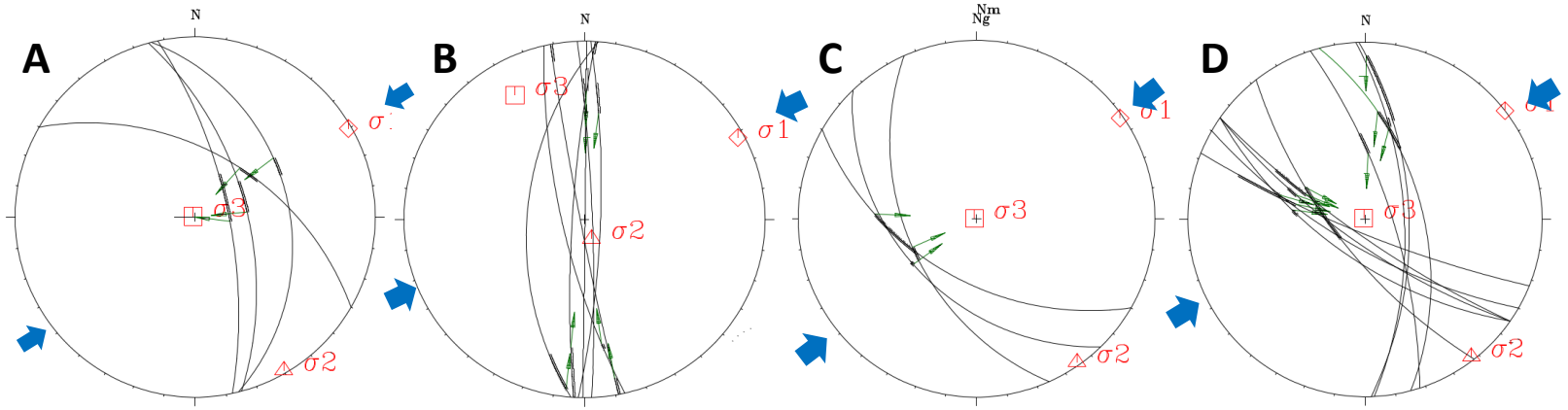
Geology Map of The Study Area

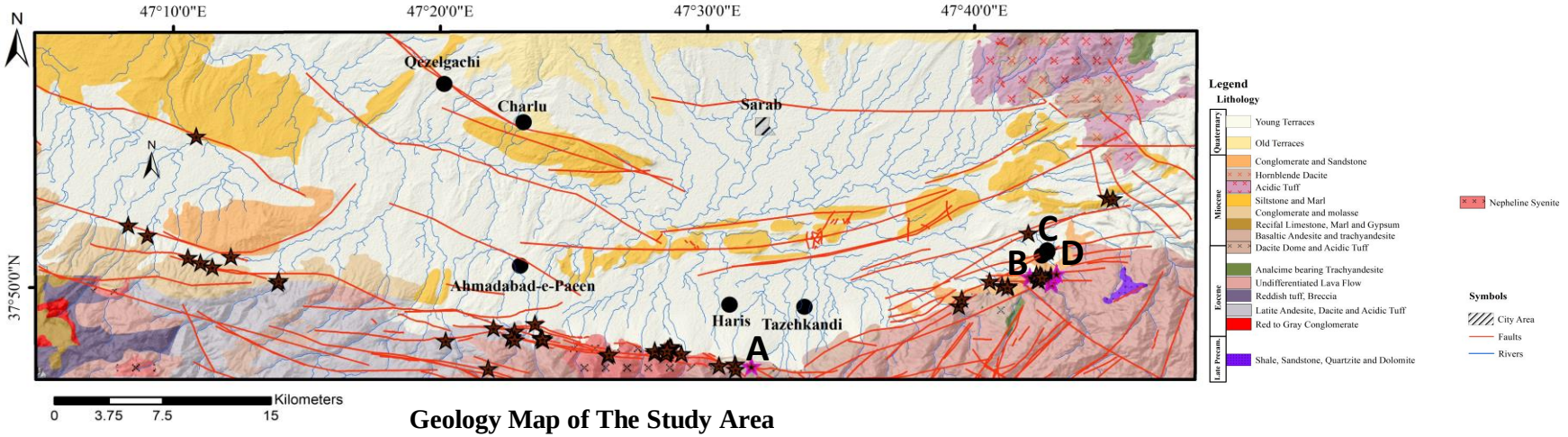


Methodology and results: inversion of fault-slip data

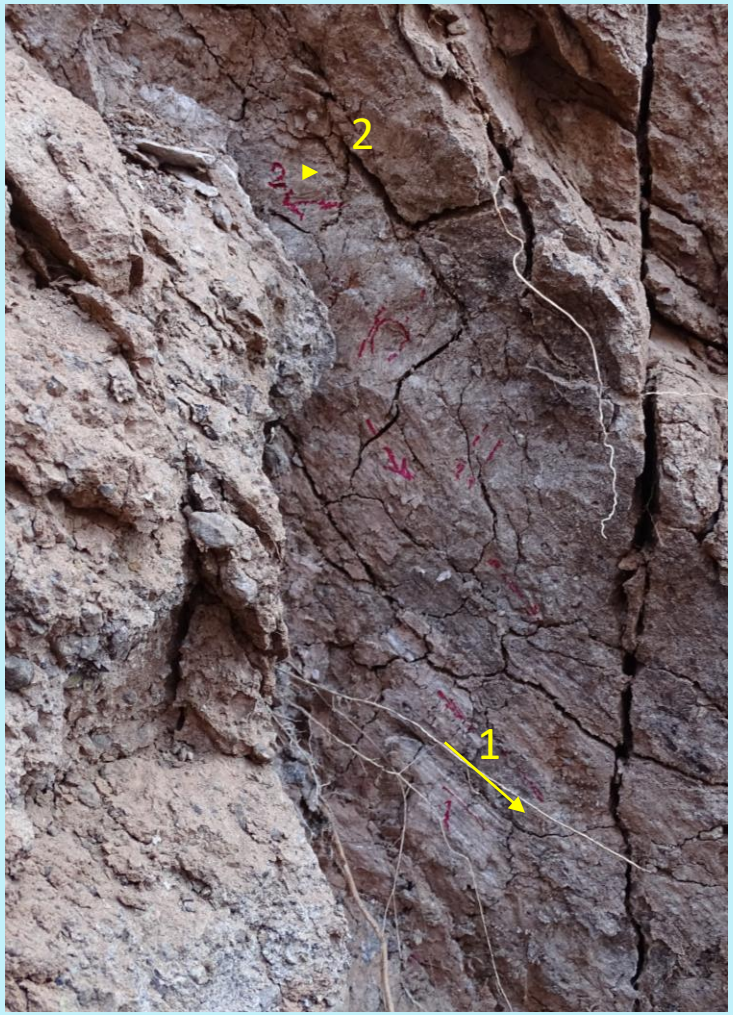
The paleo state of stress
(Inversion of fault-slip data)

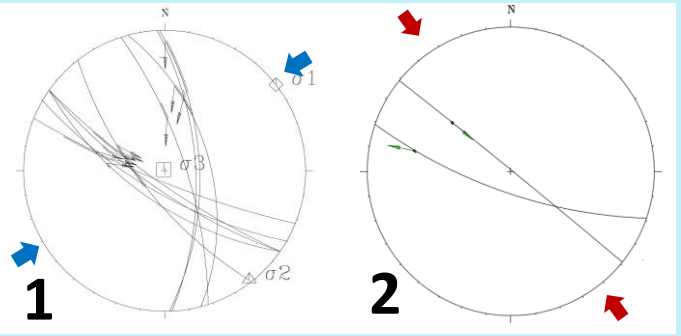
NE direction of horizontal compression





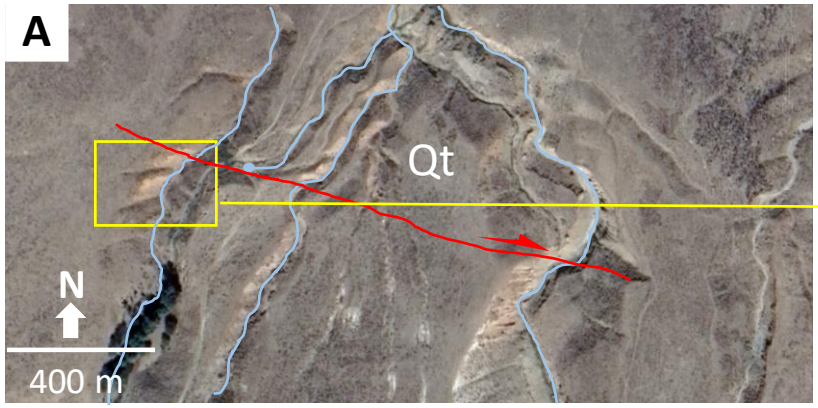
Geology Map of The Study Area

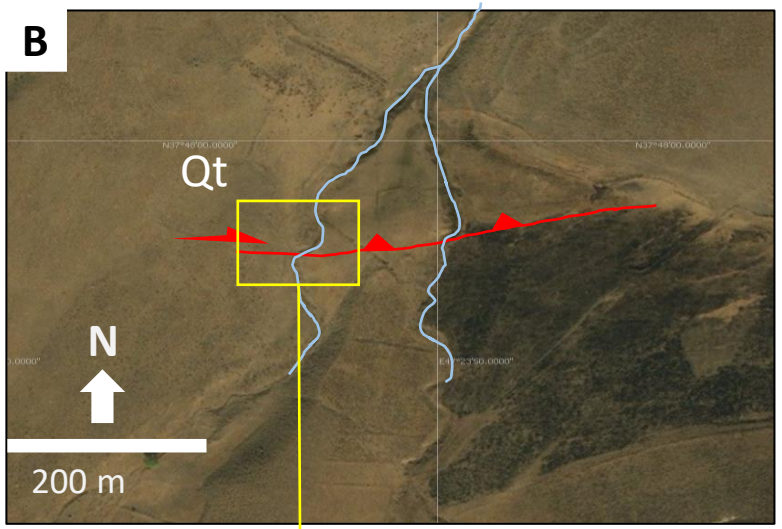


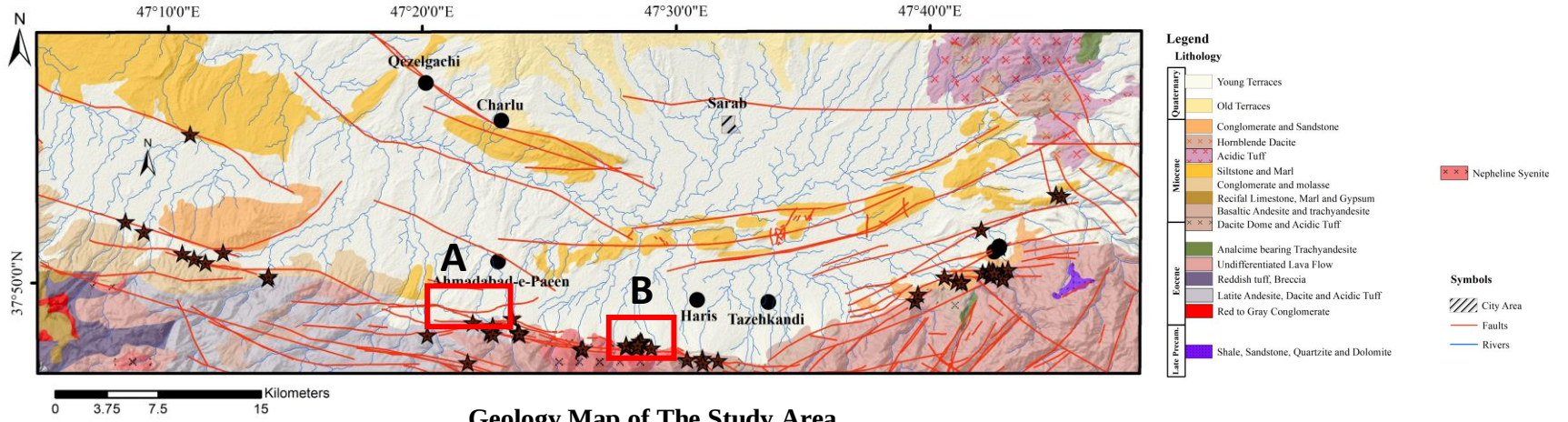


Methodology and results: morphotectonic studies

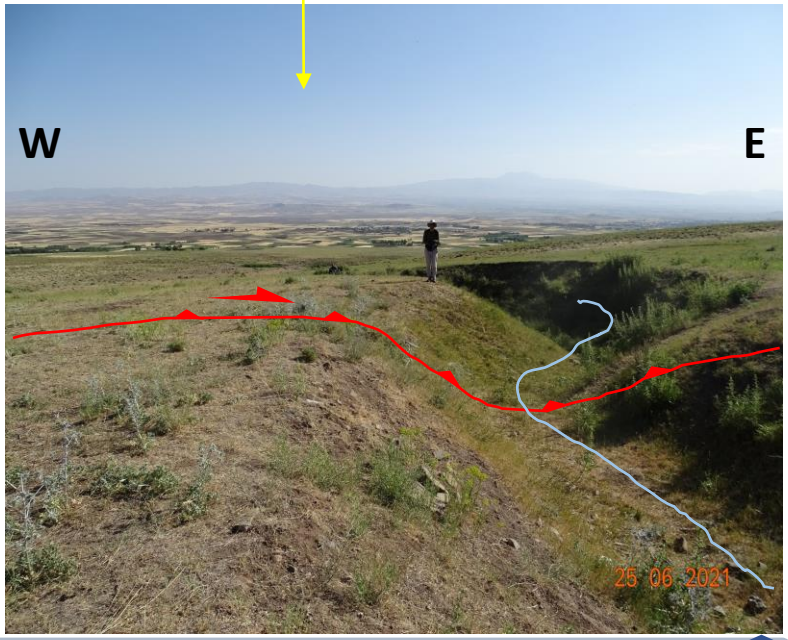
Few sites present morphotectonics evidence of the active stress regime.







Geology Map of The Study Area



Conclusion

The modern deformation is mainly accumulated along those splays of the NTF located in the southern part of the Bozqush mountains