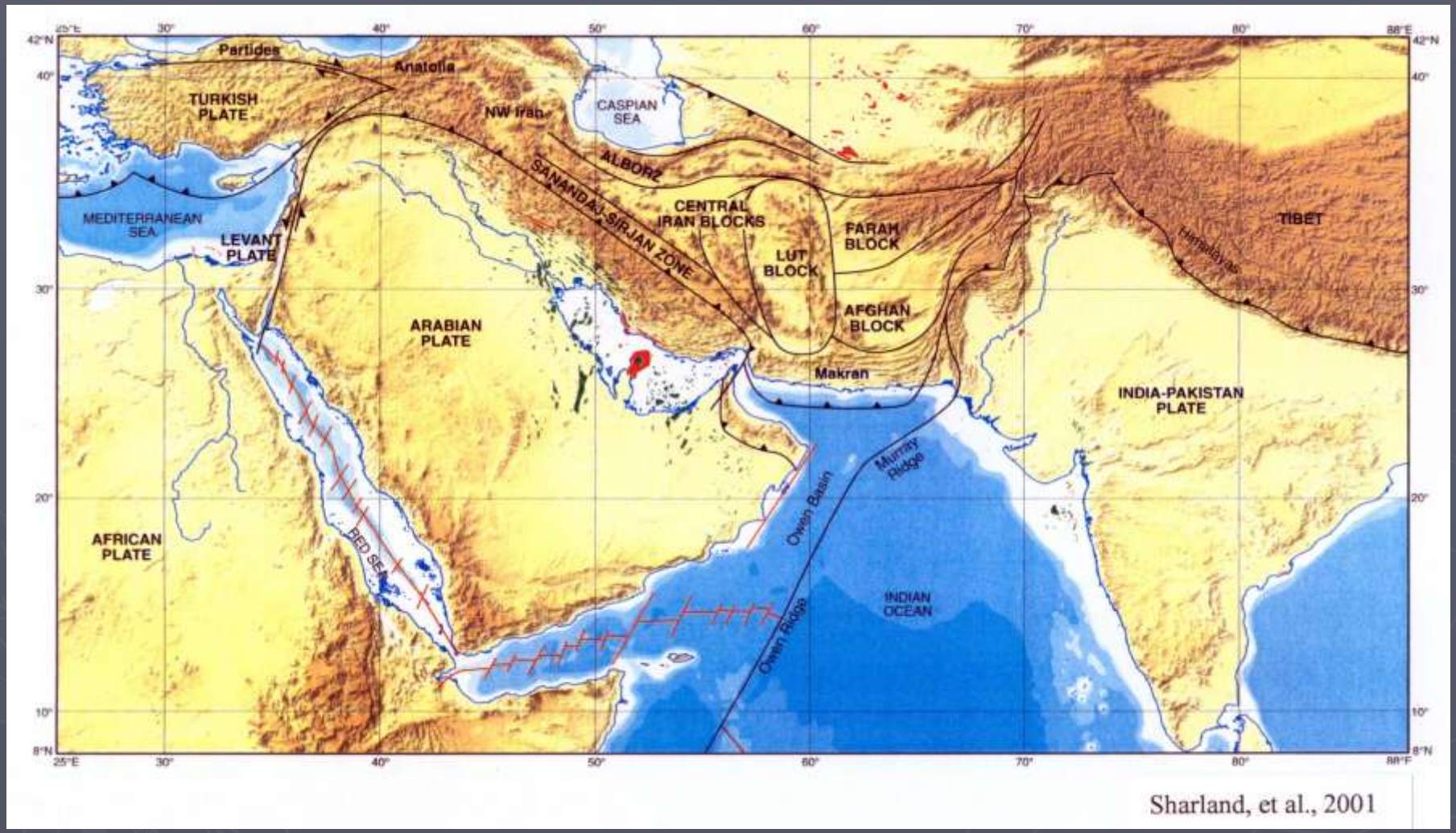
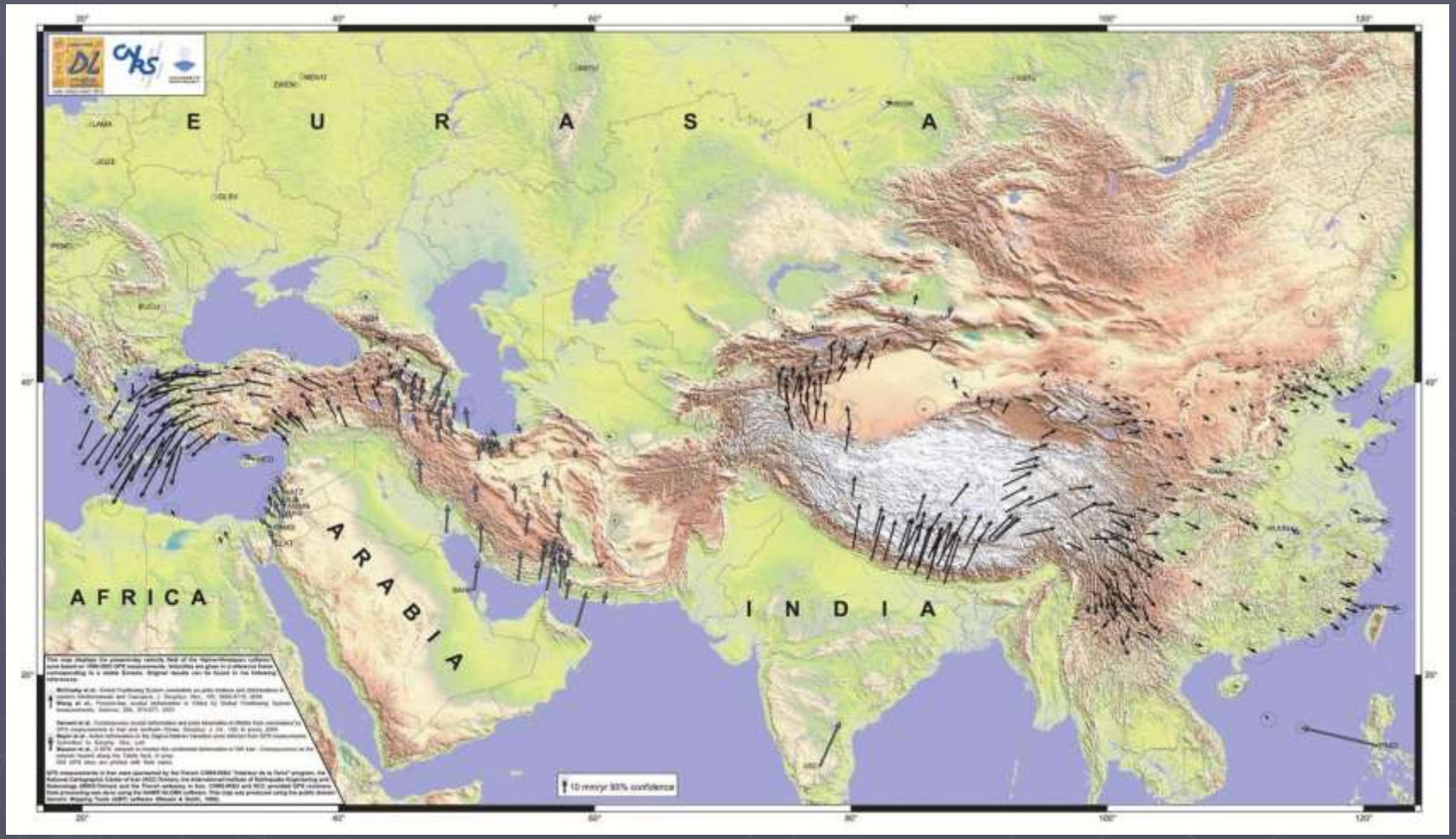
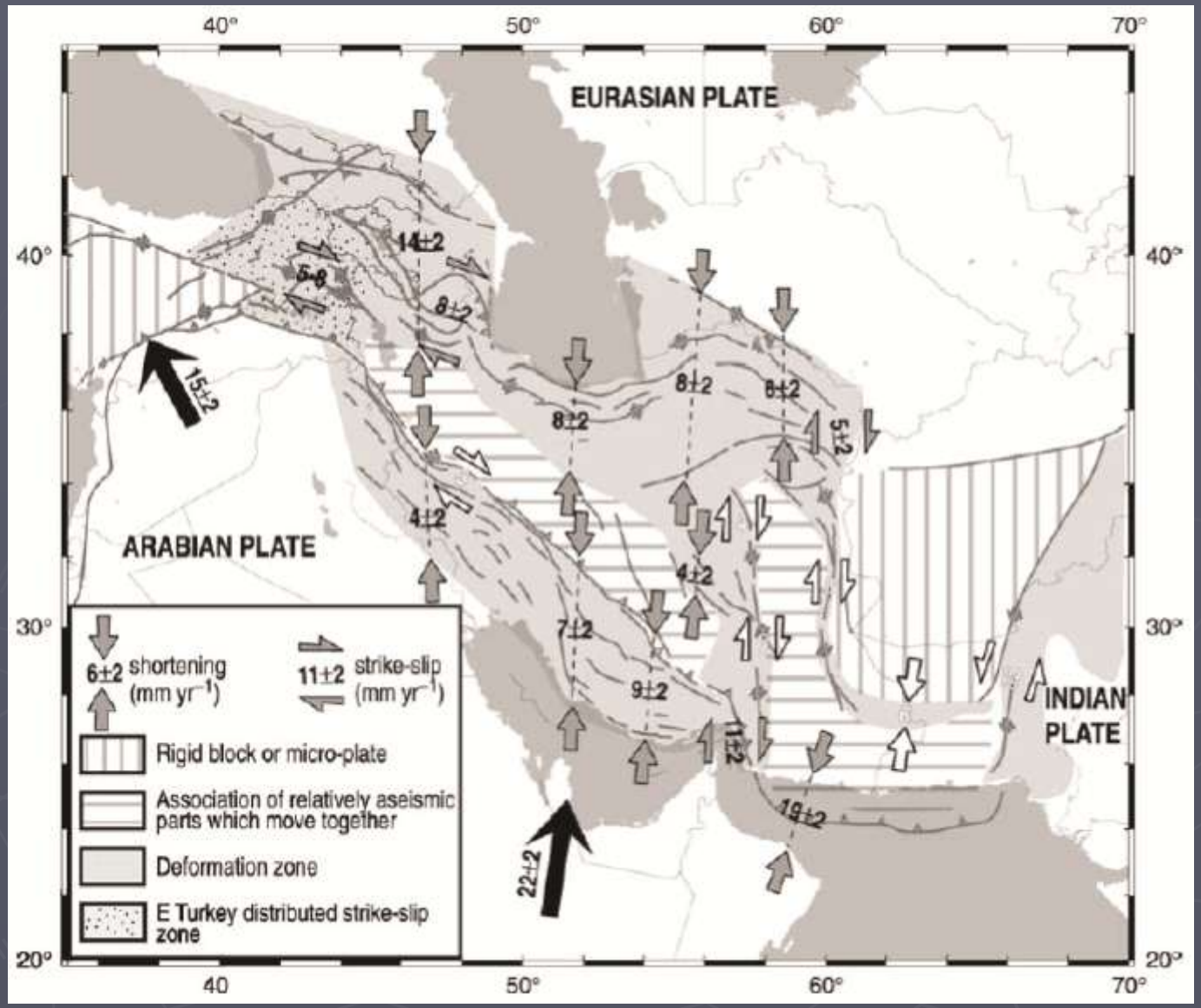
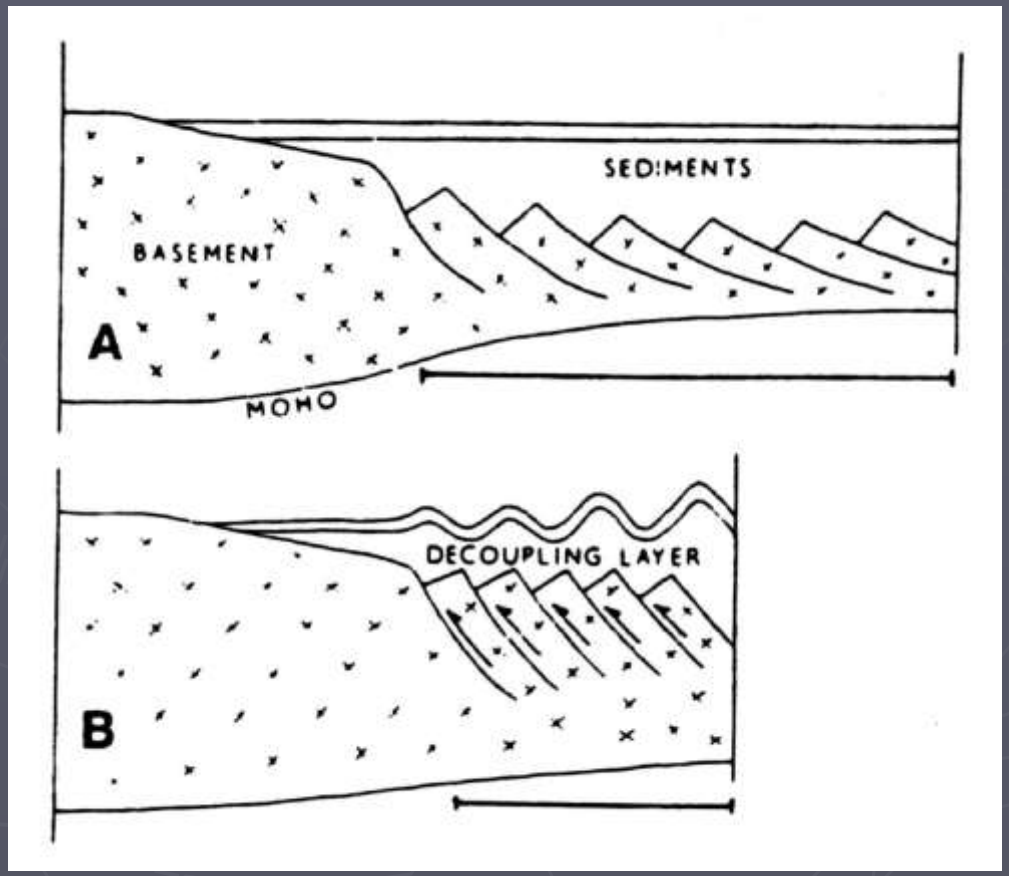


Sharland, et al., 2001


EURASIA
AFRICA
ARABIA
INDIA
10 mm/yr 95% confidence

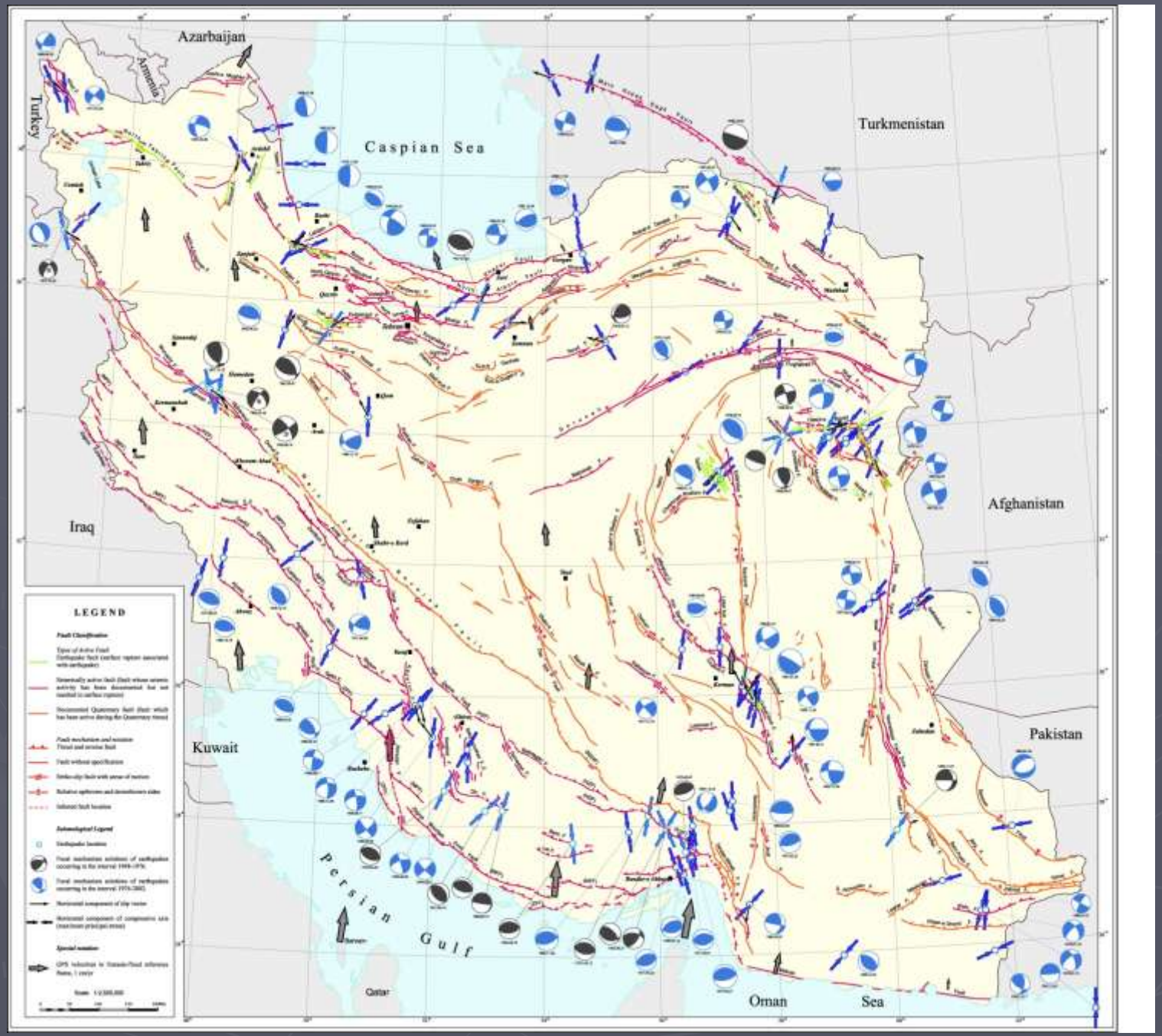

40°
50°
60°
70°
EURASIAN PLATE
ARABIAN PLATE
INDIAN PLATE
14±2
5-8
8±2
15±2
8±2
8±2
8±2
5±2
4±2
4±2
7±2
9±2
11±2
19±2
22±2
6±2 shortening (mm yr⁻¹)
11±2 strike-slip (mm yr⁻¹)
Rigid block or micro-plate
Association of relatively aseismic parts which move together
Deformation zone
E Turkey distributed strike-slip zone
40°
30°
20°

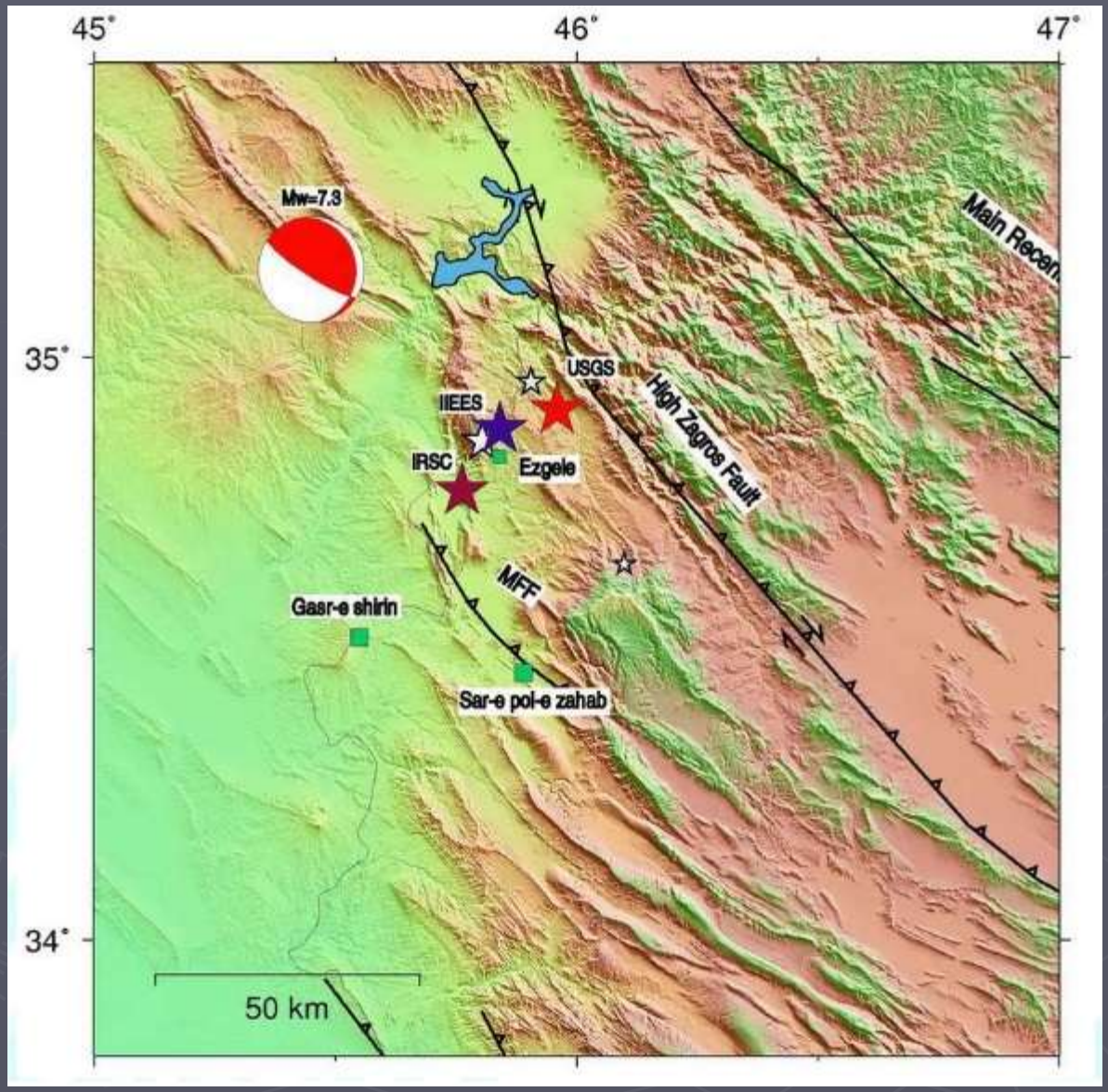


Stage 1: Extension
And sediment accumulation

Stage 2: Contraction
Folding and thrusting

Jackson, 1980


Azarbaijan
Armenia
Turkey
Caspian Sea
Turkmenistan
Afghanistan
Iraq
Kuwait
Pakistan
Persian Gulf
Qatar
Oman Sea
LEGEND


45°
46°
47°
35°
34°
Mw=7.3
USGS
IIEES
IRSC
Ezgele
High Zagros Fault
Main Recen
MFF
Gasr-e shirin
Sar-e pol-e zahab
50 km

IIEES, 2017

Global CMT Catalog

Search criteria:

```
Start date: 2017/11/1   End date: 2017/12/28
34 <=lat<= 36          44 <=lon<= 46
0 <=depth<= 1000         -9999 <=time shift<= 9999
0 <=mb<= 10        0<=Ms<= 10           0<=Mw<= 10
0 <=tension plunge<= 90         0 <=null plunge<= 90
```

Results

From Quick CMT catalog

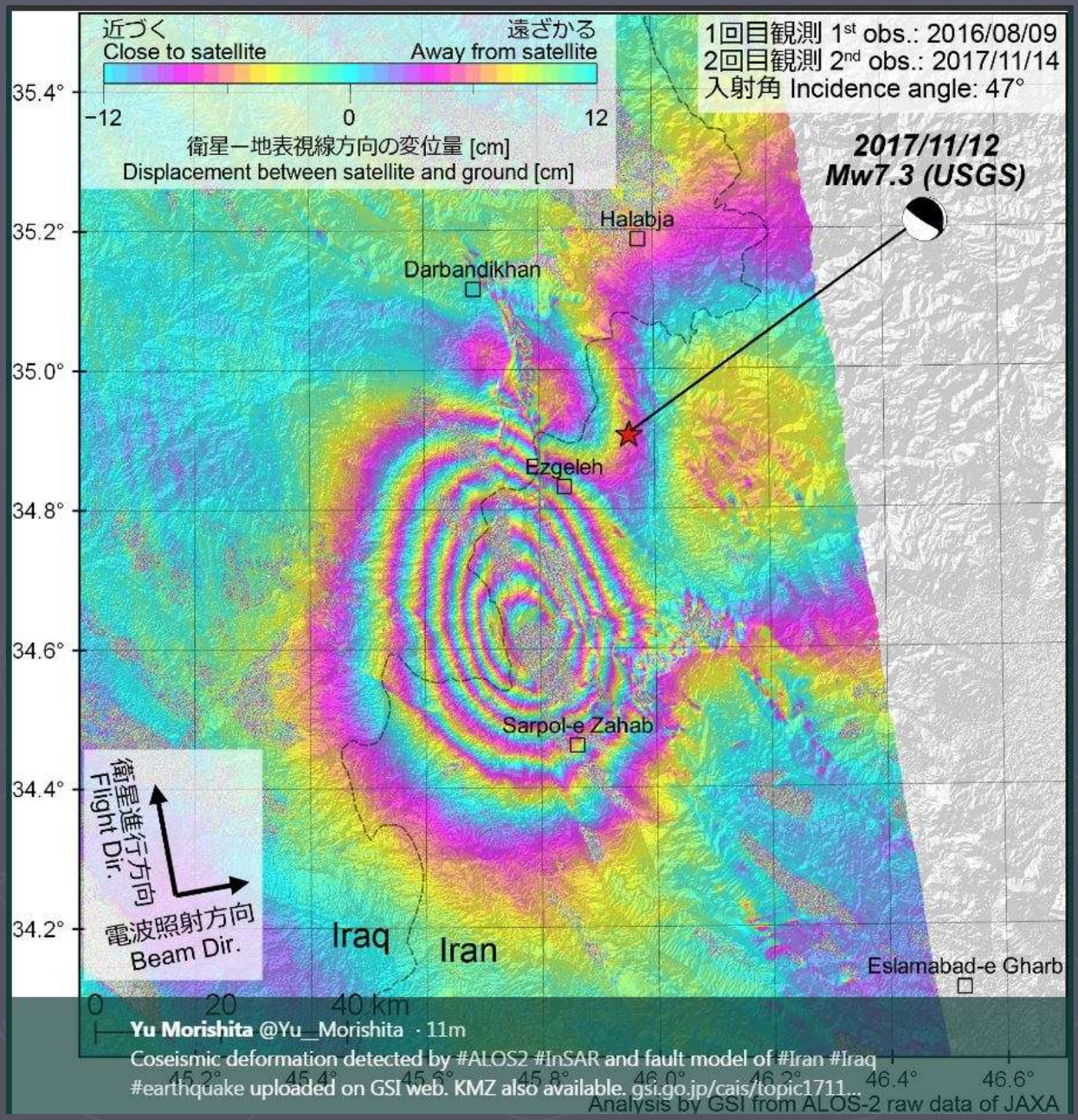
201711121818A IRAN-IRAQ BORDER REGION

```
Date: 2017/11/12   Centroid Time: 18:18:24.8 GMT
Lat=  34.79  Lon=  45.88
Depth= 16.9   Half duration=12.7
Centroid time minus hypocenter time:  7.3
Moment Tensor: Expo=27  0.372 -0.078 -0.294 1.490 -0.741 0.263
Mw = 7.4    mb = 0.0    Ms = 7.3   Scalar Moment = 1.72e+27
Fault plane:  strike=351    dip=10   slip=143
Fault plane:  strike=118    dip=84   slip=82
```

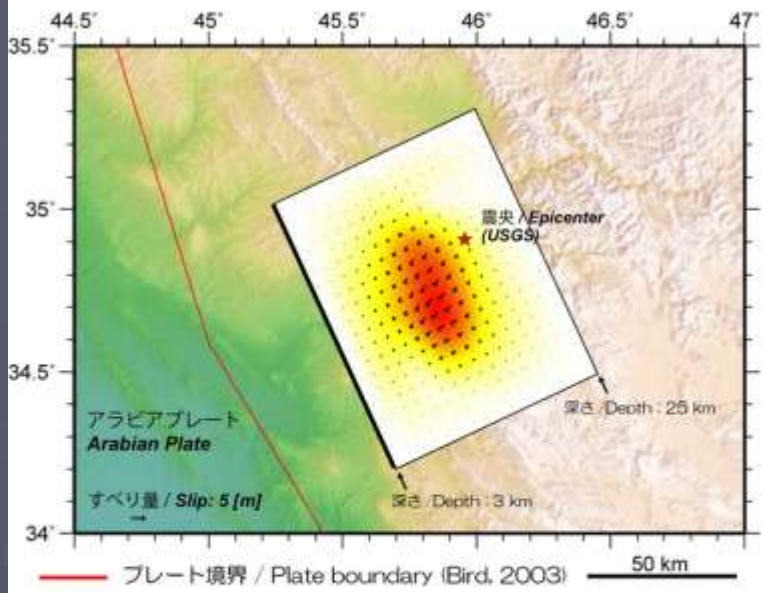
End of events found with given criteria.

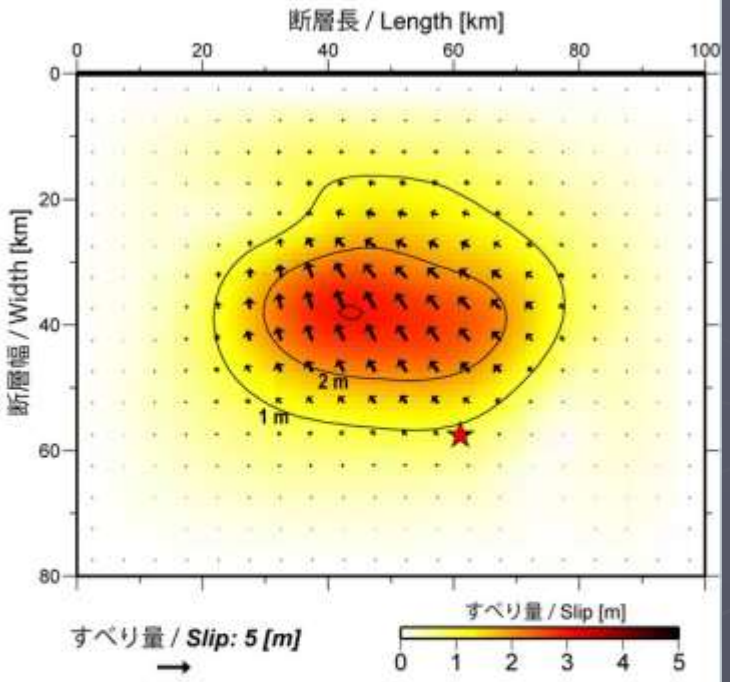
See the CMT project web page for more information on CMTs.

Please email comments.
Last modified: 2011-06-29


近づく
Close to satellite
遠ざかる
Away from satellite
−12
0
12
衛星ー地表視線方向の変位量 [cm]
Displacement between satellite and ground [cm]
1回目観測 1st obs.: 2016/08/09
2回目観測 2nd obs.: 2017/11/14
入射角 Incidence angle: 47°
2017/11/12
Mw7.3 (USGS)
Halabja
Darbandikhan
Ezgeleh
Sarpol-e Zahab
Eslamabad-e Gharb
Iraq
Iran
衛星進行方向
Flight Dir.
電波照射方向
Beam Dir.
0
20
40 km
35.4°
35.2°
35.0°
34.8°
34.6°
34.4°
34.2°
45.2°
45.4°
45.6°
45.8°
46.0°
46.2°
46.4°
46.6°
Yu Morishita @Yu_Morishita · 11m
Coseismic deformation detected by #ALOS2 #InSAR and fault model of #Iran #Iraq #earthquake uploaded on GSI web. KMZ also available. gsi.go.jp/cais/topic1711...
Analysis by GSI from ALOS-2 raw data of JAXA

すべり分布モデル（暫定） / Slip Distribution Model (Preliminary)

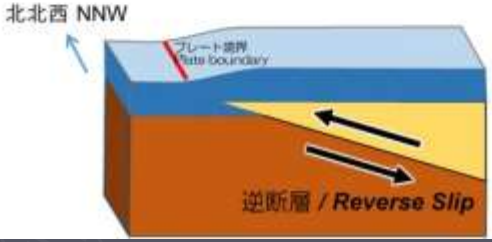


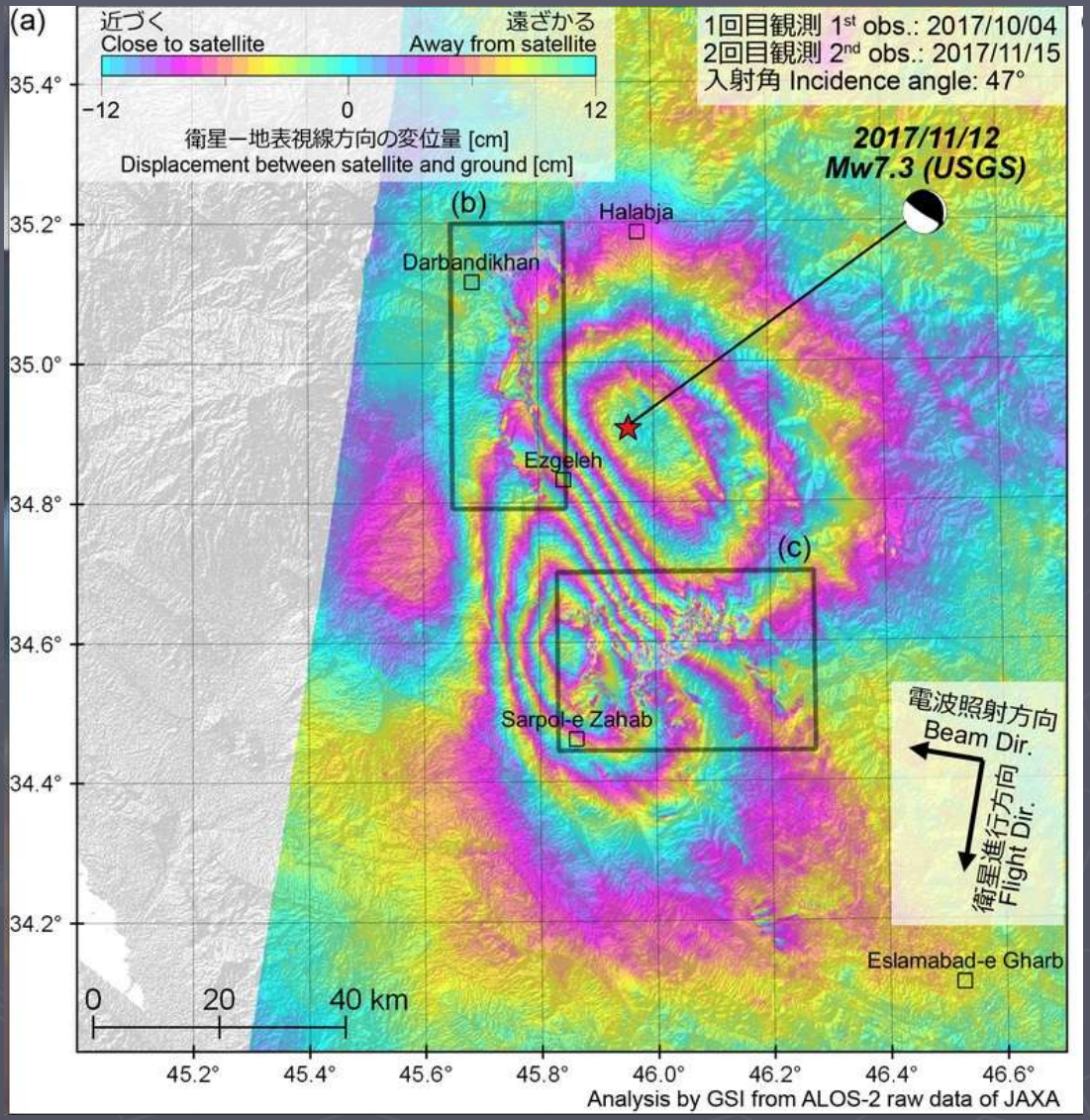


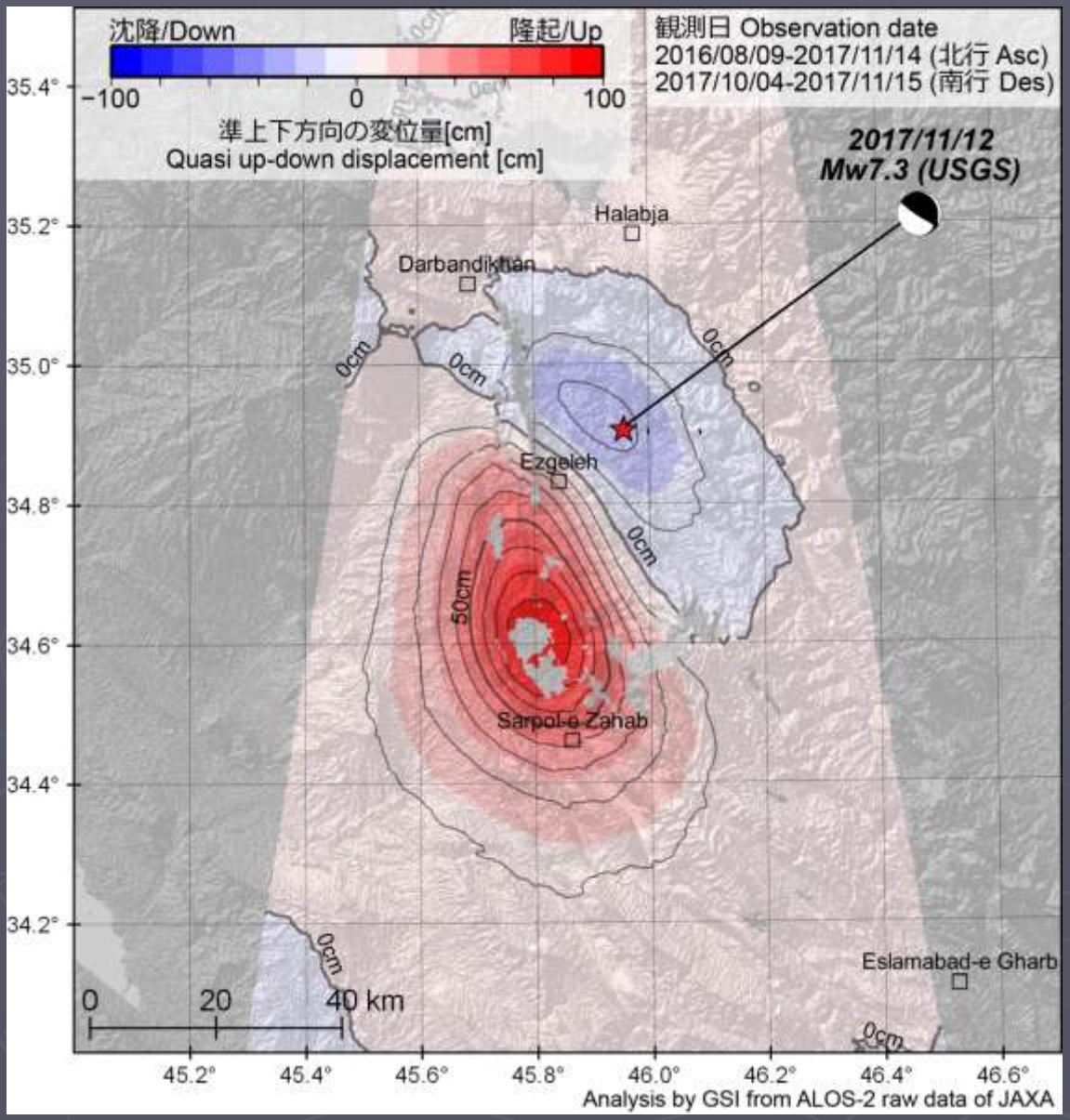
地震モーメント / ***Seismic Moment: 1.40 x 10^{20} Nm***
モーメントマグニチュード / ***Moment Magnitude: Mw = 7.36***

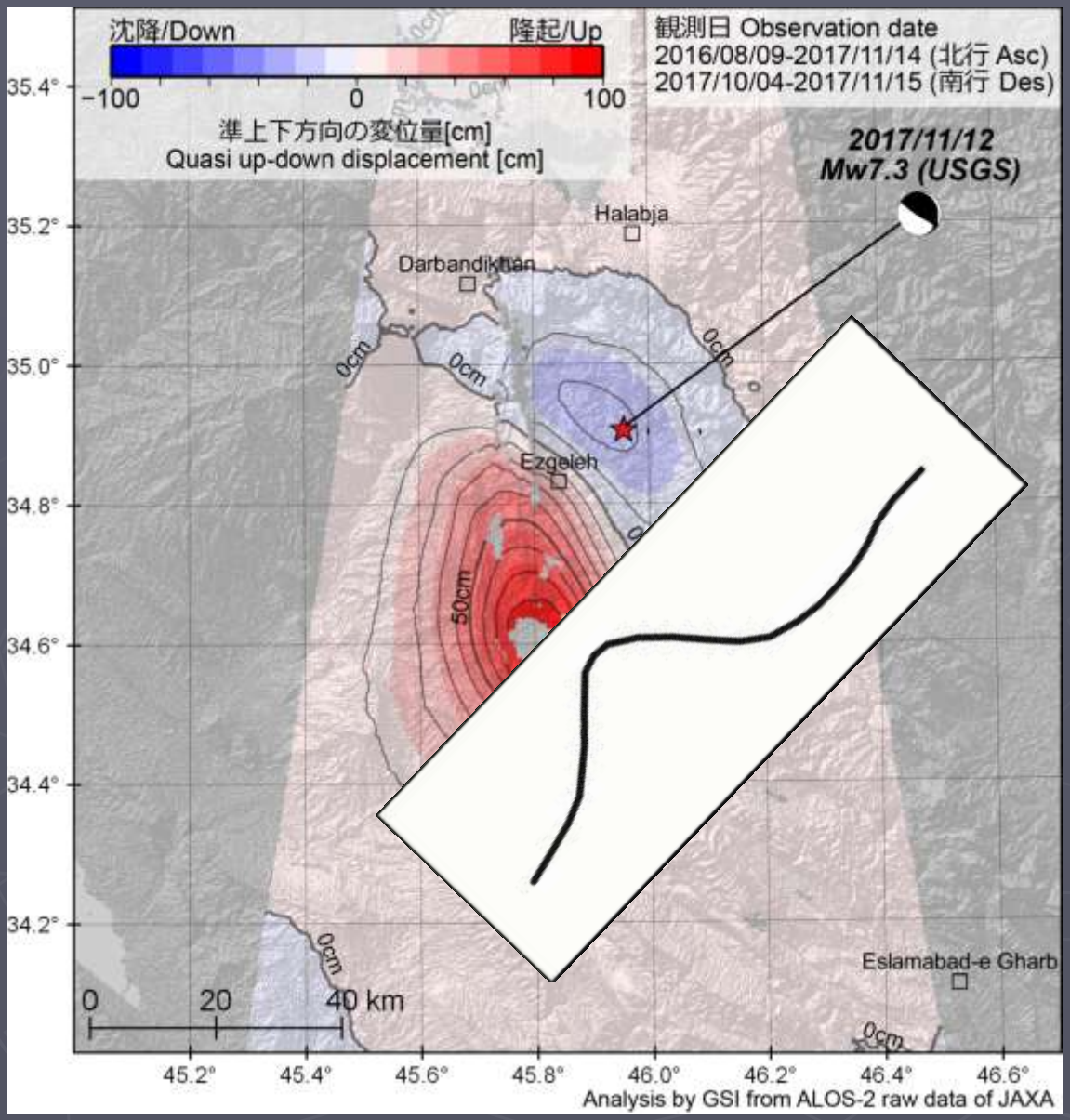
（剛性率 / Rigidity: 30 GPa）

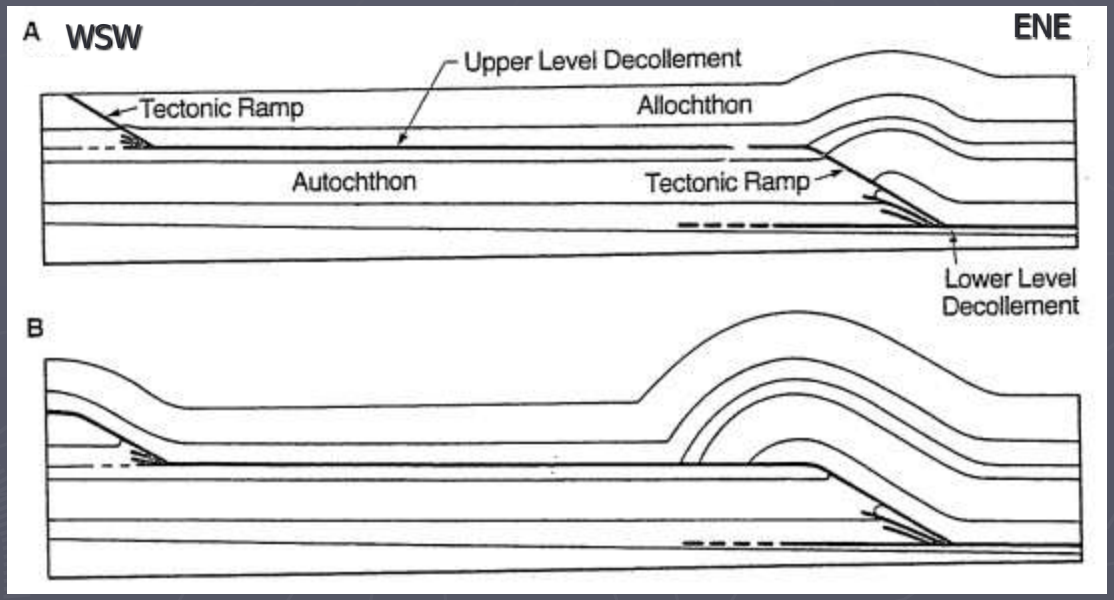
【概念図 / Schematic view】



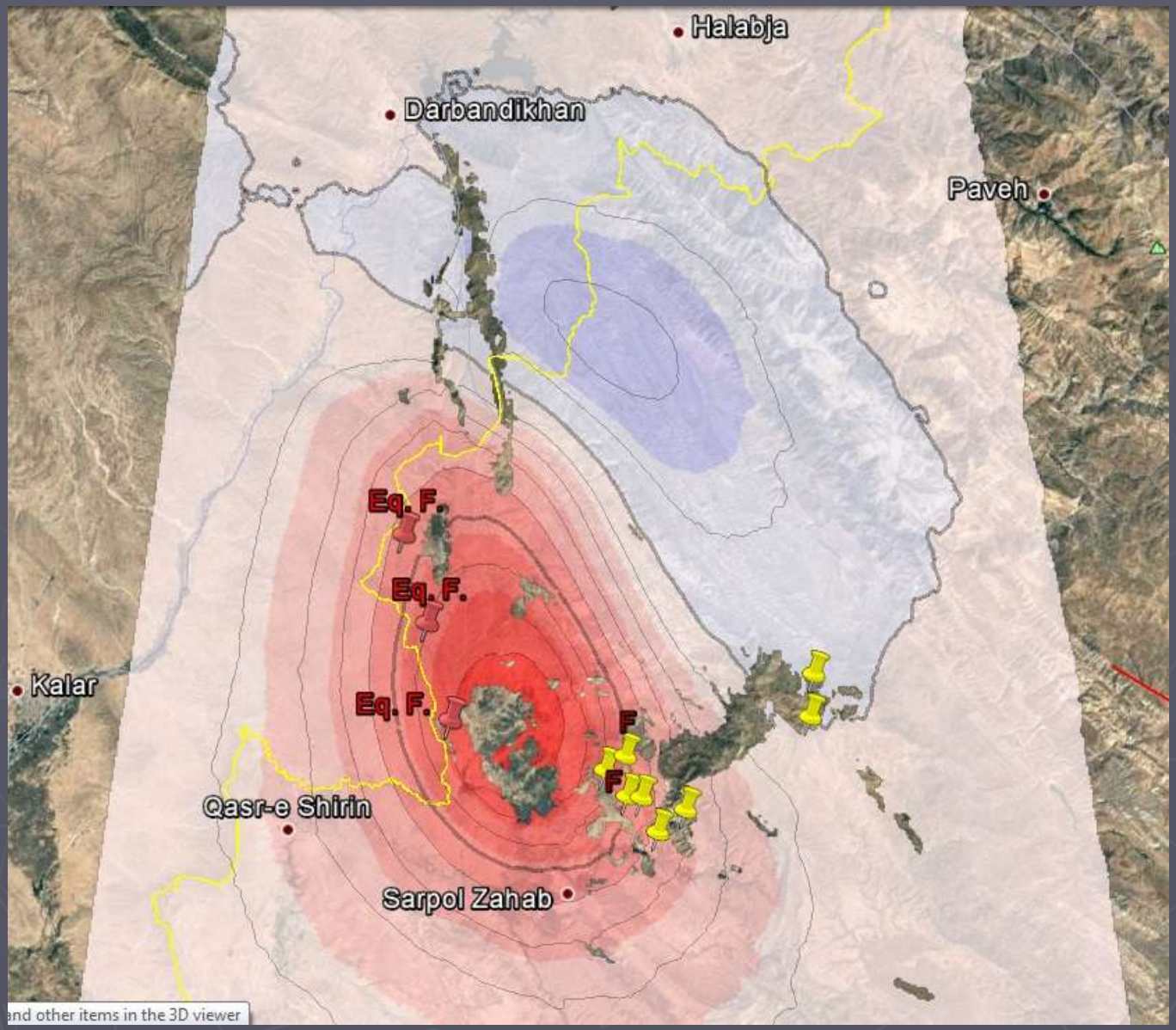

(a)
近づく
Close to satellite
遠ざかる
Away from satellite
−12
0
12
衛星ー地表視線方向の変位量 [cm]
Displacement between satellite and ground [cm]
1回目観測 1st obs.: 2017/10/04
2回目観測 2nd obs.: 2017/11/15
入射角 Incidence angle: 47°
2017/11/12
Mw7.3 (USGS)
(b)
(c)
Halabja
Darbandikhan
Ezgeleh
Sarpol-e Zahab
Eslamabad-e Gharb
電波照射方向
Beam Dir.
衛星進行方向
Flight Dir.
0
20
40 km
35.4°
35.2°
35.0°
34.8°
34.6°
34.4°
34.2°
45.2°
45.4°
45.6°
45.8°
46.0°
46.2°
46.4°
46.6°
Analysis by GSI from ALOS-2 raw data of JAXA


沈降/Down
隆起/Up
−100
0
100
準上下方向の変位量[cm]
Quasi up-down displacement [cm]
観測日 Observation date
2016/08/09-2017/11/14 (北行 Asc)
2017/10/04-2017/11/15 (南行 Des)
2017/11/12
Mw7.3 (USGS)
Halabja
Darbandikhan
Ezgeleh
Sarpol-e Zahab
Eslamabad-e Gharb
0cm
50cm
0
20
40 km
35.4°
35.2°
35.0°
34.8°
34.6°
34.4°
34.2°
45.2°
45.4°
45.6°
45.8°
46.0°
46.2°
46.4°
46.6°
Analysis by GSI from ALOS-2 raw data of JAXA


沈降/Down
隆起/Up
−100
0
100
準上下方向の変位量[cm]
Quasi up-down displacement [cm]
観測日 Observation date
2016/08/09-2017/11/14 (北行 Asc)
2017/10/04-2017/11/15 (南行 Des)
2017/11/12
Mw7.3 (USGS)
Halabja
Darbandikhan
Ezgeleh
Eslamabad-e Gharb
0cm
50cm
0
20
40 km
35.4°
35.2°
35.0°
34.8°
34.6°
34.4°
34.2°
45.2°
45.4°
45.6°
45.8°
46.0°
46.2°
46.4°
46.6°
Analysis by GSI from ALOS-2 raw data of JAXA


A
WSW
ENE
Upper Level Decollement
Tectonic Ramp
Allochthon
Autochthon
Tectonic Ramp
Lower Level
Decollement
B

Harris, 1979


Halabja
Darbandikhan
Paveh
Eq. F.
Eq. F.
Eq. F.
Kalar
F
F
Qasr-e Shirin
Sarpol Zahab
and other items in the 3D viewer

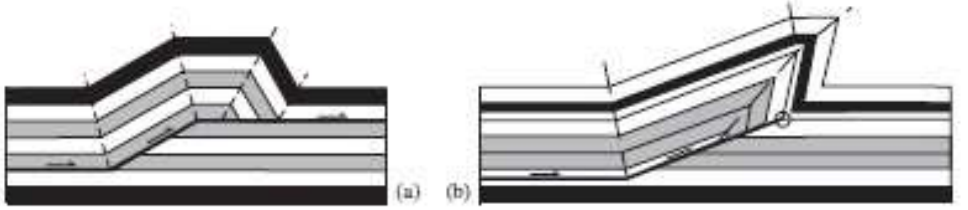
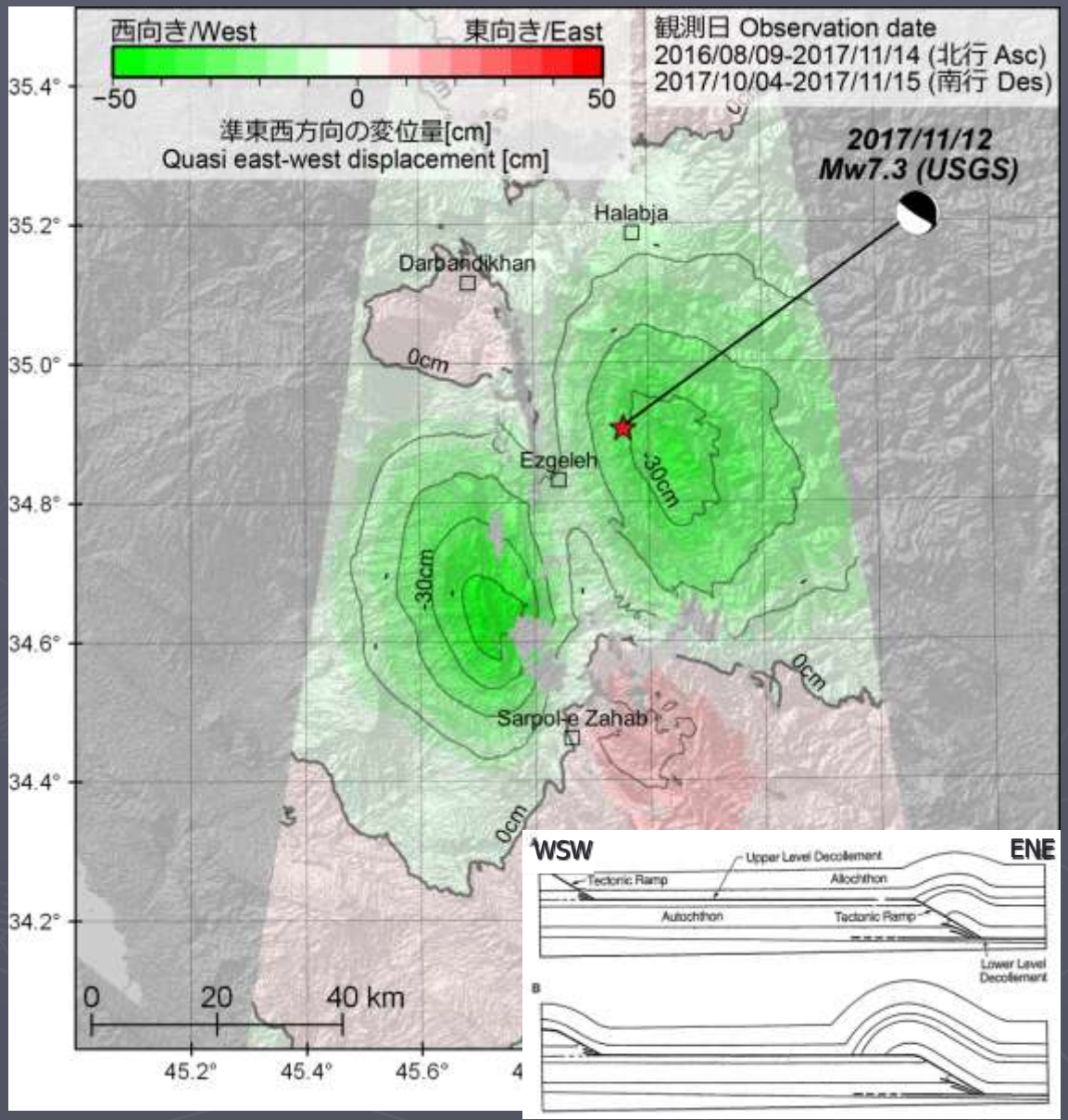
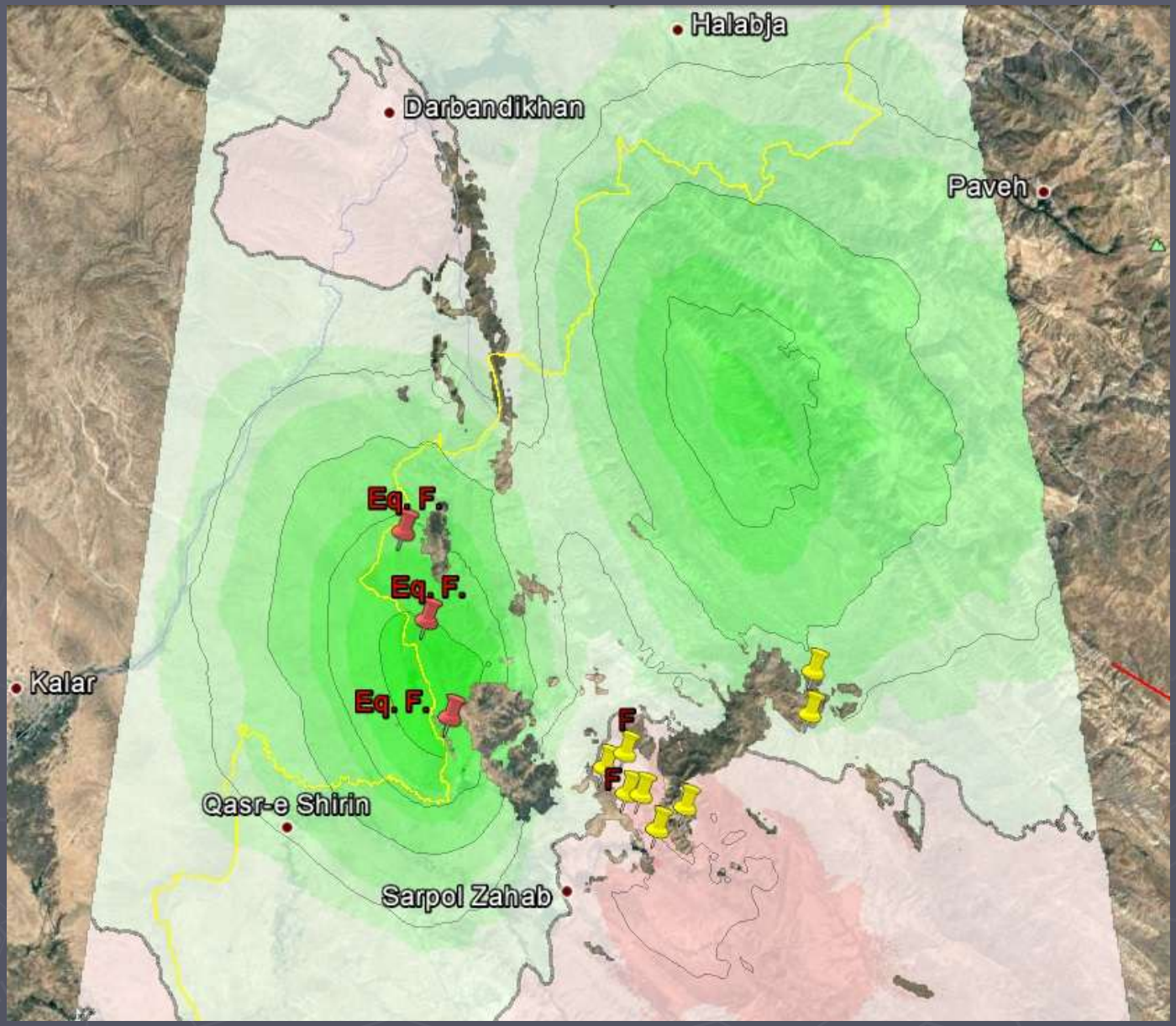


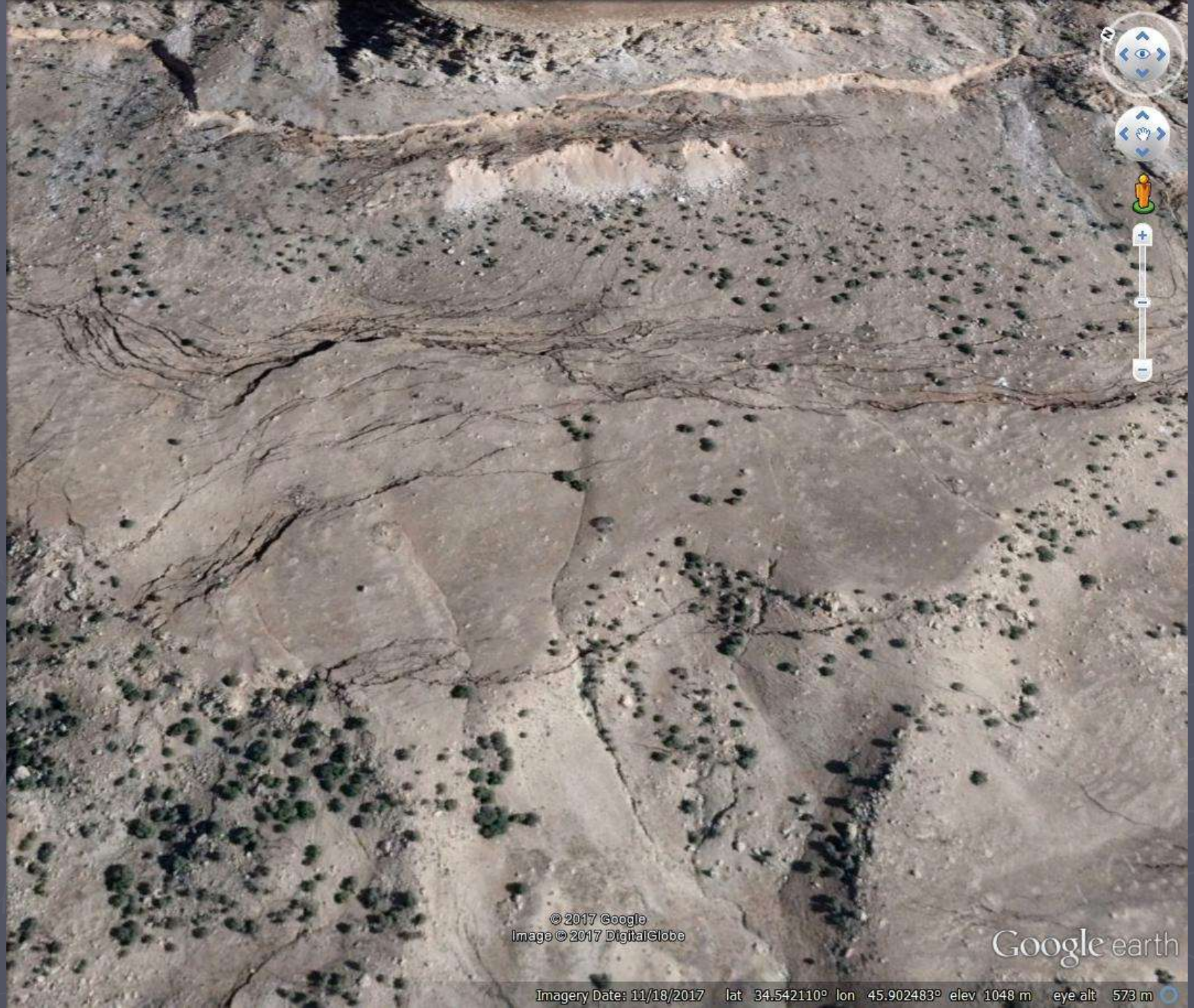
Figure 15.27 Angular folds and faults: (a) fault-bend fold (after McClay, 1992); (b) fault-propagation fold (after Suppe, 1985, p. 351).

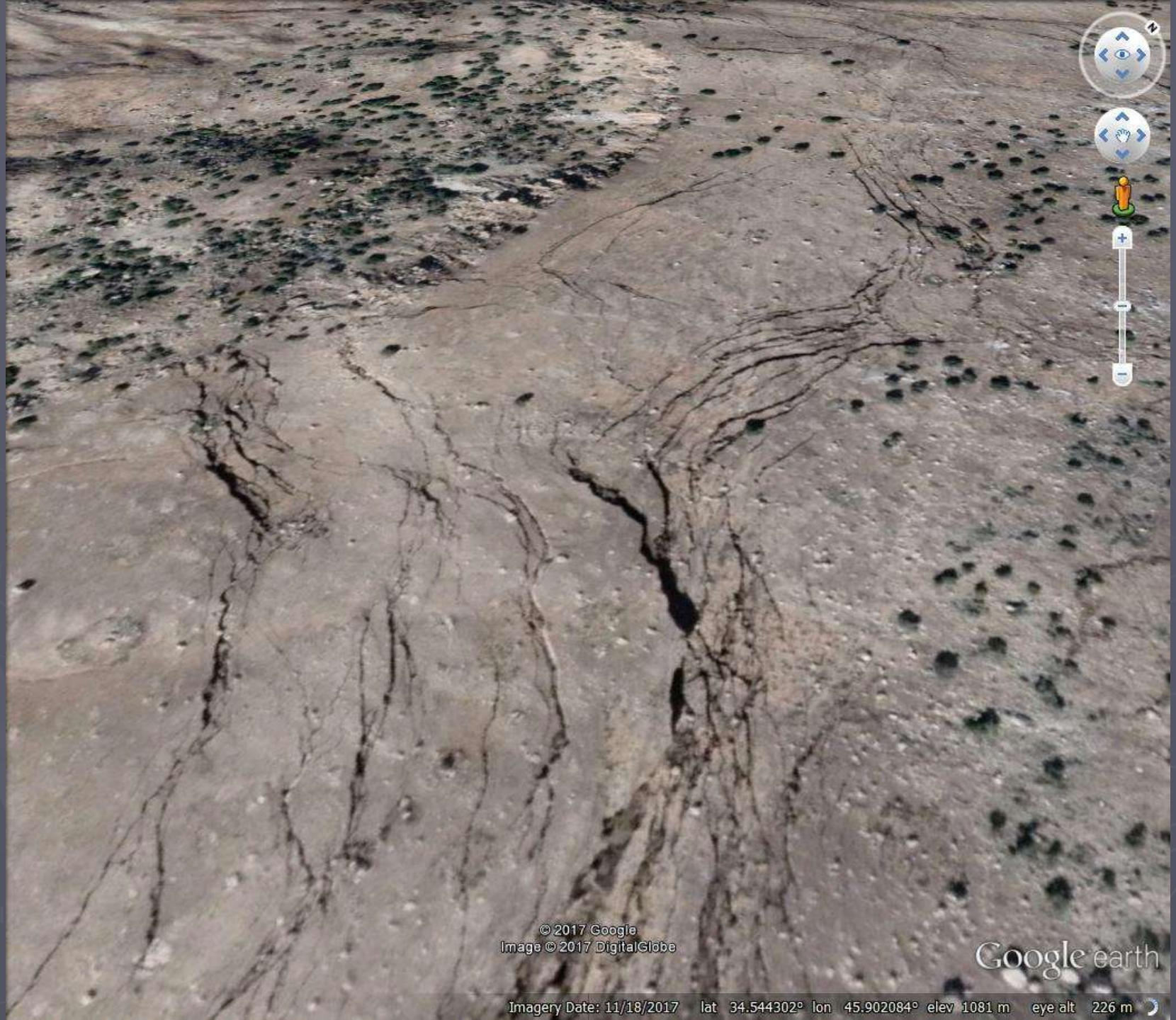

西向き/West
東向き/East
−50
0
50
準東西方向の変位量[cm]
Quasi east-west displacement [cm]
観測日 Observation date
2016/08/09-2017/11/14 (北行 Asc)
2017/10/04-2017/11/15 (南行 Des)
2017/11/12
Mw7.3 (USGS)
Halabja
Darbandikhan
Ezgeleh
Sarpol-e Zahab
0cm
-30cm
-30cm
0cm
0cm
35.4°
35.2°
35.0°
34.8°
34.6°
34.4°
34.2°
0
20
40 km
45.2°
45.4°
45.6°
WSW
ENE
Upper Level Decollement
Tectonic Ramp
Allochthon
Autochthon
Tectonic Ramp
Lower Level Decollement
B

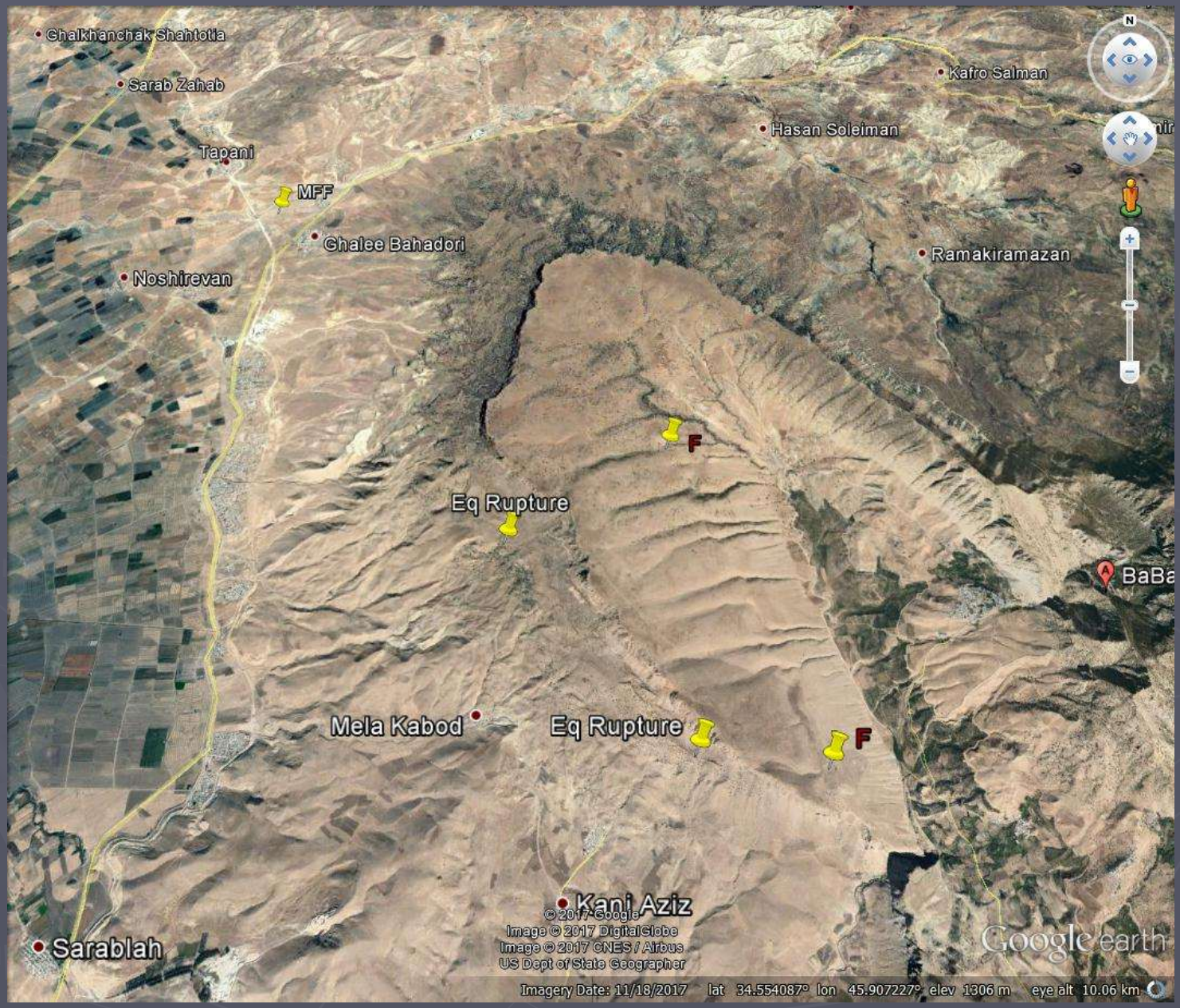

Halabja
Darbandikhan
Paveh
Eq. F.
Eq. F.
Eq. F.
Kalar
F
F
Qasr-e Shirin
Sarpol Zahab


Nawa Fera
Kani Aziz
Ghorchi Bashi
Mela Kabod
Eq Rupture
Eq Rupt
© 2017 Google
Image © 2017 DigitalGlobe
US Dept of State Geographer
Google earth
Imagery Date: 11/18/2017 lat 34.541241° lon 45.908612° elev 1182 m eye alt 1.76 km


© 2017 Google
Image © 2017 DigitalGlobe
Google earth
Imagery Date: 11/18/2017 lat 34.541492° lon 45.903394° elev 1058 m eye alt 1.16 km


© 2017 Google
Image © 2017 DigitalGlobe
Google earth
Imagery Date: 11/18/2017 lat 34.542110° lon 45.902483° elev 1048 m eye alt 573 m


© 2017 Google
Image © 2017 DigitalGlobe
Google earth
Imagery Date: 11/18/2017 lat 34.544302° lon 45.902084° elev 1081 m eye alt 226 m


Ghalkhanchak Shahtolia
Sarab Zahab
Tapani
MFF
Ghalee Bahadori
Noshirevan
Kafro Salman
Hasan Soleiman
Ramakiramazan
F
Eq Rupture
BaBa
Mela Kabod
Eq Rupture
F
Kani Aziz
Sarablah
© 2017 Google
Image © 2017 DigitalGlobe
Image © 2017 CNES / Airbus
US Dept of State Geographer
Google earth
Imagery Date: 11/18/2017 lat 34.554087° lon 45.907227° elev 1306 m eye alt 10.06 km