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## The Importance of Tuzla Fault and a Study on Deformation Monitoring in the Aegean Region, Turkey

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### Study Area--

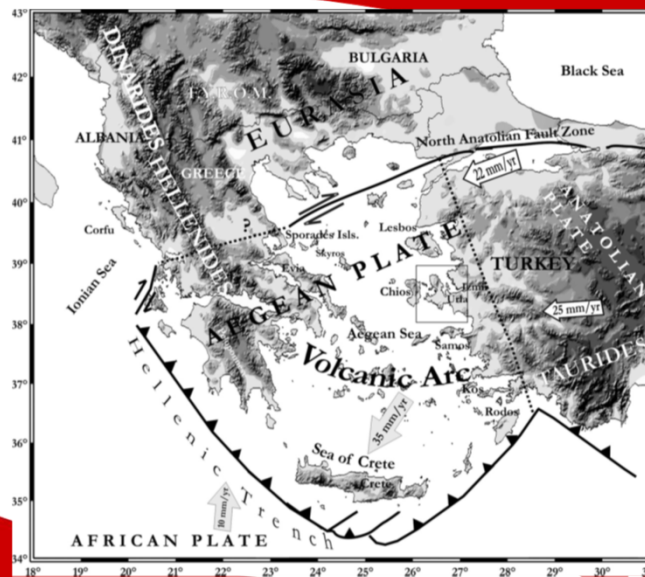
*Izmir is a large city in Turkey with a population of about 2.5 million that is at great risk from large earthquakes.*

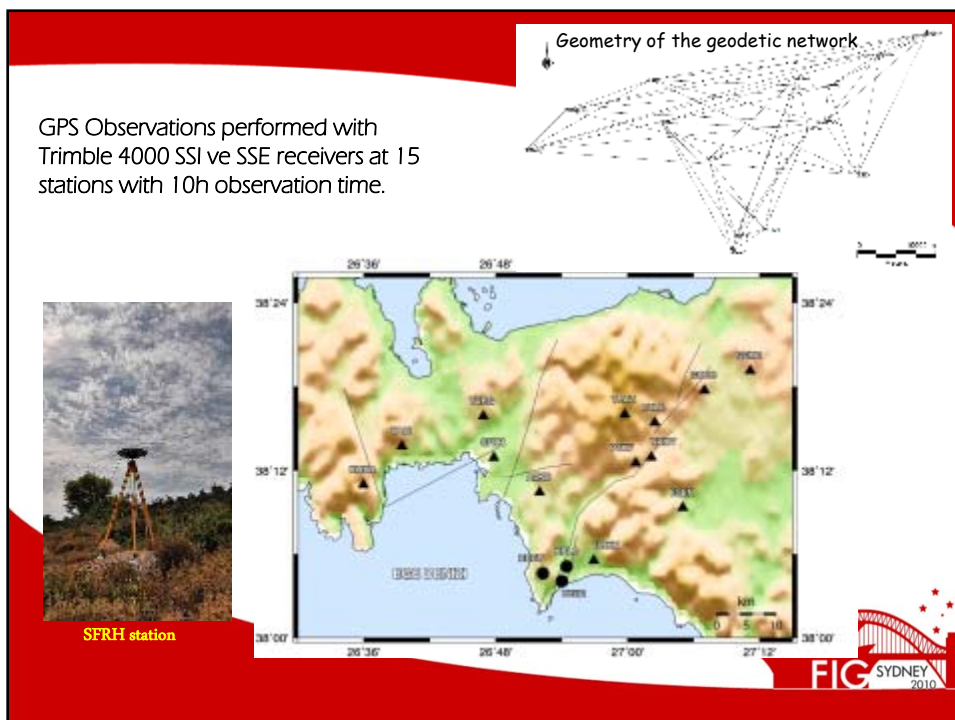
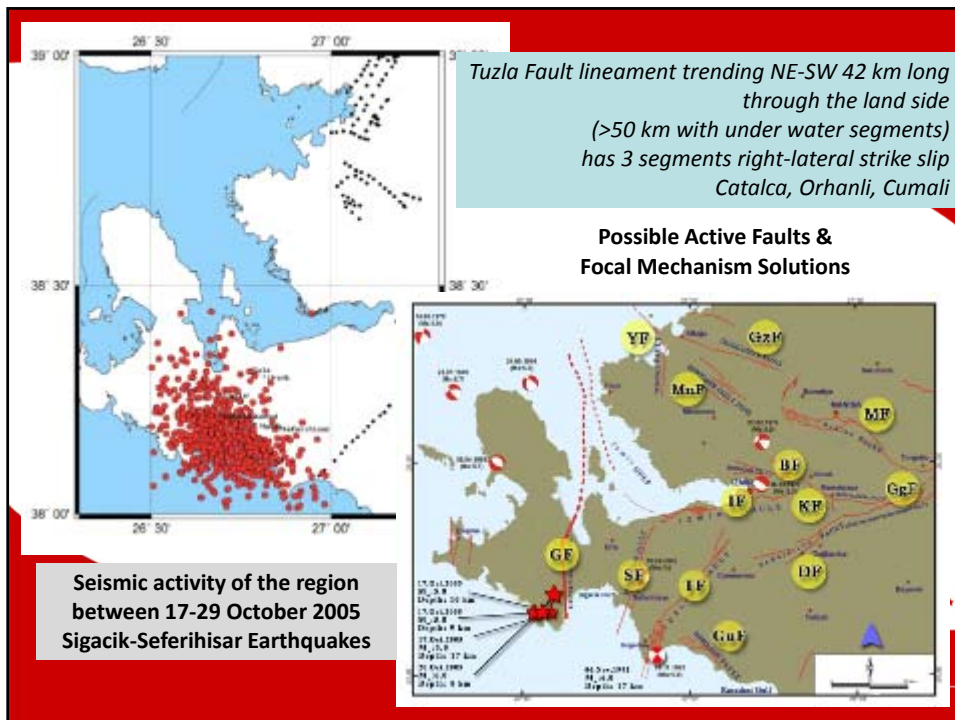


- The Aegean Region and Western Anatolia are one of the most seismically active and deforming parts of the Alpine-Himalayan orogenic belt. An extensional deformation regime has led to subsidence of the continental crust over all regions behind the south Aegean.
- The region is mainly under pure shear stress from an internally deforming counter-clockwise rotation of the Anatolian Plate relative to the Eurasian one.
- The Tuzla Fault, which is aligned trending NE–SW between the town of Menderes and Cape Doganbey, is an important fault in terms of seismic activity and its proximity to the city of Izmir.
- This study aims to perform a large scale investigation focusing on the Tuzla Fault and its vicinity for better understanding of the region's tectonics. In order to investigate the crustal deformation along the Tuzla Fault and Izmir Bay, a geodetic network has been established and observations of first GPS campaign and leveling measurements were performed.



Aegean Region comprises the Hellenic Arc, Greek mainland and western Turkey.

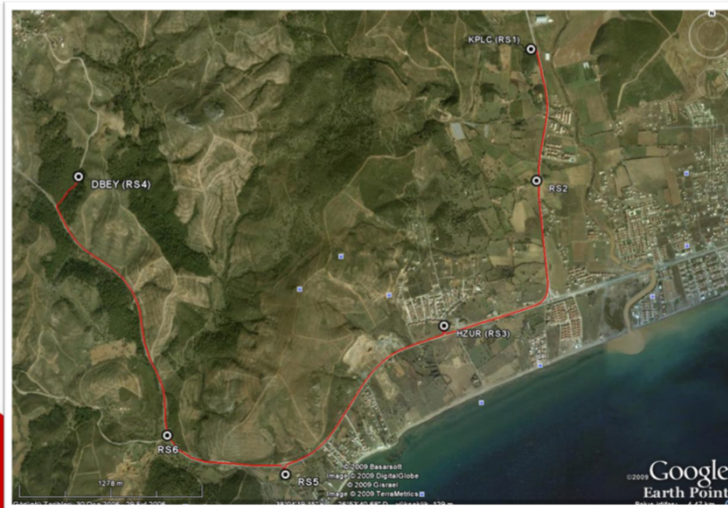


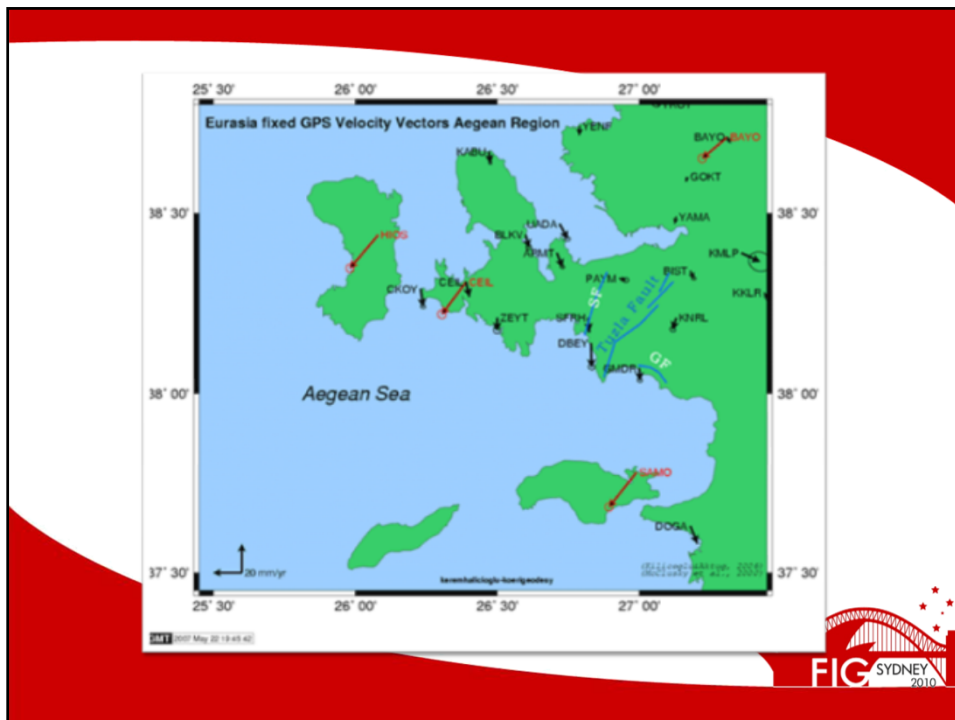


Station	Station ID	Latitude (E) WGS84	Longitude (N) WGS84
Askeriye	ASKE	38° 10' 27"	26° 51' 60"
Çatalca	CTAL	38° 15' 26"	27° 02' 29"
Doğanbey	DBEY	38° 04' 37"	26° 52' 18"
Eşenli	ESEN	38° 09' 21"	27° 05' 01"
Gaziemir	GEMR	38° 19' 08"	27° 11' 09"
Görece	GÖRC	38° 17' 45"	27° 06' 60"
Huzur Sitesi	HZUR	38° 04' 04"	26° 54' 01"
Kokar	KOKR	38° 10' 59"	26° 35' 58"
Kaplıca	KPLC	38° 05' 07"	26° 54' 27"
Petek Vadisi	PTKV	38° 12' 33"	27° 00' 45"
Seferihisar	SFRH	38° 12' 56"	26° 47' 50"
Tirazlı	TRAZ	38° 16' 04"	26° 59' 34"
Turgutlu	TURG	38° 15' 54"	26° 46' 53"
Ürkmez	URKM	38° 05' 33"	26° 56' 55"
Yağcılar	YACI	38° 13' 45"	26° 39' 28"
Yeniköy	YKOY	38° 12' 57"	27° 02' 10"



### Leveling Route ~ 15 km





- ✚ There are valuable geodetic, geological and geophysical studies at the region of interest but yet they are insufficient in detail or small scaled to determine active faults individually.
- ✚ This study differs from previous projects in terms of its large scale, dense geodetic network and high precision.
- ✚ The study increases its precision with additional observation technique-precise leveling that supports vertical component of the GPS position.
- ✚ At the end of the GPS and precise leveling observations, it is going to be evaluated whether there is any meaningful results coincide with geological and geophysical results for the same region.
- ✚ This project is mainly supported by TUBITAK - CAYDAG under grant No:108Y295. Additional support is provided by Bogazici University



**Thank you for your attention!**

**For questions please send an email to:**

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