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The Eastern Part Of Gedız Graben Determınatıon Methods Of Tectonıc Movements Gps And Ps-Insar; The First Results

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The study area is located in Aegean Horst-Graben system, bordered by Alaşehir and Sarıgöl in the eastern part of Gediz Graben. Gediz Graben extends from Manisa to Pamukkale and has a length of approximately 200 km. The main fault of the graben lies along the southern edge. The antithetic components of this fault are located from place to place in the north. The earthquake of Alaşehir whose magnitude was M=6.5 occurred in the graben on March 28, 1969. The main fault separating the neogene sediments of the Gediz Graben from metamorphic basements (Menderes Masifi) is called the southern boundary fault (Seyitoğlu and Scott, 1996), or The Karadut fault (Emre, 1996).

Many civilizations were developed in the place where The Western Anatolia affected by a lot of destructive earthquakes throughout history. The existence of about 13 earthquakes occurred at the historical period in the zone encompassing the study area are known. The vast majority of these historical earthquakes are concentrated around the Gediz graben. The existence of earthquakes whose magnitude is bigger than VII are known in the western area of the Graben in B.C. 17, 1592, 1850, 1862 years, and in Denizli region at the intersection of the Great Menderes Graben, at the eastern area of the Graben in A.D. 60, 494 years. Later than the specified dates, 1969 Alaşehir earthquake is known to occur in the eastern area of the graben.

Within the study, two different spatial geodetic technology, SAR (Synthetic Aperture Radar) interferometry and GPS (Global Positioning System) will be used. Results which will be obtained by both methods have advantages with respect to each other. While basis point measurements made with GPS(cm sensivity) is susceptible on horizontal component of terrestrial deformation (vertical error is about twice bigger than the horizontal errors), spatial measurements get with InSAR on the level of cm is effective to determine displacements in the vertical direction. In this study, it has been targeted to study for determining the locally long-term deformations by using together with the superiorities of both technologies.