Land Subsidence Detection in Agricultural Areas of Konya Closed Basin by PS-InSAR and GNSS Observations

Study Area

Konya closed basin, which is located in a 55 000 km$^2$ area of Anatolian peninsula, is the biggest closed basin of Turkey involving Konya, Karaman, Nigde and Aksaray provinces (see Fig.1).

Fig. 1: Konya Closed Basin (Ustun et al., 2010)

Fig. 2: There have been some occurrences of land subsidence in the southwest part of the basin.
Fig. 3. shows the location of the study area covered by the track 207 and frame 2853, track 207 and frame 2835, track 436 and frame 2853 according to Konya Closed Basin.

Fig. 3: Location of Envisat ASAR image at study area on digital elevation model.
Studies on differential InSAR

We previously present a set of ground deformation maps using of conventional InSAR with Envisat ASAR datas. (see Fig. 4)

Fig. 4: Sample of DInSAR results over study area.
Geodetic surveys: Establishing GPS network and observation campaigns

A GPS network was designed in the way that represents different terrain characteristics in the surrounding area of basin. A 28-point GPS network has been established (see Fig. 5). After GPS data acquisition, deformation rates at the GPS stations predict utilized by appropriate software.

Fig. 5: Deformation monitoring stations (GPS) in the Konya sub-basin.

References: