



## **Long-term and wide-area subsidence pattern from time series of Envisat Asar Data in Konya Basin, Turkey**

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Konya Basin as a sub-part of Konya Closed Basin is dominated by the Neogene and Quaternary sediments that are largely fluvial and lacustrine characteristic. The wide plains cultivated over the last 10000 years are the remnants of the Pluvial lake basin during wet and humid climate environment after the last glacial period. With the form of isolated depression-block, the geomorphological landscape has been mainly driven by the neotectonic activity of striking normal fault systems of the region.

Konya that has doubled in size over the last two and half decades is both expanding into the agricultural areas and increasing its building expansion in the city center. The level observations recorded at the monitoring stations indicate that groundwater resources have been exploited permanently or seasonally in some parts where water demand exceeds supply.

In this study, a long-term and wide area subsidence pattern in Konya Basin has been analyzed by stacking the deformation interferograms for time series. The study area that covers approximately 7500 km squared was investigated through a large number of the raw images of Asar sensor onboard Envisat from December 2002 to October 2010. Almost a hundred SAR scenes imaged over three tracks in both ascending and descending modes have been used to create a set of 127 differential interferograms using GMTSAR processing system. A continuous deformation map on the basinwide scale has been produced by combining the stacked interferograms. The average contour map shows that the DInSAR detected line of sight subsidence (or uplift) rates vary between 0.6 and -3.3 cm/yr throughout 8 years. The subsidence pattern significantly is correlated with the land and groundwater use within the basin and it states that the anthropogenic effect is much greater than the identified geological and hydrogeological processes.