Sinkholes are a natural and common geologic feature in areas with underlying limestone, carbonate rock, salt beds, or other rocks that are soluble in water. As the rock dissolves, spaces and caverns develop underground. The land usually stays intact until the underground cavities become too large. If there is not enough support for the land above these voids, a sudden collapse of overlying sediments can occur, creating a sinkhole. We are applying the best geophysical method to better understand sinkhole precursors and assess the potential for future sinkhole development. This method is Differential Interferometry of Phase.

In this study we use Envisat images to show main sinkholes around two important strategic places in Hamadan state of Iran. One of them is a power station, Shahid Mofatteh, and the other is an Army Airport. The sinkholes can be serious danger in this area. Studies show that there have been 32 sinkhole events in Kaboodar Ahang area near this station since 1991 which could cause large subsidence.

The images are obtained from descending and SLC situation of Envisat RaDAR in area between 47.85– 49.27 horizontally and 34.54– 35.77 vertically and processed with Doris Software in Linux Workstation.