

Land subsidence detection by SBAS-InSAR technology and its factor analysis in the inland area of Chiba Prefecture

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Land subsidence seriously influences the safety of our property. There have been many studies on the deformation of the ground surface due to the groundwater or natural gas extraction. Recently, a large amount of land subsidence had occurred in the Quaternary upland areas in the inland areas of Chiba Prefecture, Japan. There is less evidence of big wells of groundwater or natural gas, and the mechanism of subsidence is not yet clear. So far, SBAS-InSAR (Small Baseline Subset algorithm -Interferometric Synthetic Aperture Radar) technology had been used in the investigation process to clarify the phenomenon of land subsidence in some inland areas of Chiba Prefecture. The ALOS-PALSAR and ALOS-2 PALSAR-2 data for 2006-2010 and 2014-2018 were collected, respectively. The maps of the land subsidence phenomena in Yachimata-Tomisato area are created, and the maps reveal the spatial and temporal distribution of upland area land subsidence. The extent of the subsidence zone are almost consistent with the land survey results. Next step is to reveal the mechanism of land subsidence. At the JpGU2019, we will make a discussion on the possibility of decline of fluid pressure in deep layer.

Keywords: SBAS-InSAR technology, Land subsidence, Chiba Prefecture