LC-InSAR analysis of the Sulawesi earthquake in Indonesia

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On 28 September 2018, a shallow, large earthquake struck in the neck of the Minahasa Peninsula, Indonesia, with its epicenter located in the mountainous area, Central Sulawesi. The magnitude was 7.5.The main active onshore structure in the western part of Central Sulawesi is the left-lateral NNW-SSE trending Palu-Koro strike-slip fault that forms the boundary between the North Sula and Makassar blocks. It was reported that the earthquake caused major soil liquefaction in and around Palu.
In this study, the authors conducted the interferometry analysis using ALOS-2 data and found out the followings:
1) A phase discontinuity lines found in the LC-InSAR diagram can be Palu-Koro fault and other small strike-slip faults around Palu-Koro.
2) In the LC-InSAR diagram, areas with low coherence are distributed in a wider range than the range where damage was caused by liquefaction. This shows the possibility that the ground change has occurred in a wider range than the extent of damage caused by liquefaction.

The authors confirmed that analysis using ALOS-2 data can identify places and scopes of disasters with extensive damages occurred not only in Japan but also in other countries.

Keywords: InSAR, LC-InSAR diagram, 2018 Sulawesi earthquake, Palu-Koro fault

