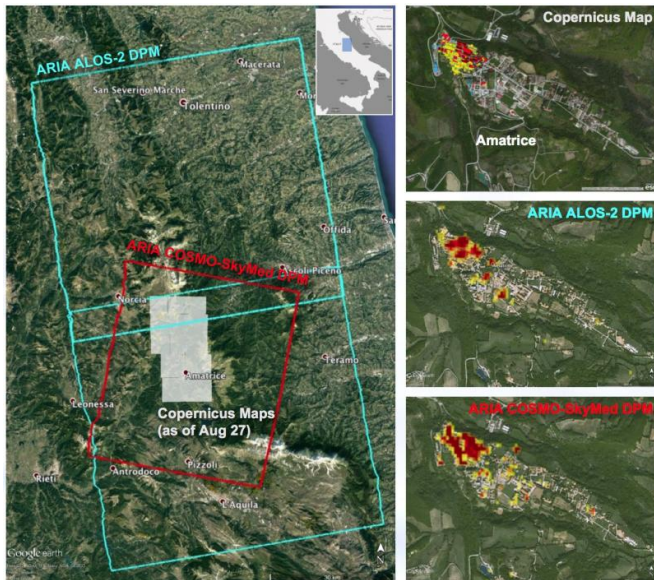


NASA-produced maps help gauge Italy earthquake damage

6 October 2016, by Alan Buis



The views indicate the extent of damage caused by the earthquake and subsequent aftershocks in and around Amatrice, based on changes to the ground surface detected by radar. The color variations from yellow to red indicate increasingly more significant ground surface change. The damage maps were created from data obtained before and after the earthquake by satellites belonging to the Italian Space Agency (ASI) and the Japan Aerospace Exploration Agency (JAXA). The radar-derived damage maps compare well with a damage map produced by the European Commission Copernicus Emergency Management Service based upon visual inspection of high-resolution, pre-earthquake aerial photographs and post-earthquake satellite optical imagery, and provide broader geographic coverage of the earthquake's impact in the region.

NASA/JPL-Caltech-produced maps of damage in and around Amatrice, Italy, from the Aug. 2016, quake, based on ground surface changes detected by Italian and Japanese radar satellites. The color variations from yellow to red indicate increasingly more significant ground surface change. Credit: NASA/JPL-Caltech/JAXA/ASI/European Union - Joint Research Centre/Google Earth

A NASA-funded program provided valuable information for responders and groups supporting the recovery efforts for the Aug. 24, 2016, magnitude 6.2 earthquake that struck central Italy. The earthquake caused significant loss of life and property damage in the town of Amatrice.

To assist in the disaster response efforts, scientists at NASA's Jet Propulsion Laboratory and Caltech, both in Pasadena, California, obtained and used radar imagery of the earthquake's hardest-hit region to discriminate areas of damage from that event.

The X-band COSMO-SkyMed (CSK) data were provided through a research collaboration with ASI and were acquired on July 3, August 20, and Aug. 28, 2016. The L-band ALOS/PALSAR-2 data were provided by JAXA through its science research program and were acquired on Sept. 9, 2015, Jan. 27, 2016, and Aug. 24, 2016.

The radar data were processed by the Advanced Rapid Imaging and Analysis (ARIA) team at JPL and Caltech. ARIA is a NASA-funded project that is building an automated system for demonstrating the ability to rapidly and reliably provide GPS and satellite data to support the local, national and international hazard monitoring and response communities.

Using space-based imagery of disasters, ARIA data products can provide rapid assessments of the geographic region impacted by a disaster, as well as detailed imaging of the locations where damage occurred. Radar can "see" through clouds day and night and measure centimeter-level ground movements. NASA is partnering with the Indian Space Research Organization (ISRO) to develop

the NASA ISRO Synthetic Aperture Radar (NISAR) mission that will routinely provide systematic SAR observations of Earth's land and ice-covered surfaces at least twice every 12 days, enabling greater scientific understanding of the dynamic processes that drive the Earth system and natural hazards, as well as providing actionable support for disaster response and recovery.

More information: For more information about ARIA, visit: aria.jpl.nasa.gov.

Provided by NASA

APA citation: NASA-produced maps help gauge Italy earthquake damage (2016, October 6) retrieved 16 October 2021 from <https://phys.org/news/2016-10-nasa-produced-gauge-italy-earthquake.html>

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