# Improving Disaster Response from Space

When Typhoon Haiyan hit land on the Philippines last November, it became one of the strongest storms on record—destroying even the roads and lines of communication needed to quickly deploy relief. In an attempt to help those responding to the disaster on land, researchers at Caltech and NASA's Jet Propulsion Laboratory developed a bird's-eye view of the storm's destruction via the Advanced Rapid Imaging and Analysis (ARIA) technique. Also used to assess damage after both the Tohoku-Oki earthquake and Hurricane Sandy, ARIA uses an algorithm to detect natural or human-induced changes in Earth's surface by comparing radar imagery from before and after an event; when heavy damage is detected, the pixels of the radar image translate as opaque red dots. These red dots are then overlaid on a satellite map of the area from Google Earth, providing detailed images of the locations where changes have occurred, such as those damaged by Typhoon Haiyan (above right).