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NEWS RELEASE

New Study: International Scientists link Indonesian Mud Disaster to Earthquake

Seismic Activity linked to East Java Mud Volcano

Paris, France: A team of scientists from Kochi Institute for Marine-Earth Science and Technology and Hiroshima University Department of Earth and Planetary Systems Science have completed an intensive study on the cause of the LUSI Mud Volcano in East Java.

The report published by - Elsevier Scientific Journal (Paris) supports the scientific hypothesis that the LUSI Mud Volcano is a natural disaster caused by the Yogyakarta 2006 earthquake.

This new report supports studies by leading international scientists that seismic activity cannot be ruled out as the cause.

Research Highlights

“The overpressure, which is higher than hydrostatic pore pressure, might have been generated at depth of the LUSI region (Indonesia, East Java), where natural disaster of huge mud eruption was occurred in 2006. The overpressure causes under-consolidation of sedimentary rocks and weakens strength of rock, therefore generation of overpressure can increase the potential to cause the liquefaction and fluidization of sedimentary rocks. We assume overpressure can partially associate the Lusi mud eruption. Therefore, to understand the overpressure generation process, transport properties, which control the fluid pressure distribution at depth, were measured in a laboratory experiments. Using the laboratory data, fluid pressure distribution was estimated by numerical basin analyses. Numerical results showed that excess fluid pressure was developed in the Upper Kalibeng formation, that is thought to be mud source layer, and the overpressure generation was caused by rapid sedimentation rate and very low permeability of the formation. Undercompaction of the Upper Kalibeng Formation because of overpressurization may have caused the mud to lose strength and cause liquefaction and hydrofracturing as a result of small stress fluctuations induced by the Yogyakarta earthquake, which may have ended up causing the mud eruption”.

Supporting the seismic hypothesis, Russian scientists in September 2010 released a report that incorporated seismic data from the Indonesian Government that show LUSI first becoming active 10 months before it erupted at the surface following a 4.4 earthquake that occurred in Sidoarjo on July 9, 2005. These findings indicate that a mud channel began to slowly make its way to the surface and that seismic activity linked to the Yogyakarta earthquake created the final push for the mud to erupt on May 29, 2006. This indicates that the mud eruption process began nearly 8 months prior to the commencement of drilling operations by PT. Lapindo Brantas Inc. whom were earlier thought to have caused the eruption. Russian scientists showed that the LUSI location was a known area for mud volcanoes dating back more than 150,000 years. The scientists using GPS data from the drilling location provided by the Indonesian regulator showed that drilling and the mud volcano were not connected and that drilling operations could not have triggered the mud eruption.

To support further scientific research Australian NGO Humanitus Foundation announced the formation of the Humanitus Sidoarjo Fund (HSF) following meetings with the Indonesian Government agency managing the disaster, BPLS.

“In essence we are establishing an international fund that aims to support scientific research into the study of the subsurface so that effective infrastructure and social planning can be developed to assist the Indonesian people”.

In consultation with BPLS, Humanitus will also assess the social impact of the mud volcano, to provide a better understanding of the efforts implemented over the past 4+ years and including the broader implications of this disaster. Through this comprehensive social impact study Humanitus will assist BPLS in enhancing programs for the direct benefit of the affected communities.

“We are in the process of identifying key opportunities and partnerships so that scientists, innovators, networks and resources can connect. HSF is actively promoting innovations for the study of this disaster through knowledge sharing, partnerships and collaborative agreements. With our open approach to identifying and fostering innovations we can be certain of our ability to deliver on our core mission”, said Humanitus SE Asia Director Angus Carnegie.

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