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ANALYSIS OF LANDSLIDE IN CHOSICA USING SATELLITE IMAGES

Abstract

In the months of January, February, and March 2017, there is an intensification of rains in some districts of Lima - Peru. This intensification of rains produces the soaking of lands and the increase of the river level. This increase in the level of the rivers causes overflows, and the overexposure of land to the rains produces landslide called 'Huaycos' in Peru. Due to these effects, we can indicate that the intense rains have damaged urban areas in different districts as Chosica, Chaclacayo, Santa Eulalia, Cañete, Huaral and Huaura in Lima. Several families, from these communities mentioned above, have lost their belongings, their homes, their businesses, and we also can talk about human losses.

Among the consequences of this nature fury, we can mention:

- Huaycoloro Bridge collapsed due to an overflow of the river.
- Central Highway blocked by a landslide.
- More than 170 houses and medical centers affected by landslides.
- Kilometer 66 of Cañete-Yauyos road obstructed by landslides.
- Fall of public lighting posts and power outages by landslides in Lunahuaná.
- Damaged crops in Quilmaná due to flooding.
- Among others.

Due to these disasters, immediate decision-making is needed to define where to take help, the type of support to make, and where to bring it. For this purpose, the use of satellite imagery can be a great help. A satellite image shows a broader picture of the areas to be analyzed. In this paper, we propose to develop satellite image processing algorithms to analyze the areas most affected by landslides. For this purpose, we plan to use both optical and radar satellite imagery because when the area under analysis is covered by clouds, optical images will not help us much, and hence the importance of having radar images whose products are not affected by the climatic conditions. Then it is proposed to apply segmentation algorithms and identify those areas covered by water and sludge.