

Natural hazards from the geological and geomorphological point of view; A case study in the Oita Bungoono Geopark

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Many natural hazards have occurred in the Oita Bungoono Geopark in these two years, such as the Kumamoto earthquake in April 2016, the landslide in the Watada area in 2017, and the flood caused by the typhoon no. 18 in September 2017. Some sites of this Geopark have been damaged by these hazards. For example, the cliff of the columnar-jointed welded tuff beside the Todoro Bridge collapsed down by the Kumamoto earthquake, and the Todoroki Bridge destroyed by the flood of the typhoon no. 18. In this way, natural hazards cause damages to sites, however they are geological and geomorphological phenomena and they have formed the land of the Geopark. The Aso pyroclastic flow that is the main subject of this Geopark just caused a much severe damage if a human being was alive at that time. Repeated floods caused deep valleys, waterfalls and cliffs. Many stone bridges were built across these valleys and many stone Buddha figures carved on these cliffs. The activity of Geopark makes the citizens interest in the geology and topography of the district, and it may lead to improving awareness of disaster prevention.

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