

Brief Discussion on Atmospheric Gravity Waves After Large Volcanic Eruptions

Satyamesh H. Tiwari

Volcanic eruptions are dynamic geological events that not only shape the earth but also have profound effects on surrounding atmosphere. The explosive release of energy and materials during eruptions disrupts the atmospheric equilibrium thus generating variety of waves. the rapid release of Energy, hot gases and materials from the explosive volcanic eruption initiates the upward moment of air thus creating a convective zone leading to the generation of gravity waves. These gravity waves were observed as concentric circular waves, having alternate dark and light bands, with wavefronts moving radially outwards. The center of these concentric circular gravity waves lies approximately near to the volcanic epicenter. Based on multisensory instruments on board Aqua, Suomi NPP, Aura, and TIMED satellites, we will discuss the generation and propagation of AGWs across stratospheric and mesospheric altitudes following three large volcanic eruptions of 15 January 2022 Hunga Tonga-Hunga Ha'apai, 11 April 2021 La Soufriere, and 13 February 2014 Kelud.