Modernization of USGS System for Issuing Notifications of Volcanic Activity

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The United States encompasses more than 160 volcanoes in various states of activity—quiet, restless, erupting. The U.S. Geological Survey (USGS) issues public notifications about conditions at U.S. volcanoes through its five Volcano Observatories (Alaska, California, Cascades, Hawaiian, Yellowstone). Notifications are produced by Observatory scientists based on analysis of data from monitoring networks, direct observations, and satellite sensors. Over the past several years, the USGS systematically modernized Observatory methods for public notification. The modernization effort began in 2006 with the adoption of a single alert-level scheme that replaced the different schemes each Observatory had developed independently. The new scheme combines a color-coded ranking to notify the aviation sector of airborne ash hazards with equivalent complementary terms to notify people of ground hazards such as lahars and lava flows. A USGS volcano notification includes both a ground-hazard term (Normal, Advisory, Watch, or Warning) and an aviation-hazard color (Green, Yellow, Orange, or Red). The next steps were to streamline the process of creating and disseminating notifications. In 2008, a new website (http://volcanoes.usgs.gov) was launched, prominently featuring a map of dynamically updated alert levels (the website was updated in 2016). By 2010, an internal, web-based, database-driven system was developed that allows Observatory scientists to efficiently write notifications, post them on public web pages, email them to key users, and archive them in the database. Concurrently, the types and formats of notifications were standardized across Observatories. Most recently, the USGS offers a public Volcano Notification Service (http://volcanoes.usgs.gov/vns2/) whereby anyone can set up a free subscription to receive selected notifications automatically by email or text. The overall result of the sustained modernization is a more efficient, consistent, and professional system for communicating USGS volcanic hazard information to the public.