



PRESS BULLETIN

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Charles Darwin Foundation on Fernandina's Eruption

Puerto Ayora, April 16th of 2009.- Scientific indicators that Fernandina was beginning to spew molten lava in the pre-dawn hours last Saturday morning came as no surprise to volcanologist Dennis Geist: “Fernandina erupts more frequently than any other Galapagos volcano,” notes Geist, a University of Idaho professor and member of the Board of the Directors of the Charles Darwin Foundation (CDF), based in Puerto Ayora, Santa Cruz, Galapagos.

“The entire island has been built only in the past 50,000 years, and is by far the youngest in the archipelago.” Despite its youth, Fernandina is home to dozens of unique endemic plant and animal species.

The Idaho geologist knows Fernandina intimately. In 2000, Geist, together with colleague Bill Chadwick from Oregon State University, installed a network on Fernandina that uses GPS technology to measure volcanic deformation. From this work, they have determined that Fernandina stores magma in a large reservoir 2000 meters beneath the caldera floor, about 1200 meters below sea level. The reservoir inflates with magma like a balloon between eruptions, until the magma forms a crack in the volcano, which then forms a fissure. Fernandina is monitored by the Geophysical Institute of Ecuador’s National Polytechnical School. According to Geist’s research, Fernandina volcano erupts lavas from 3 sites: within the caldera, from circumferential fissures on its lower slopes, and from radial fissures on its lower flanks. The new eruption is from a radial fissure. The most recent prior eruption was in 2005, from a circumferential fissure immediately upslope of the 2009 radial fissure.

Fernandina also underwent the most explosive eruption in the archipelago’s recent history, in 1968. At that time, the lava encountered water, which had pooled in the caldera, causing enormous explosions and eventually causing a 300 meter drop of the caldera floor.

Lava from the current eruption is entering the ocean, as did an eruption in 1995. During that eruption, many coastal and marine organisms were killed by the lava and hot water. The same is likely happening during this eruption, but according to current information, Dr. Mark Gardener, CDF Director of Terrestrial Sciences, indicates that: “So far as we know, no critically threatened

species are being strongly affected. Volcanoes are a natural process in Galapagos and usually there is some mortality of flora and fauna on a local level.”

Fernandina Island is comprised of a single volcano. Rising to 1463 meters (nearly 4800 feet) above sea level, it is the fourth-tallest Galapagos peak and one of the archipelago’s most visually captivating summits. The relatively shallow depths of its surrounding waters attest to its sub-aquatic conical formation. Fernandina is approximately 35 kms (22 miles) in diameter at its broadest sea-level base, although the molten lava being laid down by the current eruption is changing the outline of its circumference. The island has no human settlements and only one authorized tourist stop at Punta Espinosa which is home to two of the archipelago’s most enigmatic species, the endemic Galapagos penguin (*Spheniscus mendiculus*) and the flightless cormorant (*Nannopterum harrisi*), which exist nowhere else on Earth. There are 1591 individual flightless cormorants. Of these, 460 inhabit Fernandina with the additional birds inhabiting neighboring Isabela Island just across the Bolivar Channel. The Galapagos penguin population totals 1639 individuals with approximately 120 (7%) living on Fernandina. Both colonies are diametrically opposite the site of the current eruption and are under no threat from the present volcanic activity.

Further Information:

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