

115TH CONGRESS
1ST SESSION

S. 346

To provide for the establishment of the National Volcano Early Warning
and Monitoring System.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 8 (legislative day, FEBRUARY 6), 2017

Ms. MURKOWSKI (for herself, Ms. CANTWELL, and Ms. HIRONO) introduced
the following bill; which was read twice and referred to the Committee
on Energy and Natural Resources

A BILL

To provide for the establishment of the National Volcano
Early Warning and Monitoring System.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “National Volcano Early
5 Warning and Monitoring System Act”.

6 **SEC. 2. FINDINGS.**

7 Congress finds that—

8 (1) the United States and the territories of the
9 United States contain 169 hazardous volcanoes;

1 (2) since 1980, eruptions have claimed many
2 lives and cost billions of dollars in property damage
3 in the United States;

4 (3) ash eruptions pose a hazard to high-flying
5 jet aircraft, including the more than 50,000 pas-
6 sengers who travel on jets over Alaska and the
7 North Pacific every day;

8 (4) in 1989, an eruption of Redoubt Volcano,
9 Alaska, caused in-flight failure of all 4 engines of a
10 passenger Boeing 747 aircraft;

11 (5) international flights over the Commonwealth
12 of the Northern Mariana Islands and the intense do-
13 mestic air traffic of the Pacific Northwest also face
14 potential engine failure in the event of an eruption;

15 (6) mudflows from ice-clad Cascade volcanoes
16 of the States of Washington, Oregon, and California
17 pose a serious hazard to cities and transportation
18 arteries in the Pacific Northwest;

19 (7) lava flows, toxic gas emissions, and explo-
20 sions impact residents and visitors to the State of
21 Hawaii and have the potential to cause catastrophic
22 property damage;

23 (8) frequent seismic unrest requires careful
24 monitoring in the Mammoth Lakes area of the State

of California and Yellowstone National Park in the States of Wyoming, Montana, and Idaho;

(9) modern technology, in the form of geophysical monitoring networks on the ground and the use of near real-time satellite data, makes possible early warnings typically weeks or months before eruptions, giving emergency response agencies and the public time to prepare, which minimizes potential damage to property and loss of life;

(10) the efficacy of monitoring is being demonstrated by—

(A) the successful forecasts and warnings of Augustine Volcano in 1986 and 2006, Redoubt Volcano in 1989 through 1990 and 2009, and Mt. Spurr in 1992; and

(B) warnings and forecasts of lava flow advancement in Hawaii during the ongoing eruption of Kilauea;

(11) the United States Geological Survey and university and State partners of the United States Geological Survey operate—

(A) the Alaska Volcano Observatory located in Anchorage and Fairbanks, Alaska;

(B) the Cascades Volcano Observatory located in Vancouver, Washington;

1 (C) the Hawaiian Volcano Observatory lo-
 2 cated in Hawai'i Volcanoes National Park, Ha-
 3 waii;

4 (D) the Yellowstone Volcano Observatory
 5 located in Yellowstone National Park in the
 6 States of Wyoming, Montana, and Idaho; and

7 (E) the California Volcano Observatory, lo-
 8 cated in Menlo Park, California; and

9 (12) a detailed survey of the volcanoes in the
 10 United States and the monitoring status of those
 11 volcanoes has revealed numerous serious monitoring
 12 gaps, leaving the United States exposed to prevent-
 13 able damage from large volcanic eruptions.

14 **SEC. 3. DEFINITIONS.**

15 In this Act:

16 (1) SECRETARY.—The term “Secretary” means
 17 the Secretary of the Interior, acting through the Di-
 18 rector of the United States Geological Survey.

19 (2) SYSTEM.—The term “System” means the
 20 National Volcano Early Warning and Monitoring
 21 System established under section 4(a)(1).

22 **SEC. 4. NATIONAL VOLCANO EARLY WARNING AND MONI-**
 23 **TORING SYSTEM.**

24 (a) ESTABLISHMENT.—

1 (1) IN GENERAL.—The Secretary shall establish
2 within the United States Geological Survey a sys-
3 tem, to be known as the “National Volcano Early
4 Warning and Monitoring System”, to monitor, warn,
5 and protect citizens of the United States from undue
6 and avoidable harm from volcanic activity.

7 (2) PURPOSES.—The purposes of the System
8 are—

9 (A) to organize, modernize, standardize,
10 and stabilize the monitoring systems of the vol-
11 cano observatories in the United States, which
12 includes the Alaska Volcano Observatory, Cali-
13 fornia Volcano Observatory, Cascades Volcano
14 Observatory, Hawaiian Volcano Observatory,
15 and Yellowstone Volcano Observatory; and

16 (B) to unify the monitoring systems of vol-
17 cano observatories in the United States into a
18 single interoperative system.

19 (3) OBJECTIVE.—The objective of the System is
20 to monitor all the volcanoes in the United States at
21 a level commensurate with the threat posed by the
22 volcanoes by—

23 (A) upgrading existing networks on mon-
24 itored volcanoes;

1 (B) installing new networks on
2 unmonitored volcanoes; and

3 (C) employing geodetic and other compo-
4 nents when applicable.

5 (b) SYSTEM COMPONENTS.—

6 (1) IN GENERAL.—The System shall include—

7 (A) a national volcano watch office that is
8 operational 24 hours a day and 7 days a week;

9 (B) a national volcano data center; and

10 (C) an external grants program to support
11 research in volcano monitoring science and
12 technology.

13 (2) MODERNIZATION ACTIVITIES.—Moderniza-
14 tion activities under the System shall include the
15 comprehensive application of emerging technologies,
16 including digital broadband seismometers, real-time
17 continuous Global Positioning System receivers, sat-
18 ellite and airborne radar interferometry, acoustic
19 pressure sensors, and spectrometry to measure gas
20 emissions.

21 (c) MANAGEMENT.—

22 (1) MANAGEMENT PLAN.—

23 (A) IN GENERAL.—Not later than 180
24 days after the date of enactment of this Act,
25 the Secretary shall submit to Congress a 5-year

1 management plan for establishing and oper-
2 ating the System.

3 (B) INCLUSIONS.—The management plan
4 submitted under subparagraph (A) shall in-
5 clude—

6 (i) annual cost estimates for mod-
7 ernization activities and operation of the
8 System;

9 (ii) annual milestones, standards, and
10 performance goals; and

11 (iii) recommendations for, and
12 progress towards, establishing new, or en-
13 hancing existing, partnerships to leverage
14 resources.

15 (2) ADVISORY COMMITTEE.—The Secretary
16 shall establish an advisory committee to assist the
17 Secretary in implementing the System, to be com-
18 prised of representatives of relevant agencies and
19 members of the scientific community, to be ap-
20 pointed by the Secretary.

21 (3) PARTNERSHIPS.—The Secretary may enter
22 into cooperative agreements with institutions of
23 higher education and State agencies designating the
24 institutions of higher education and State agencies
25 as volcano observatory partners for the System.

1 (4) COORDINATION.—The Secretary shall co-
 2 ordinate the activities under this Act with the heads
 3 of relevant Federal agencies, including—

4 (A) the Secretary of Transportation;

5 (B) the Administrator of the Federal Avia-
 6 tion Administration;

7 (C) the Administrator of the National Oce-
 8 anic and Atmospheric Administration; and

9 (D) the Director of the Federal Emergency
 10 Management Administration.

11 (d) ANNUAL REPORT.—Annually, the Secretary shall
 12 submit to Congress a report that describes the activities
 13 carried out under this Act.

14 **SEC. 5. FUNDING.**

15 (a) AUTHORIZATION OF APPROPRIATIONS.—There
 16 are authorized to be appropriated such sums as are nec-
 17 essary to carry out this Act for each of fiscal years 2017
 18 through 2027.

19 (b) EFFECT ON OTHER SOURCES OF FEDERAL
 20 FUNDING.—Amounts made available under this section
 21 shall supplement, and not supplant, Federal funds made
 22 available for other United States Geological Survey haz-
 23 ards activities and programs.

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