

Calendar No. 150

115TH CONGRESS
1ST SESSION

S. 346

[Report No. 115–113]

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

JUNE 15, 2017

Reported by Ms. MURKOWSKI, with amendments

[Omit the part struck through and insert the part printed in *italie*]

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”.

1 **SEC. 2. FINDINGS.**

2 Congress finds that—

3 (1) the United States and the territories of the
4 United States contain 169 hazardous volcanoes;

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

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

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

15 (5) international flights over the Commonwealth
16 of the Northern Mariana Islands and the intense do-
17 mestic air traffic of the Pacific Northwest also face
18 potential engine failure in the event of an eruption;

19 (6) mudflows from ice-clad Cascade volcanoes
20 of the States of Washington, Oregon, and California
21 pose a serious hazard to cities and transportation
22 arteries in the Pacific Northwest;

23 (7) lava flows, toxic gas emissions, and explo-
24 sions impact residents and visitors to the State of
25 Hawaii and have the potential to cause catastrophic
26 property damage;

1 (8) frequent seismic unrest requires careful
2 monitoring in the Mammoth Lakes area of the State
3 of California and Yellowstone National Park in the
4 States of Wyoming, Montana, and Idaho;

5 (9) modern technology, in the form of geo-
6 physical monitoring networks on the ground and the
7 use of near real-time satellite data, makes possible
8 early warnings typically weeks or months before
9 eruptions, giving emergency response agencies and
10 the public time to prepare, which minimizes poten-
11 tial damage to property and loss of life;

12 (10) the efficacy of monitoring is being dem-
13 onstrated by—

14 (A) the successful forecasts and warnings
15 of Augustine Volcano in 1986 and 2006, Re-
16 doubt Volcano in 1989 through 1990 and 2009,
17 and Mt. Spurr in 1992; and

18 (B) warnings and forecasts of lava flow ad-
19 vancement in Hawaii during the ongoing erup-
20 tion of Kilauea;

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

24 (A) the Alaska Volcano Observatory lo-
25 cated in Anchorage and Fairbanks, Alaska;

1 ~~(B)~~ the Cascades Volcano Observatory lo-
 2 cated in Vancouver, Washington;

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

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

9 ~~(E)~~ the California Volcano Observatory, lo-
 10 cated in Menlo Park, California; and

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

16 **SEC. 32. DEFINITIONS.**

17 In this Act:

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

21 (2) SYSTEM.—The term “System” means the
 22 National Volcano Early Warning and Monitoring
 23 System established under section 4 3(a)(1).

1 **SEC. 43. NATIONAL VOLCANO EARLY WARNING AND MONI-**
2 **TORING SYSTEM.**

3 (a) ESTABLISHMENT.—

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

10 (2) PURPOSES.—The purposes of the System
11 are—

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

19 (B) to unify the monitoring systems of vol-
20 cano observatories in the United States into a
21 single interoperative system.

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

1 (A) upgrading existing networks on mon-
2 itored volcanoes;

3 (B) installing new networks on
4 unmonitored volcanoes; and

5 (C) employing geodetic and other compo-
6 nents when applicable.

7 (b) SYSTEM COMPONENTS.—

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

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

11 (B) a national volcano data center; and

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

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

23 (c) MANAGEMENT.—

24 (1) MANAGEMENT PLAN.—

1 (A) IN GENERAL.—Not later than 180
2 days after the date of enactment of this Act,
3 the Secretary shall submit to Congress a 5-year
4 management plan for establishing and oper-
5 ating the System.

6 (B) INCLUSIONS.—The management plan
7 submitted under subparagraph (A) shall in-
8 clude—

9 (i) annual cost estimates for mod-
10 ernization activities and operation of the
11 System;

12 (ii) annual milestones, standards, and
13 performance goals; and

14 (iii) recommendations for, and
15 progress towards, establishing new, or en-
16 hancing existing, partnerships to leverage
17 resources.

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

24 (3) PARTNERSHIPS.—The Secretary may enter
25 into cooperative agreements with institutions of

1 higher education and State agencies designating the
 2 institutions of higher education and State agencies
 3 as volcano observatory partners for the System.

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

7 (A) the Secretary of Transportation;

8 (B) the Administrator of the Federal Avia-
 9 tion Administration;

10 (C) the Administrator of the National Oce-
 11 anic and Atmospheric Administration; and

12 (D) the Director of the Federal Emergency
 13 Management Administration.

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

17 **SEC. 54. FUNDING.**

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

22 (b) EFFECT ON OTHER SOURCES OF FEDERAL
 23 FUNDING.—Amounts made available under this section
 24 shall supplement, and not supplant, Federal funds made

- 1 available for other United States Geological Survey haz-
- 2 ards activities and programs.

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