

114TH CONGRESS  
1ST SESSION

# S. 2056

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

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IN THE SENATE OF THE UNITED STATES

SEPTEMBER 17, 2015

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

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## 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

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

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

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

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

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

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

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

24 (B) the Cascades Volcano Observatory lo-  
25 cated 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 State 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; and

1 (B) installing new networks on  
2 unmonitored volcanoes.

3 (b) SYSTEM COMPONENTS.—

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

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

7 (B) a national volcano data center; and

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

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

19 (c) MANAGEMENT.—

20 (1) MANAGEMENT PLAN.—

21 (A) IN GENERAL.—Not later than 90 days  
22 after the date of enactment of this Act, the Sec-  
23 retary shall submit to Congress a 5-year man-  
24 agement plan for establishing and operating the  
25 System.

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

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

7 (ii) annual milestones, standards, and  
8 performance goals; and

9 (iii) recommendations for, and prog-  
10 ress towards, establishing new, or enhanc-  
11 ing existing, partnerships to leverage re-  
12 sources.

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

19 (3) PARTNERSHIPS.—The Secretary may enter  
20 into cooperative agreements with institutions of  
21 higher education and State agencies designating the  
22 institutions of higher education and State agencies  
23 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 2016  
18          through 2026.

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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