

Calendar No. 319109TH CONGRESS
1ST SESSION**S. 517****[Report No. 109-202]**

To establish the Weather Modification Operations and Research Board, and
for other purposes.

IN THE SENATE OF THE UNITED STATES

MARCH 3, 2005

Mrs. HUTCHISON introduced the following bill; which was read twice and
referred to the Committee on Commerce, Science, and Transportation

DECEMBER 8, 2005

Reported under authority of the order of the Senate of November 18, 2005,
by Mr. STEVENS, with an amendment and an amendment to the title

[Strike all after the enacting clause and insert the part printed in italic]

A BILL

To establish the Weather Modification Operations and
Research Board, and for other purposes.

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

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Weather Modification
3 Research and Technology Transfer Authorization Act of
4 2005”.

5 **SEC. 2. PURPOSE.**

6 It is the purpose of this Act to develop and implement
7 a comprehensive and coordinated national weather modi-
8 fication policy and a national cooperative Federal and
9 State program of weather modification research and devel-
10 opment.

11 **SEC. 3. DEFINITIONS.**

12 In this Act:

13 (1) **BOARD.**—The term “Board” means the
14 Weather Modification Advisory and Research Board.

15 (2) **EXECUTIVE DIRECTOR.**—The term “Execu-
16 tive Director” means the Executive Director of the
17 Weather Modification Advisory and Research Board.

18 (3) **RESEARCH AND DEVELOPMENT.**—The term
19 “research and development” means theoretical anal-
20 ysis, exploration, experimentation, and the extension
21 of investigative findings and theories of scientific or
22 technical nature into practical application for experi-
23 mental and demonstration purposes, including the
24 experimental production and testing of models, de-
25 vices, equipment, materials, and processes.

1 (4) WEATHER MODIFICATION.—The term
2 “weather modification” means changing or control-
3 ling; or attempting to change or control, by artificial
4 methods the natural development of atmospheric
5 cloud forms or precipitation forms which occur in
6 the troposphere.

7 **SEC. 4. WEATHER MODIFICATION ADVISORY AND RE-**
8 **SEARCH BOARD ESTABLISHED.**

9 (a) IN GENERAL.—There is established in the De-
10 partment of Commerce the Weather Modification Advisory
11 and Research Board.

12 (b) MEMBERSHIP.—

13 (1) IN GENERAL.—The Board shall consist of
14 11 members appointed by the Secretary of Com-
15 merce, of whom—

16 (A) at least 1 shall be a representative of
17 the American Meteorological Society;

18 (B) at least 1 shall be a representative of
19 the American Society of Civil Engineers;

20 (C) at least 1 shall be a representative of
21 the National Academy of Sciences;

22 (D) at least 1 shall be a representative of
23 the National Center for Atmospheric Research
24 of the National Science Foundation;

1 ~~(E)~~ at least ~~2~~ shall be representatives of
2 the National Oceanic and Atmospheric Admin-
3 istration of the Department of Commerce;

4 ~~(F)~~ at least ~~1~~ shall be a representative of
5 institutions of higher education or research in-
6 stitutes; and

7 ~~(G)~~ at least ~~1~~ shall be a representative of
8 a State that is currently supporting operational
9 weather modification projects.

10 ~~(2) TENURE.~~—A member of the Board serves
11 at the pleasure of the Secretary of Commerce.

12 ~~(3) VACANCIES.~~—Any vacancy on the Board
13 shall be filled in the same manner as the original ap-
14 pointment.

15 ~~(b) ADVISORY COMMITTEES.~~—The Board may estab-
16 lish advisory committees to advise the Board and to make
17 recommendations to the Board concerning legislation, poli-
18 cies, administration, research, and other matters.

19 ~~(c) INITIAL MEETING.~~—Not later than 30 days after
20 the date on which all members of the Board have been
21 appointed, the Board shall hold its first meeting.

22 ~~(d) MEETINGS.~~—The Board shall meet at the call of
23 the Chair.

1 (e) QUORUM.—A majority of the members of the
 2 Board shall constitute a quorum, but a lesser number of
 3 members may hold hearings.

4 (f) CHAIR AND VICE CHAIR.—The Board shall select
 5 a Chair and Vice Chair from among its members.

6 **SEC. 5. DUTIES OF THE BOARD.**

7 (a) PROMOTION OF RESEARCH AND DEVELOP-
 8 MENT.—In order to assist in expanding the theoretical
 9 and practical knowledge of weather modification, the
 10 Board shall promote and fund research and development,
 11 studies, and investigations with respect to—

12 (1) improved forecast and decision-making tech-
 13 nologies for weather modification operations, includ-
 14 ing tailored computer workstations and software and
 15 new observation systems with remote sensors; and

16 (2) assessments and evaluations of the efficacy
 17 of weather modification, both purposeful (including
 18 cloud-seeding operations) and inadvertent (including
 19 downwind effects and anthropogenic effects).

20 (b) FINANCIAL ASSISTANCE.—Unless the use of the
 21 money is restricted or subject to any limitations provided
 22 by law, the Board shall use amounts in the Weather Modi-
 23 fication Research and Development Fund—

24 (1) to pay its expenses in the administration of
 25 this Act, and

1 (2) to provide for research and development
2 with respect to weather modifications by grants to,
3 or contracts or cooperative arrangements, with pub-
4 lic or private agencies.

5 (e) REPORT.—The Board shall submit to the Sec-
6 retary biennially a report on its findings and research re-
7 sults.

8 **SEC. 6. POWERS OF THE BOARD.**

9 (a) STUDIES, INVESTIGATIONS, AND HEARINGS.—
10 The Board may make any studies or investigations, obtain
11 any information, and hold any hearings necessary or prop-
12 er to administer or enforce this Act or any rules or orders
13 issued under this Act.

14 (b) PERSONNEL.—The Board may employ, as pro-
15 vided for in appropriations Acts, an Executive Director
16 and other support staff necessary to perform duties and
17 functions under this Act.

18 (c) COOPERATION WITH OTHER AGENCIES.—The
19 Board may cooperate with public or private agencies to
20 promote the purposes of this Act.

21 (d) COOPERATIVE AGREEMENTS.—The Board may
22 enter into cooperative agreements with the head of any
23 department or agency of the United States, an appropriate
24 official of any State or political subdivision of a State, or
25 an appropriate official of any private or public agency or

1 organization for conducting weather modification activities
 2 or cloud-seeding operations.

3 (c) CONDUCT AND CONTRACTS FOR RESEARCH AND
 4 DEVELOPMENT.—The Executive Director, with the ap-
 5 proval of the Board, may conduct and may contract for
 6 research and development activities relating to the pur-
 7 poses of this section.

8 **SEC. 7. COOPERATION WITH THE WEATHER MODIFICATION**
 9 **OPERATIONS AND RESEARCH BOARD.**

10 The heads of the departments and agencies of the
 11 United States and the heads of any other public or private
 12 agencies and institutions that receive research funds from
 13 the United States shall, to the extent possible, give full
 14 support and cooperation to the Board and to initiate inde-
 15 pendent research and development programs that address
 16 weather modifications.

17 **SEC. 8. FUNDING.**

18 (a) IN GENERAL.—There is established within the
 19 Treasury of the United States the Weather Modification
 20 Research and Development Fund, which shall consist of
 21 amounts appropriated pursuant to subsection (b) or re-
 22 ceived by the Board under subsection (c).

23 (b) AUTHORIZATION OF APPROPRIATIONS.—There is
 24 authorized to be appropriated to the Board for the pur-
 25 poses of carrying out the provisions of this Act

1 \$10,000,000 for each of fiscal years 2005 through 2014.
2 Any sums appropriated under this subsection shall remain
3 available, without fiscal year limitation, until expended.

4 (e) GIFTS.—The Board may accept, use, and dispose
5 of gifts or donations of services or property.

6 **SEC. 9. EFFECTIVE DATE.**

7 This Act shall take effect on October 1, 2005.

8 **SECTION 1. SHORT TITLE.**

9 *This Act may be cited as the “Weather Modification*
10 *Research and Development Policy Authorization Act of*
11 *2005”.*

12 **SEC. 2. PURPOSE.**

13 *It is the purpose of this Act to develop and implement*
14 *a comprehensive and coordinated national weather modi-*
15 *fication research policy and a national cooperative Federal*
16 *and State program of weather modification research and*
17 *development.*

18 **SEC. 3. DEFINITIONS.**

19 *In this Act:*

20 (1) **BOARD.**—*The term “Board” means the*
21 *Weather Modification Research Advisory Board.*

22 (2) **RESEARCH AND DEVELOPMENT.**—*The term*
23 *“research and development” means theoretical anal-*
24 *ysis, exploration, experimentation, and the extension*
25 *of investigative findings and theories of a scientific or*

1 *technical nature into practical application for experi-*
2 *mental and demonstration purposes, including the ex-*
3 *perimental production and testing of models, devices,*
4 *equipment, materials, and processes.*

5 (3) *WEATHER MODIFICATION.*—*The term*
6 *“weather modification” means the purposeful or inad-*
7 *vertent changing or controlling, or attempting to*
8 *change or control, by artificial methods, the natural*
9 *development of atmospheric cloud forms or precipita-*
10 *tion forms which occur in the troposphere.*

11 **SEC. 4. WEATHER MODIFICATION SUBCOMMITTEE.**

12 (a) *ESTABLISHMENT.*—*The Director of the Office of*
13 *Science and Technology Policy shall establish a Weather*
14 *Modification Subcommittee to coordinate a national re-*
15 *search program on weather modification.*

16 (b) *MEMBERSHIP.*—*The Weather Modification Sub-*
17 *committee shall include representatives from appropriate*
18 *Federal agencies, including the National Oceanic and At-*
19 *mospheric Administration, the National Science Founda-*
20 *tion, and the National Aeronautics and Space Administra-*
21 *tion.*

22 (c) *CHAIRS OF THE WEATHER MODIFICATION SUB-*
23 *COMMITTEE.*—*A representative from the National Oceanic*
24 *and Atmospheric Administration and a representative from*

1 *the National Science Foundation shall serve together as co-*
2 *chairs of the Weather Modification Subcommittee.*

3 (d) *IMPLEMENTATION PLAN.*—*Not later than 180 days*
4 *after the date of enactment of this Act, the Director of the*
5 *Office of Science and Technology Policy shall develop and*
6 *submit to Congress a plan for coordinated Federal activities*
7 *under the national research program under subsection (a)*
8 *and the plan shall—*

9 (1) *for a 10-year period beginning in the year*
10 *it is submitted, establish the goals and priorities for*
11 *Federal research that most effectively advances sci-*
12 *entific understanding of weather modification;*

13 (2) *describe specific activities required to achieve*
14 *such goals and priorities, including funding of com-*
15 *petitive research grants, training and support for sci-*
16 *entists, and participation in international research*
17 *efforts;*

18 (3) *identify and address, as appropriate, rel-*
19 *evant programs and activities of the Federal agencies*
20 *and departments that would contribute to the pro-*
21 *gram;*

22 (4) *consider and use, as appropriate, reports and*
23 *studies conducted by Federal agencies and depart-*
24 *ments, and other expert scientific bodies, including*

1 *the National Research Council report on Critical*
2 *Issues in Weather Modification Research;*

3 (5) *make recommendations for the coordination*
4 *of program activities with weather modification ac-*
5 *tivities of other national and international organiza-*
6 *tions;*

7 (6) *incorporate recommendations from the*
8 *Weather Modification Research Advisory Board; and*

9 (7) *estimate Federal funding for research activi-*
10 *ties to be conducted under the program described in*
11 *subsection (a).*

12 (e) *PROGRAM SCOPE.*—*The national research program*
13 *under subsection (a) may include the following activities*
14 *related to weather modification:*

15 (1) *Interdisciplinary research and coordination*
16 *of research and activities to improve understanding of*
17 *processes relating to weather modification, includ-*
18 *ing—*

19 (A) *cloud modeling;*

20 (B) *cloud seeding;*

21 (C) *improving forecast and decision-making*
22 *technologies;*

23 (D) *related severe weather research; and*

24 (E) *potential adverse affects of weather*
25 *modification.*

1 (2) *Coordination with relevant organizations*
2 *that engage in weather modification research.*

3 (3) *Development through partnerships among*
4 *Federal agencies, States, and academic institutions of*
5 *new technologies and approaches for weather modi-*
6 *fication.*

7 (4) *Scholarships and educational opportunities*
8 *that encourage an interdisciplinary approach to*
9 *weather modification.*

10 (f) *ANNUAL REPORT ON ACTIVITIES.—Beginning with*
11 *the first year occurring more than 24 months after the date*
12 *of enactment of this Act, the Director of the Office of Science*
13 *and Technology Policy shall prepare and submit to the*
14 *President and Congress not later than January 31st of each*
15 *year an annual report on the activities conducted pursuant*
16 *to this section during the preceding fiscal year, including—*

17 (1) *a summary of the achievements of Federal*
18 *weather modification research, including Federally*
19 *supported external research, during the preceding fis-*
20 *cal year;*

21 (2) *an analysis of the progress made toward*
22 *achieving the goals and objectives of the plan devel-*
23 *oped under subsection (d), including the identifica-*
24 *tion of trends;*

1 (3) a copy or summary of the plan and any
2 changes made to the plan;

3 (4) a summary of agency budgets for weather
4 modification activities for the preceding fiscal year;

5 (5) any recommendations regarding additional
6 action or legislation that may be required to assist in
7 achieving the purposes of this Act;

8 (6) a description of the relationship between re-
9 search conducted on weather modification and re-
10 search conducted pursuant to the Global Change Re-
11 search Act of 1990 (15 U.S.C. 2921 et seq.), as well
12 as research on weather forecasting and prediction;
13 and

14 (7) a description of any potential adverse con-
15 sequences on life, property, or water resource avail-
16 ability from weather modification efforts, and any
17 suggested means of mitigating or reducing such con-
18 sequences if such efforts are undertaken.

19 **SEC. 5. WEATHER MODIFICATION RESEARCH ADVISORY**
20 **BOARD ESTABLISHED.**

21 (a) *ESTABLISHMENT.*—There is established in the Of-
22 fice of Science and Technology Policy the Weather Modifica-
23 tion Research Advisory Board to make recommendations to
24 the Weather Modification Subcommittee on matters related
25 to weather modification.

1 **(b) MEMBERSHIP.**—

2 **(1) COMPOSITION.**—*The Board shall consist of 9*
3 *members, each with a field of expertise in atmospheric*
4 *science or civil engineering relevant to weather modi-*
5 *fication, and appointed by the Director of the Office*
6 *of Science and Technology Policy as follows:*

7 **(A)** *At least 1 member shall be a representa-*
8 *tive of the American Meteorological Society.*

9 **(B)** *At least 1 member shall be a representa-*
10 *tive of the American Society of Civil Engineers.*

11 **(C)** *At least 1 member shall be a representa-*
12 *tive of the National Academy of Sciences.*

13 **(D)** *At least 1 member shall be a representa-*
14 *tive of institutions of higher education or re-*
15 *search institutes with experience in the field.*

16 **(E)** *At least 1 member shall be a representa-*
17 *tive of a State organization that is currently*
18 *supporting operational weather modification*
19 *projects.*

20 **(2) TENURE.**—*A member of the Board shall serve*
21 *at the pleasure of the Director of the Office of Science*
22 *and Technology Policy.*

23 **(3) VACANCIES.**—*Any vacancy on the Board*
24 *shall be filled in the same manner as the original ap-*
25 *pointment.*

1 (c) *INITIAL MEETING.*—Not later than 30 days after
2 the date on which all members of the Board have been ap-
3 pointed, the Board shall hold its first meeting.

4 (d) *MEETINGS.*—The Board shall meet at the call of
5 the Chair.

6 (e) *QUORUM.*—A majority of the members of the Board
7 shall constitute a quorum, but a lesser number of members
8 may hold hearings.

9 (f) *CHAIR AND VICE CHAIR.*—The Board shall select
10 a Chair and Vice Chair from among its members.

11 (g) *DUTIES OF THE BOARD.*—The duties of the Board
12 shall include the following:

13 (1) *Advising the Weather Modification Sub-*
14 *committee on recommendations concerning legislation,*
15 *policies, administration, research, and other matters*
16 *related to weather modification.*

17 (2) *In order to assist in expanding the theo-*
18 *retical and practical knowledge of weather modifica-*
19 *tion, the Board shall advise the Weather Modification*
20 *Subcommittee on the research and development, stud-*
21 *ies, and investigations with respect to—*

22 (A) *potential uses of technologies and obser-*
23 *vation systems for weather modification research;*
24 *and*

1 (B) assessments and evaluations of the effi-
 2 cacy of weather modification, both purposeful,
 3 including cloud-seeding operations, and inad-
 4 vertent, including downwind effects and anthro-
 5 pogenic effects.

6 (h) *POWERS OF THE BOARD.*—The Board may con-
 7 duct public meetings, gather information, and issue reports.

8 **SEC. 6. COOPERATION WITH THE WEATHER MODIFICATION**
 9 **SUBCOMMITTEE.**

10 The heads of the departments and agencies of the
 11 United States and the heads of any other public or private
 12 agencies and institutions that receive research funds from
 13 the United States related to weather modification shall, to
 14 the extent possible, give full support and cooperation to the
 15 Weather Modification Subcommittee.

Amend the title so as to read: “To establish a co-
 ordinated national weather modification research and de-
 velopment program, and for other purposes”.

Calendar No. 319

109TH CONGRESS
1ST Session

S. 517

[Report No. 109-202]

A BILL

To establish the Weather Modification Operations
and Research Board, and for other purposes.

DECEMBER 8, 2005

Reported with an amendment and an amendment to the
title