

# Union Calendar No. 285

113<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# H. R. 2413

[Report No. 113-383]

To prioritize and redirect NOAA resources to a focused program of investment on near-term, affordable, and attainable advances in observational, computing, and modeling capabilities to deliver substantial improvement in weather forecasting and prediction of high impact weather events, such as tornadoes and hurricanes, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

JUNE 18, 2013

Mr. BRIDENSTINE (for himself, Mr. SMITH of Texas, Mr. STEWART, and Mr. HARRIS) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

MARCH 21, 2014

Additional sponsors: Mr. BENTIVOLIO, Mr. COLLINS of New York, Mr. ROHR-ABACHER, Ms. BONAMICI, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. GRAYSON, Mr. LIPINSKI, Mr. MAFFEI, Ms. LOFGREN, Mr. POE of Texas, Mr. TAKANO, Mr. BROUN of Georgia, Mr. STUTZMAN, Mr. SALMON, Mr. YOHO, Mr. ROE of Tennessee, and Mrs. HARTZLER

MARCH 21, 2014

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed

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

[For text of introduced bill, see copy of bill as introduced on June 18, 2013]

# **A BILL**

To prioritize and redirect NOAA resources to a focused program of investment on near-term, affordable, and attainable advances in observational, computing, and modeling capabilities to deliver substantial improvement in weather forecasting and prediction of high impact weather events, such as tornadoes and hurricanes, 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,*

3 **SECTION 1. SHORT TITLE.**

4 *This Act may be cited as the “Weather Forecasting Im-*  
5 *provement Act of 2013”.*

6 **SEC. 2. PUBLIC SAFETY PRIORITY.**

7 *In accordance with NOAA’s critical mission to provide*  
8 *science, service, and stewardship, the Under Secretary shall*  
9 *prioritize weather-related activities, including the provision*  
10 *of weather data, forecasts, and warnings for the protection*  
11 *of life and property and the enhancement of the national*  
12 *economy, in all relevant line offices.*

13 **SEC. 3. WEATHER RESEARCH AND FORECASTING INNOVA-**  
14 **TION.**

15 *(a) PROGRAM.—The Assistant Administrator for OAR*  
16 *shall conduct a program to develop improved understanding*  
17 *of and forecast capabilities for atmospheric events and their*  
18 *impacts, placing priority on developing more accurate,*  
19 *timely, and effective warnings and forecasts of high impact*  
20 *weather events that endanger life and property.*

21 *(b) PROGRAM ELEMENTS.—The program described in*  
22 *subsection (a) shall focus on the following activities:*

23 *(1) Improving the fundamental understanding of*  
24 *weather consistent with section 2, including boundary*  
25 *layer and other atmospheric processes.*

1           (2) *Improving the understanding of how the pub-*  
2           *lic receives, interprets, and responds to warnings and*  
3           *forecasts of high impact weather events that endanger*  
4           *life and property.*

5           (3) *Research and development, and transfer of*  
6           *knowledge, technologies, and applications to the NWS*  
7           *and other appropriate agencies and entities, includ-*  
8           *ing the American weather industry and academic*  
9           *partners, related to—*

10                 (A) *advanced radar, radar networking tech-*  
11                 *nologies, and other ground-based technologies, in-*  
12                 *cluding those emphasizing rapid, fine-scale sens-*  
13                 *ing of the boundary layer and the use of innova-*  
14                 *tive, dual-polarization, phased-array tech-*  
15                 *nologies;*

16                 (B) *aerial weather observing systems;*

17                 (C) *high performance computing and infor-*  
18                 *mation technology networks;*

19                 (D) *advanced numerical weather prediction*  
20                 *systems and forecasting tools and techniques that*  
21                 *improve the forecasting of timing, track, inten-*  
22                 *sity, and severity of high impact weather, in-*  
23                 *cluding through—*

24                         (i) *the development of more effective*  
25                         *mesoscale models;*

1                   (ii) more effective use of existing, and  
2                   the development of new, regional and na-  
3                   tional cloud-resolving models;

4                   (iii) enhanced global models; and

5                   (iv) integrated assessment models;

6                   (E) quantitative assessment tools for meas-  
7                   uring the value of data and observing systems,  
8                   including OSSEs (as described in section 8),  
9                   OSEs, and AOAs;

10                  (F) atmospheric chemistry and interactions  
11                  essential to accurately characterizing atmos-  
12                  pheric composition and predicting meteorological  
13                  processes, including cloud microphysical, pre-  
14                  cipitation, and atmospheric electrification proc-  
15                  esses, to more effectively understand their role in  
16                  severe weather; and

17                  (G) additional sources of weather data and  
18                  information, including commercial observing  
19                  systems.

20                  (4) A technology transfer initiative, carried out  
21                  jointly and in coordination with the Assistant Ad-  
22                  ministrators for NWS, and in cooperation with the  
23                  American weather industry and academic partners,  
24                  to ensure continuous development and transition of

1 *the latest scientific and technological advances into*  
2 *NWS operations.*

3 *(c) EXTRAMURAL RESEARCH.—*

4 *(1) IN GENERAL.—In carrying out the program*  
5 *under this section, the Assistant Administrator for*  
6 *OAR shall collaborate with and support the non-Fed-*  
7 *eral weather research community, which includes in-*  
8 *stitutions of higher education, private entities, and*  
9 *nongovernmental organizations, by making funds*  
10 *available through competitive grants, contracts, and*  
11 *cooperative agreements.*

12 *(2) SENSE OF CONGRESS.—It is the sense of*  
13 *Congress that not less than 30 percent of the funds*  
14 *authorized for research and development at OAR by*  
15 *this Act should be made available for this purpose.*

16 *(3) REPORT.—The Under Secretary shall trans-*  
17 *mit to Congress annually, concurrently with NOAA's*  
18 *budget request, a description of current and planned*  
19 *activities under this section.*

20 **SEC. 4. TORNADO WARNING IMPROVEMENT AND EXTEN-**  
21 **SION PROGRAM.**

22 *(a) IN GENERAL.—The Under Secretary, in collabora-*  
23 *tion with the American weather industry and academic*  
24 *partners, shall establish a tornado warning improvement*  
25 *and extension program.*

1       (b) *GOAL.*—*The goal of such program shall be to reduce*  
2 *the loss of life and economic losses from tornadoes through*  
3 *the development and extension of accurate, effective, and*  
4 *timely tornado forecasts, predictions, and warnings, includ-*  
5 *ing the prediction of tornadoes beyond one hour in advance.*

6       (c) *PROGRAM PLAN.*—*Not later than 6 months after*  
7 *the date of enactment of this Act, the Assistant Adminis-*  
8 *trator for OAR, in consultation with the Assistant Admin-*  
9 *istrator for NWS, shall develop a program plan that details*  
10 *the specific research, development, and technology transfer*  
11 *activities, as well as corresponding resources and timelines,*  
12 *necessary to achieve the program goal.*

13       (d) *BUDGET FOR PLAN.*—*Following completion of the*  
14 *plan, the Assistant Administrator for OAR, in consultation*  
15 *with the Assistant Administrator for NWS, shall transmit*  
16 *annually to Congress a proposed budget corresponding to*  
17 *the activities identified in the plan.*

18 **SEC. 5. HURRICANE WARNING IMPROVEMENT PROGRAM.**

19       (a) *IN GENERAL.*—*The Under Secretary, in collabora-*  
20 *tion with the American weather industry and academic*  
21 *partners, shall establish a hurricane warning improvement*  
22 *program.*

23       (b) *GOAL.*—*The goal of such program shall be to de-*  
24 *velop and extend accurate hurricane forecasts and warnings*

1 *in order to reduce loss of life, injury, and damage to the*  
2 *economy.*

3       (c) *PROGRAM PLAN.*—*Not later than 6 months after*  
4 *the date of enactment of this Act, the Assistant Adminis-*  
5 *trator for OAR, in consultation with the Assistant Admin-*  
6 *istrator for NWS, shall develop a program plan that details*  
7 *the specific research, development, and technology transfer*  
8 *activities, as well as corresponding resources and timelines,*  
9 *necessary to achieve the program goal.*

10       (d) *BUDGET FOR PLAN.*—*Following completion of the*  
11 *plan, the Assistant Administrator for OAR, in consultation*  
12 *with the Assistant Administrator for NWS, shall transmit*  
13 *annually to Congress a proposed budget corresponding to*  
14 *the activities identified in the plan.*

15 **SEC. 6. WEATHER RESEARCH AND DEVELOPMENT PLAN-**  
16 **NING.**

17       *Not later than 6 months after the date of enactment*  
18 *of this Act, and annually thereafter, the Assistant Adminis-*  
19 *trator for OAR, in coordination with the Assistant Admin-*  
20 *istrators for NWS and NESDIS, shall issue a research and*  
21 *development plan to restore and maintain United States*  
22 *leadership in numerical weather prediction and forecasting*  
23 *that—*

1           (1) describes the forecasting skill and technology  
2 goals, objectives, and progress of NOAA in carrying  
3 out the program conducted under section 3;

4           (2) identifies and prioritizes specific research  
5 and development activities, and performance metrics,  
6 weighted to meet the operational weather mission of  
7 NWS;

8           (3) describes how the program will collaborate  
9 with stakeholders, including the American weather in-  
10 dustry and academic partners; and

11           (4) identifies, through consultation with the Na-  
12 tional Science Foundation, American weather indus-  
13 try, and academic partners, research necessary to en-  
14 hance the integration of social science knowledge into  
15 weather forecast and warning processes, including to  
16 improve the communication of threat information  
17 necessary to enable improved severe weather planning  
18 and decisionmaking on the part of individuals and  
19 communities.

20 **SEC. 7. OBSERVING SYSTEM PLANNING.**

21 *The Under Secretary shall—*

22           (1) develop and maintain a prioritized list of ob-  
23 servation data requirements necessary to ensure  
24 weather forecasting capabilities to protect life and  
25 property to the maximum extent practicable;

1           (2) *undertake, using OSSEs, OSEs, AOAs, and*  
2 *other appropriate assessment tools, ongoing system-*  
3 *atic evaluations of the combination of observing sys-*  
4 *tems, data, and information needed to meet the re-*  
5 *quirements developed under paragraph (1), assessing*  
6 *various options to maximize observational capabili-*  
7 *ties and their cost-effectiveness;*

8           (3) *identify current and potential future data*  
9 *gaps in observing capabilities related to the require-*  
10 *ments under paragraph (1); and*

11           (4) *determine a range of options to address gaps*  
12 *identified under paragraph (3).*

13 **SEC. 8. OBSERVING SYSTEM SIMULATION EXPERIMENTS.**

14           (a) *IN GENERAL.*—*In support of the requirements of*  
15 *section 7, the Assistant Administrator for OAR shall under-*  
16 *take OSSEs to quantitatively assess the relative value and*  
17 *benefits of observing capabilities and systems. Technical*  
18 *and scientific OSSE evaluations—*

19           (1) *may include assessments of the impact of ob-*  
20 *serving capabilities on—*

21                   (A) *global weather prediction;*

22                   (B) *hurricane track and intensity fore-*  
23 *casting;*

24                   (C) *tornado warning lead times and accu-*  
25 *racy; and*

1                   (D) prediction of mid-latitude severe local  
2                   storm outbreaks; and

3                   (2) shall be conducted in cooperation with other  
4                   appropriate entities within NOAA, other Federal  
5                   agencies, the American weather industry, and aca-  
6                   demic partners.

7                   (b) *REQUIREMENTS.*—OSSEs shall quantitatively—

8                   (1) determine the potential impact of proposed  
9                   space-based, suborbital, and in situ observing systems  
10                  on analyses and forecasts;

11                  (2) evaluate and compare observing system de-  
12                  sign options; and

13                  (3) assess the relative capabilities and costs of  
14                  various observing systems and combinations of observ-  
15                  ing systems in providing data necessary to protect life  
16                  and property.

17                  (c) *IMPLEMENTATION.*—OSSEs—

18                  (1) shall be conducted prior to the acquisition of  
19                  major Government-owned or Government-leased oper-  
20                  ational observing systems, including polar-orbiting  
21                  and geostationary satellite systems, with a lifecycle  
22                  cost of more than \$500,000,000; and

23                  (2) shall be conducted prior to the purchase of  
24                  any major new commercially provided data with a  
25                  lifecycle cost of more than \$500,000,000.

1           (d) *PRIORITY OSSES.*—Not later than June 30, 2014,  
2 *the Assistant Administrator for OAR shall complete OSSEs*  
3 *to assess the value of data from both Global Positioning Sys-*  
4 *tem radio occultation and a geostationary hyperspectral*  
5 *sounder global constellation.*

6           (e) *RESULTS.*—Upon completion of all OSSEs, results  
7 *shall be publicly released and accompanied by an assess-*  
8 *ment of related private and public sector weather data*  
9 *sourcing options, including their availability, affordability,*  
10 *and cost effectiveness. Such assessments shall be developed*  
11 *in accordance with section 50503 of title 51, United States*  
12 *Code.*

13 **SEC. 9. COMPUTING RESOURCES PRIORITIZATION REPORT.**

14           *Not later than 12 months after the date of enactment*  
15 *of this Act, and annually thereafter, the NOAA Chief Infor-*  
16 *mation Officer, in coordination with the Assistant Admin-*  
17 *istrator for OAR and the Assistant Administrator for NWS,*  
18 *shall produce a report that explains how NOAA intends*  
19 *to—*

20                   (1) *aggressively pursue the newest, fastest, and*  
21 *most cost effective high performance computing tech-*  
22 *nologies in support of its weather prediction mission;*

23                   (2) *ensure a balance between the research re-*  
24 *quirements to develop the next generation of regional*

1 *and global models and its highly reliable operational*  
2 *models;*

3 *(3) take advantage of advanced development con-*  
4 *cepts to, as appropriate, make its next generation*  
5 *weather prediction models available in beta-test mode*  
6 *to its operational forecasters, the American weather*  
7 *industry, and its partners in academic and govern-*  
8 *ment research;*

9 *(4) identify opportunities to reallocate existing*  
10 *advanced computing resources from lower priority*  
11 *uses to improve advanced research and operational*  
12 *weather prediction; and*

13 *(5) harness new computing power in OAR and*  
14 *NWS for immediate improvement in forecasting and*  
15 *experimentation.*

16 **SEC. 10. COMMERCIAL WEATHER DATA.**

17 *(a) AMENDMENT.—Section 60161 of title 51, United*  
18 *States Code, is amended by adding at the end the following:*

19 *“This prohibition shall not extend to—*

20 *“(1) the purchase of weather data through con-*  
21 *tracts with commercial providers; or*

22 *“(2) the placement of weather satellite instru-*  
23 *ments on cohosted government or private payloads.”.*

24 *(b) STRATEGY.—*

1           (1) *IN GENERAL.*—Not later than 6 months after  
2           the date of enactment of this Act, the Secretary of  
3           Commerce, in consultation with the Under Secretary,  
4           shall transmit to the Committee on Science, Space,  
5           and Technology of the House of Representatives and  
6           the Committee on Commerce, Science, and Transpor-  
7           tation of the Senate a strategy to enable the procure-  
8           ment of quality commercial weather data. The strat-  
9           egy shall assess the range of commercial opportuni-  
10          ties, including public-private partnerships, for obtain-  
11          ing both surface-based and space-based weather obser-  
12          vations. The strategy shall include the cost effective-  
13          ness of these opportunities, as well as provide a plan  
14          for procuring data from these nongovernmental  
15          sources, as appropriate.

16          (2) *REQUIREMENTS.*—The strategy shall in-  
17          clude—

18                 (A) an analysis of financial or other bene-  
19                 fits to, and risks associated with, acquiring com-  
20                 mercial weather data or services, including  
21                 through multiyear acquisition approaches;

22                 (B) an identification of methods to address  
23                 planning, programming, budgeting, and execu-  
24                 tion challenges to such approaches, including—

1                   (i) *how standards will be set to ensure*  
2                   *that data is reliable and effective;*

3                   (ii) *how data may be acquired from*  
4                   *commercial experimental or innovative tech-*  
5                   *niques and then evaluated for integration*  
6                   *into operational use;*

7                   (iii) *how to guarantee public access to*  
8                   *all forecast-critical data to ensure that the*  
9                   *American weather industry and the public*  
10                  *continue to have access to information crit-*  
11                  *ical to their work; and*

12                  (iv) *in accordance with section 50503*  
13                  *of title 51, United States Code, methods to*  
14                  *address potential termination liability or*  
15                  *cancellation costs associated with weather*  
16                  *data or service contracts; and*

17                  (C) *an identification of any changes needed*  
18                  *in the requirements development and approval*  
19                  *processes of the Department of Commerce to fa-*  
20                  *cilitate effective and efficient implementation of*  
21                  *such strategy.*

22   **SEC. 11. WEATHER RESEARCH AND INNOVATION ADVISORY**  
23                   **COMMITTEE.**

24                  (a) *ESTABLISHMENT.*—*The Under Secretary shall es-*  
25                  *tablish a Federal Advisory Committee to—*

1           (1) *provide advice for prioritizing weather re-*  
2           *search initiatives at NOAA to produce real improve-*  
3           *ment in weather forecasting;*

4           (2) *provide advice on existing or emerging tech-*  
5           *nologies or techniques that can be found in private*  
6           *industry or the research community that could be in-*  
7           *corporated into forecasting at NWS to improve fore-*  
8           *casting;*

9           (3) *identify opportunities to improve commu-*  
10          *nications between weather forecasters, emergency*  
11          *management personnel, and the public; and*

12          (4) *address such other matters as the Under Sec-*  
13          *retary or the Advisory Committee believes would im-*  
14          *prove innovation in weather forecasting.*

15          (b) *COMPOSITION.—*

16           (1) *IN GENERAL.—The Under Secretary shall*  
17           *appoint leading experts and innovators from all rel-*  
18           *evant fields of science and engineering that inform*  
19           *meteorology, including atmospheric chemistry, atmos-*  
20           *pheric physics, hydrology, social science, risk commu-*  
21           *nications, electrical engineering, and computer mod-*  
22           *eling.*

23           (2) *NUMBER.—The Advisory Committee shall be*  
24           *composed of at least 12 members, with the chair of the*  
25           *Advisory Committee chosen from among the members.*

1           (3) *RESTRICTION.*—*The Under Secretary may*  
2           *not appoint a majority of members who are employees*  
3           *of NOAA-funded research centers.*

4           (c) *ANNUAL REPORT.*—*The Advisory Committee shall*  
5           *transmit annually to the Under Secretary a report on*  
6           *progress made by NOAA in adopting the Advisory Commit-*  
7           *tee’s recommendations. The Under Secretary shall transmit*  
8           *a copy of such report to the Committee on Science, Space,*  
9           *and Technology of the House of Representatives and the*  
10           *Committee on Commerce, Science, and Transportation of*  
11           *the Senate.*

12           (d) *DURATION.*—*Section 14 of the Federal Advisory*  
13           *Committee Act (5 U.S.C. App.) shall not apply to the Advi-*  
14           *sory Committee until the date that is 5 years after the date*  
15           *of enactment of this Act.*

16           **SEC. 12. INTERAGENCY WEATHER RESEARCH AND INNOVA-**  
17           **TION COORDINATION.**

18           (a) *ESTABLISHMENT.*—*The Director of the Office of*  
19           *Science and Technology Policy shall establish an Inter-*  
20           *agency Committee for Advancing Weather Services to im-*  
21           *prove coordination of relevant weather research and forecast*  
22           *innovation activities across the Federal Government. The*  
23           *Interagency Committee shall—*

24                   (1) *include participation by the National Aero-*  
25                   *navics and Space Administration, the Federal Avia-*

1        *tion Administration, NOAA and its constituent ele-*  
2        *ments, the National Science Foundation, and such*  
3        *other agencies involved in weather forecasting re-*  
4        *search as the President determines are appropriate;*

5            *(2) identify and prioritize top forecast needs and*  
6        *coordinate those needs against budget requests and*  
7        *program initiatives across participating offices and*  
8        *agencies; and*

9            *(3) share information regarding operational*  
10       *needs and forecasting improvements across relevant*  
11       *agencies.*

12        *(b) CO-CHAIR.—The Federal Coordinator for Meteor-*  
13       *ology shall serve as a co-chair of this panel.*

14        *(c) FURTHER COORDINATION.—The Director shall take*  
15       *such other steps as are necessary to coordinate the activities*  
16       *of the Federal Government with those of the American*  
17       *weather industry, State governments, emergency managers,*  
18       *and academic researchers.*

19        **SEC. 13. VISITING OAR RESEARCHERS PROGRAM.**

20        *(a) IN GENERAL.—The Assistant Administrator for*  
21       *OAR, in collaboration with the Assistant Administrator for*  
22       *NWS, may establish a program to detail OAR researchers*  
23       *to the NWS.*

24        *(b) GOAL.—The goal of this program is to enhance*  
25       *forecasting innovation through regular, direct interaction*

1 *between OAR's world-class scientists and NWS's oper-*  
2 *ational staff.*

3       (c) *ELEMENTS.*—*The program shall allow no fewer*  
4 *than 5 and no more than 15 OAR staff to spend up to 1*  
5 *year on detail to the NWS. Such detail shall be at any of*  
6 *the National Centers for Environmental Prediction or at*  
7 *any of the Regional Forecast Offices where such interaction*  
8 *could be productive in improving forecasting capabilities.*  
9 *Candidates shall be jointly selected by the Assistant Admin-*  
10 *istrator for OAR and the Assistant Administrator for NWS.*

11       (d) *REPORT.*—*The Under Secretary shall report annu-*  
12 *ally to the Committee on Science, Space, and Technology*  
13 *of the House of Representatives and to the Committee on*  
14 *Commerce, Science, and Transportation of the Senate on*  
15 *participation in such program and shall highlight any in-*  
16 *novations that come from this interaction.*

17 **SEC. 14. VISITING FELLOWS AT NWS.**

18       (a) *IN GENERAL.*—*The Assistant Administrator for*  
19 *NWS may establish a program to host postdoctoral fellows*  
20 *and academic researchers at any of the National Centers*  
21 *for Environmental Prediction.*

22       (b) *GOAL.*—*This program shall be designed to provide*  
23 *direct interaction between forecasters and talented academic*  
24 *and private sector researchers in an effort to bring innova-*

1 tion to forecasting tools and techniques available to the  
2 NWS.

3 (c) *SELECTION AND APPOINTMENT.*—Such fellows  
4 shall be competitively selected and appointed for a term not  
5 to exceed 1 year.

6 **SEC. 15. DEFINITIONS.**

7 *In this Act:*

8 (1) *AOA.*—The term “AOA” means an Analysis  
9 of Alternatives.

10 (2) *NESDIS.*—The term “NESDIS” means the  
11 National Environmental Satellite, Data, and Infor-  
12 mation Service.

13 (3) *NOAA.*—The term “NOAA” means the Na-  
14 tional Oceanic and Atmospheric Administration.

15 (4) *NWS.*—The term “NWS” means the Na-  
16 tional Weather Service.

17 (5) *OAR.*—The term “OAR” means the Office of  
18 Oceanic and Atmospheric Research.

19 (6) *OSE.*—The term “OSE” means an Observ-  
20 ing System Experiment.

21 (7) *OSSE.*—The term “OSSE” means an Ob-  
22 serving System Simulation Experiment.

23 (8) *UNDER SECRETARY.*—The term “Under Sec-  
24 retary” means the Under Secretary of Commerce for  
25 Oceans and Atmosphere.

1 **SEC. 16. AUTHORIZATION OF APPROPRIATIONS.**

2 (a) *FISCAL YEAR 2014.*—*There are authorized to be*  
3 *appropriated for fiscal year 2014—*

4 (1) *out of funds made available for operations,*  
5 *research, and facilities in OAR, \$83,000,000 to carry*  
6 *out section 3, of which—*

7 (A) *\$65,000,000 is authorized for weather*  
8 *laboratories and cooperative institutes; and*

9 (B) *\$18,000,000 is authorized for weather*  
10 *and air chemistry research programs; and*

11 (2) *out of funds made available for research and*  
12 *development in NWS, an additional amount of*  
13 *\$14,000,000 for OAR to carry out the joint technology*  
14 *transfer initiative described in section 3(b)(4).*

15 (b) *ALTERNATIVE FUNDING FOR FISCAL YEAR 2014.*—  
16 *If the Budget Control Act of 2011 (Public Law 112–25) is*  
17 *repealed or replaced with an Act that increases allocations,*  
18 *subsection (a) shall not apply, and there are authorized to*  
19 *be appropriated for fiscal year 2014—*

20 (1) *out of funds made available for operations,*  
21 *research, and facilities in OAR, \$96,500,000 to carry*  
22 *out section 3, of which—*

23 (A) *\$77,500,000 is authorized for weather*  
24 *laboratories and cooperative institutes; and*

25 (B) *\$19,000,000 is authorized for weather*  
26 *and air chemistry research programs; and*

1           (2) *out of funds made available for research and*  
2           *development in NWS, an additional amount of*  
3           *\$16,000,000 for OAR to carry out the joint technology*  
4           *transfer initiative described in section 3(b)(4).*

5           (c) *FISCAL YEARS 2015 THROUGH 2017.—Out of*  
6           *funds made available for operations, research, and facilities*  
7           *in OAR for each of fiscal years 2015 through 2017, there*  
8           *are authorized to be appropriated—*

9           (1) *\$100,000,000 to carry out section 3, of*  
10          *which—*

11           (A) *\$80,000,000 is authorized for weather*  
12           *laboratories and cooperative institutes; and*

13           (B) *\$20,000,000 is authorized for weather*  
14           *and air chemistry research programs; and*

15           (2) *an additional amount of \$20,000,000 for the*  
16           *joint technology transfer initiative described in sec-*  
17           *tion 3(b)(4).*



Union Calendar No. 285

113<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

**H. R. 2413**

[Report No. 113-383]

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## **A BILL**

To prioritize and redirect NOAA resources to a focused program of investment on near-term, affordable, and attainable advances in observational, computing, and modeling capabilities to deliver substantial improvement in weather forecasting and prediction of high impact weather events, such as tornadoes and hurricanes, and for other purposes.

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MARCH 21, 2014

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed