



CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

February 24, 2017

S. 141

Space Weather Research and Forecasting Act

*As ordered reported by the Senate Committee on Commerce, Science, and Transportation
on January 24, 2017*

SUMMARY

S. 141 would require the National Oceanic and Atmospheric Administration (NOAA) to capture imagery of coronal mass ejections (CMEs). A CME is the release of large quantities of matter and electromagnetic radiation from the sun. The bill also would largely codify existing multi-agency efforts under the National Space Weather Program.

Based on an analysis of information provided by NOAA and assuming appropriation of the necessary amounts, CBO estimates that acquiring and launching into space the equipment necessary to capture imagery of CMEs would cost \$227 million over the 2018-2022 period.

Enacting S. 141 would not affect direct spending or revenues; therefore, pay-as-you-go procedures do not apply.

CBO estimates that enacting the legislation would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2028.

S. 141 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary effect of S. 141 is shown in the following table. The costs of this legislation fall within budget functions 300 (natural resources and environment).

	By Fiscal Year, in Millions of Dollars					2018-2022
	2018	2019	2020	2021	2022	
INCREASES IN SPENDING SUBJECT TO APPROPRIATION						
Estimated Authorization Level	25	90	75	50	10	250
Estimated Outlays	13	55	75	68	16	227

BASIS OF ESTIMATE

For this estimate, CBO assumes that S. 141 will be enacted late in fiscal year 2017 and that the necessary amounts will be appropriated each fiscal year beginning in 2018.

Currently, the National Aeronautics and Space Administration (NASA) operates several spacecraft that provide imagery of CMEs; however, those vehicles are outdated. S. 141 would require NOAA to assume that responsibility and to ensure that the United States continues to capture images of earth-directed CMEs. Based on an analysis of information provided by NOAA, CBO estimates that securing that capability would cost \$227 million over the 2018-2022 period. Those amounts would be used to:

- Acquire a coronagraph, a spacecraft, and a launch vehicle at a cost of \$200 million over the 2018-2022 period,
- Launch the equipment at a cost of \$2 million over the 2018-2022 period, and
- Operate and maintain the equipment at a cost of \$25 million over the 2018-2022 period.

CBO expects that most of that spending would occur in the years leading up to the launch as NOAA would need to acquire and establish the flight and ground systems necessary to operate the spacecraft well in advance of the launch. CBO also expects that spending prior to the 2022 launch would include amounts for testing the spacecraft and coronagraph to ensure they will function properly once launched. Additional amounts would be necessary in 2023 and beyond in order to operate and maintain the spacecraft and coronagraph.

Other provisions in the bill would codify ongoing activities being carried out by several agencies under the National Space Weather Program. In 2016, those agencies spent a total of \$160 million on activities related to space weather. Because the activities could be carried under that separate authority, CBO estimates that implementing those provisions would not authorize additional appropriations.

PAY-AS-YOU-GO CONSIDERATIONS: None.

INCREASE IN LONG-TERM DIRECT SPENDING AND DEFICITS

CBO estimates that enacting S. 141 would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2028.

INTERGOVERNMENTAL AND PRIVATE-SECTOR IMPACT

S. 141 contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments.

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