Contracts & Grants Q217 Award Report

UC climate science at risk

Extramural funding summary

UC's project funding from both federal and non-federal sources for Q217 and for the fiscal year to date show increases of about 3.5% above last year. However, the federal budget process currently underway is expected to bring significant cuts to agency funding for academic research and development, possibly within this federal fiscal year. It is likely that major areas of scientific inquiry at UC and at research universities nationwide will be affected, particularly in fields connected to climate science, energy and the environment.

During Q217, UC received $1.125 billion in project funding from all external sources, an increase of $77 million, or 7.4% over last year. Most of this this quarter's increase derived from non-federal sponsors, largely because the federal award cycle has just begun and grant awards during the first federal quarter are always at their lowest point in the year. About $458 million of the Q217 total came directly from federal agencies, a 2.1% increase over last year. For the 2016-17 year to date, federal agency funding is running ahead of last year by about 4.3%.

This federal funding increase results from the budget bill passed by Congress in 2015, which reversed several years of stagnant to declining federal agency funding for academic R&D, and called for increased appropriations during the 2016 and 2017 federal budget years. The National Institutes of Health, UC's largest single source of project funding, received a 6.6% increase. Given the length of time required for proposals to be approved and for awards to be reported by campuses, the increases did not show up until last quarter.

Whether increased federal project support continues is uncertain. Congress needs to pass a federal budget bill by the end of April, 2017 if a government shutdown is to be avoided, and the current level of research and program support may not be maintained for the remainder of the year. The most likely targets for cuts in appropriations are agencies that support climate science — agencies that provided over $70 million to UC last federal fiscal year.

For more information and analysis

Research awards generally constitute 80% or more of UC's award total. Public service awards, training grants and support for UC-managed community programs make up the remainder. For more detailed information about research sponsorship, an interactive data visualization showing UC's research award history since 2001 is available online. Additional information on research activities at UC is also available on the UC Information Center.

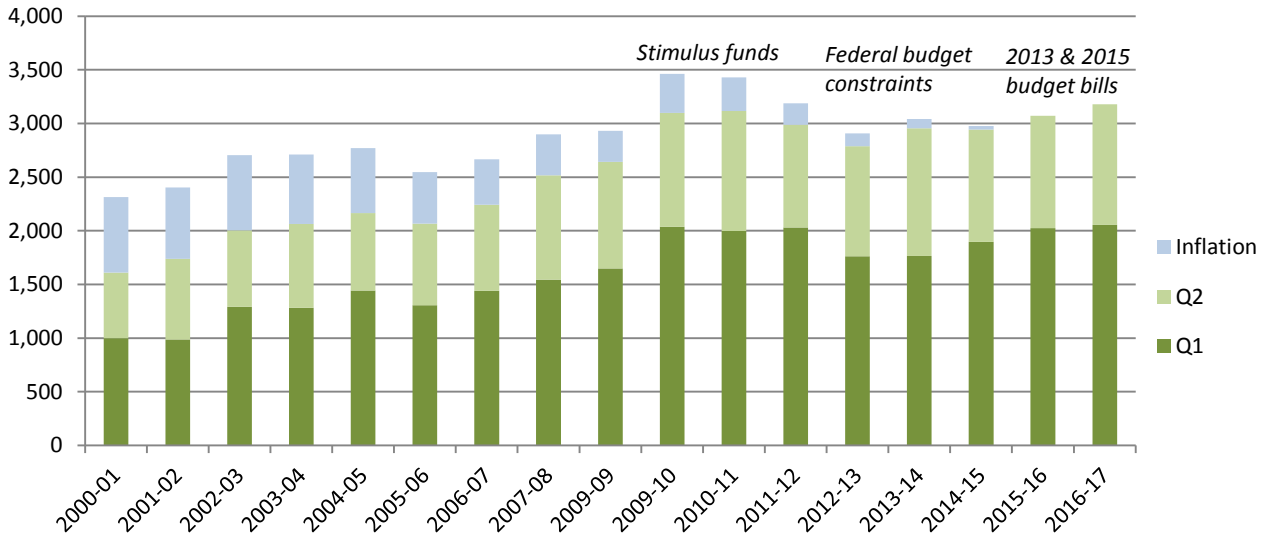
Also available in the Research section of the UCOP Institutional Research and Academic Planning website is a series of Topic Briefs presenting detailed analysis of recent trends in UC's federal, state, corporate and non-profit funding.

I. Quarterly award metrics

For the second quarter of FY 2016-17, award funding from all sources came to $1.125 billion, about $77 million above last year's total, for an increase of 7.4%. This brings the yearly total to nearly $3.2 billion

Q1-Q2 extramural awards

$ millions, inflation-adjusted



Even though there has been significant growth in award funding since federal budget constraints were lifted, quarterly and yearly totals are still below where they were when stimulus funds were available, after inflation is taken into account.

Extramural awards by quarter

$ millions, inflation-adjusted

	00-01	*01-02*	*02-03*	*03-04*	*04-05*	*05-06*	*06-07*	*07-08*	*08-09*	*09-10*	*10-11*	*11-12*	*12-13*	*13-14*	*14-15*	*15-16*	*16-17*
Q1	1,436	1,366	1,741	1,685	1,845	1,610	1,712	1,778	1,832	2,275	2,197	2,166	1,840	1,816	1,917	2,025	2,054
Q2	879	1,037	963	1,025	926	938	953	1,119	1,100	1,187	1,232	1,023	1,068	1,224	1,058	1,048	1,125
Q3	898	1,019	869	1,058	1,034	996	982	1,148	1,015	1,228	1,044	1,049	1,090	1,098	1,107	1,102	
Q4	1,078	1,236	1,352	1,257	1,505	1,508	1,546	1,606	1,535	1,535	1,456	1,461	1,432	1,731	1,712	1,843	
FY	*4,291*	*4,657*	*4,925*	*5,026*	*5,310*	*5,052*	*5,193*	*5,651*	*5,482*	*6,225*	*5,928*	*5,699*	*5,430*	*5,869*	*5,795*	*6,017*	

Award totals vary over the course of a fiscal year as a consequence of the federal funding cycle. Federal award reporting peaks towards the end of the federal fiscal year, during federal Q3 and Q4; these federal fiscal quarters span two UC fiscal years, corresponding to Q4 of one year and to Q1 of the next, which is when UC's award totals are the highest. With direct federal sponsorship providing about 60% or more of all UC's awards, this results in sharp quarterly spikes in funding. The large federal award totals for 2009-10 through 2011-12 reflect the billion-plus dollars that UC received in Recovery Act (ARRA) funds.

II. Award trends by sponsor category

Even though the federal government continues to provide the majority of UC's contracts and grants, the private sector has contributed to the increase in total funding over the past several years.

Q1-Q2 awards by sponsor category, FY 2008-09 to 2016-17

($ millions, inflation-adjusted)

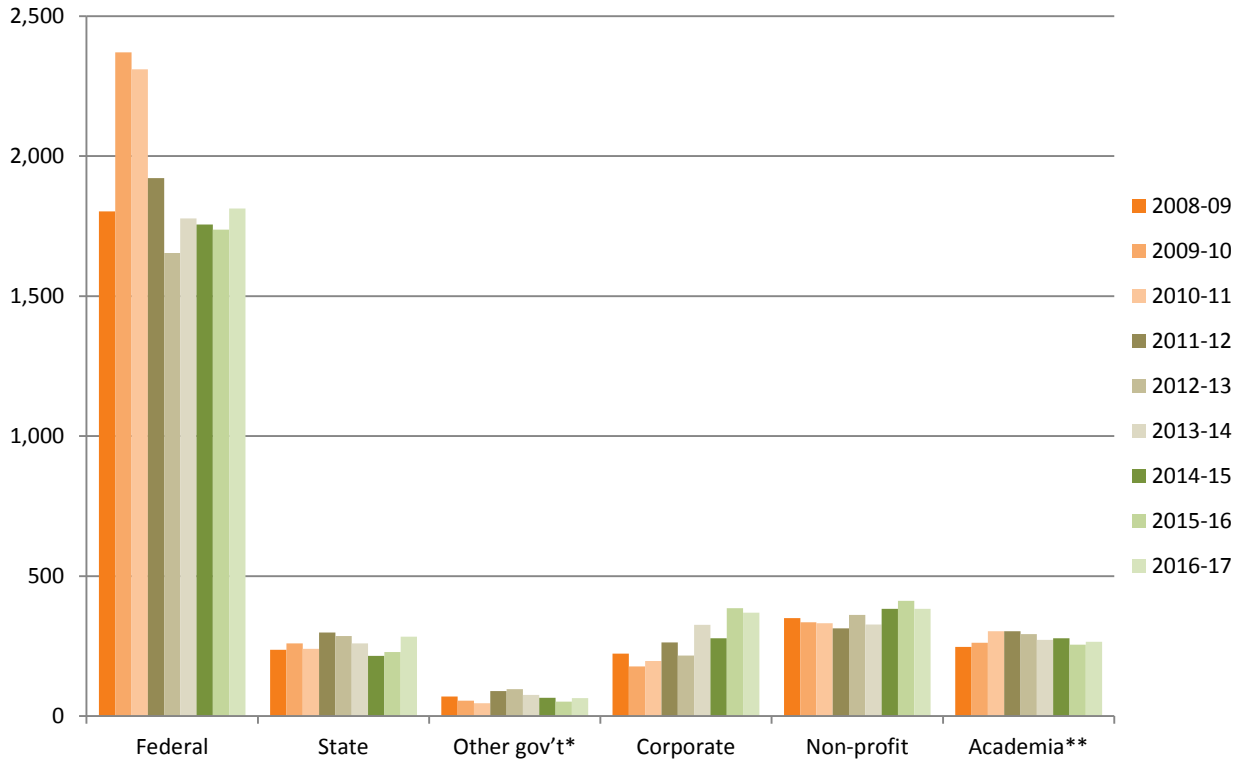
SPONSOR	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Federal	1,802	2,371	2,310	1,921	1,654	1,778	1,756	1,738	1,813
State	238	260	241	299	286	260	215	229	284
*Other gov't**	71	56	46	90	96	76	65	52	65
Corporate	224	177	197	263	217	326	278	386	369
Non-profit	350	335	332	313	362	327	383	412	384
*Academia***	247	262	303	303	293	273	278	255	265
TOTAL	***2,932***	***3,462***	***3,429***	***3,189***	***2,907***	***3,040***	***2,976***	***3,072***	***3,179***

** Other government includes local governments and agricultural market order boards.*
***Academia includes the categories of higher education, DOE labs, campuses and UCOP.*

Direct federal funding to UC during Q217 was about $458 million and over $1.8 billion for the year to date. This marks an increase of about 4.3% over the first two quarters of last year.

Q1-Q2 awards by sponsor category, 2008-09 to 2016-17

$ millions, inflation-adjusted



For the fiscal year to date, in addition to over $1.8 billion awarded directly by federal agencies, $353 million in federal funds came to UC indirectly as flow-through funds from non-federal sponsors. The main sources of flow-through funds are other research universities and California state agencies with federal awards.

FY 2016-17 Q1-Q2 flow-through funds by sponsor category

($ millions)

SPONSOR	FLOW-THROUGH $	AWARD TOTAL	% OF TOTAL
State	106	284	37%
Other gov't.	9	57	17%
Business	29	377	8%
Non-profit	57	384	15%
Higher education	131	189	69%
DOE Labs	5	6	77%
Campuses/OP	16	70	22%
Total	***353***	***1,366***	***26%***

The actual federal contribution to UC's award funding, including these flow-through funds, is about 68% of the year-to-date total. Because federal funding peaks during UC's first fiscal quarter, the federal contribution on a full-fiscal-year basis has historically been closer to 60%.

III. Award trends by project type

Of the nearly $3.2 billion in awards received during the first two quarters of 2016-17, research awards amounted to over $2.5 billion, including $230 million in clinical trial sponsorship. Training, service and other awards came to about $636 million. The last several years have seen a dramatic increase in clinical trial funding, due primarily to corporate sponsorship. Last year, during FY 2015-16, clinical trial awards totaled nearly $800 million, $456 million of this from corporate sponsors. This trend is likely to parallel the continued growth of the global pharmaceutical industry during 2016-17 and beyond.

Q1-Q2 award amounts by project type

$ millions, inflation-adjusted

PROJECT TYPE	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Research	2,188	2,735	2,655	2,510	2,109	2,176	2,214	2,240	2,313
Clinical trials	103	99	95	105	117	256	174	251	230
Training	195	216	206	174	177	164	159	154	145
Public service	234	188	211	210	270	249	171	224	241
Other projects	211	224	262	189	234	196	258	204	250
TOTAL	***2,932***	***3,462***	***3,429***	***3,189***	***2,907***	***3,040***	***2,976***	***3,072***	***3,179***

IV. Award trends by recipient location

Award totals for Q1 and Q2 of 2016-17 are about 3.5% above last year overall, but with significant variation among UC locations.

Q1-Q2 awards by location

$ millions, inflation-adjusted

UC LOCATION	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*	*Yearly change*
Berkeley	516	462	385	422	419	500	19.4%
Davis	473	410	369	411	414	365	-11.8%
Irvine	169	147	159	154	194	170	-12.5%
Los Angeles	533	393	424	489	483	490	1.5%
Merced	11	13	21	14	11	21	92.3%
Riverside	68	56	56	61	66	73	10.9%
San Diego	522	474	559	462	474	478	0.8%
San Francisco	581	689	794	722	779	802	3.1%
Santa Barbara	119	90	113	86	80	101	26.4%
Santa Cruz	85	75	74	73	63	55	-13.4%
Ag & Nat Res	8	9	9	9	12	14	11.1%
LBNL	75	63	67	68	62	99	59.8%
UCOP	30	26	12	6	15	10	-32.0%
TOTAL	***3,189***	***2,907***	***3,040***	***2,976***	***3,072***	***3,179***	***3.5%***

V. Significant campus awards

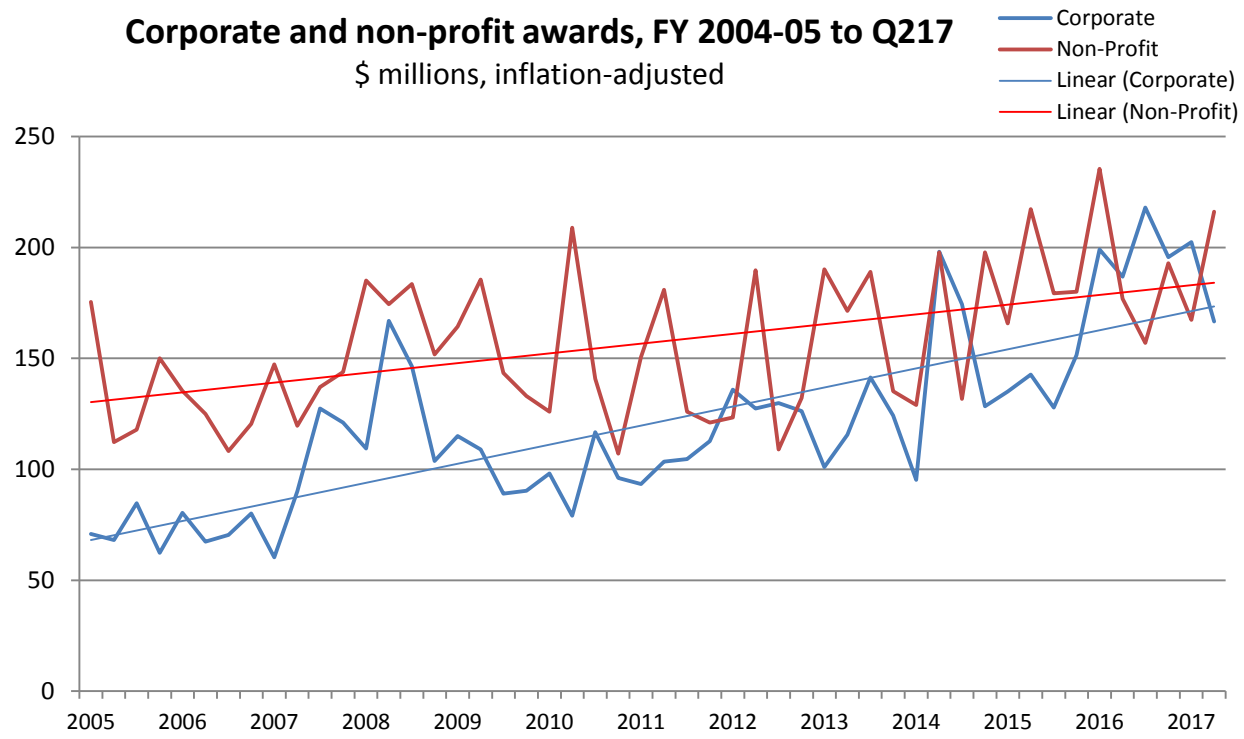
During Q217, UC received more than 4,100 contracts and grants from about 1,375 sponsors, plus more than 1,100 Material Transfer Agreements. Listed below are significant awards reported this quarter by campuses, the Division of Agriculture & Natural Resources, Lawrence Berkeley National Lab and the Office of the President.

LOCATION	*SPONSOR CATEGORY*	*SPONSOR*	*PROJECT TITLE*	*AMOUNT*
Berkeley	Non-profit	Tsinghua Education Foundation	Support for the Tsinghua-Berkeley Shenzhen Institute (TBSI) Dual Degree Program	$19,000,000
Davis	Federal	US Agency for International Development	Emerging Pandemic Threats Program Management	$16,300,000
Irvine	State	California Energy Commission	California Natural Gas Vehicle Incentive Program	$12,600,000
Los Angeles	Corporate	Microelectronics Advanced Research Corporation (MARCO)	Function Accelerated NanoMaterial Engineering (FAME)	$7,300,000
Merced	State	California Energy Commission	California Energy-Water Nexus	$650,000
Riverside	Corporate	Quintiles, Inc.	Clinical Trial Assessing Safety and Effectiveness of a New Drug Treatment for Schizophrenia	$2,100,000
San Diego	Corporate	Amgen	Monitoring the Effect of Exposure to the Antibody Repatha During Pregnancy	$6,000,000

San Francisco	Non-profit	Bill & Melinda Gates Foundation	Achieving Global Malaria Eradication through Accelerated Regional Elimination	$29,000,000
Santa Barbara	Federal	National Institute of General Medical Science	Effects of Bacteriophages in Wound Ecologies	$2,200,000
Santa Cruz	Federal	US Dep't of Education, Office of Postsecondary Education	Science Education and Mentorship in Latino Lives in Academia (SEMILLA) Project	$1,100,000
Agriculture & Natural Resources	State	California Dep't of Public Health	Obesity Prevention Evaluation and Research	$2,700,000
Lawrence Berkeley Lab	Higher Education	Stanford Linear Accelerator Center (SLAC)	HXR Undulators for the Stanford Linear Accelerator	$10,400,000
Office of the President	State	California Community Colleges Chancellor's Office	Increasing UC Student Equity and Diversity by Supporting California Community College Students	$2,600,000

VI. Private Funding Sources

UC's private sources of funding have been steadily increasing in both dollar amount and relative importance. Federal agency support remains the dominant source of extramural funding, but discounting stimulus funds and inflation, it has remained essentially flat for the last decade. Most of the long-term growth in UC's sponsored project totals derives from these private sources.



Several large awards from non-profit organizations during Q217 increased the quarterly total. As noted above in the list of significant campus awards, this includes $29 million from the Bill and Melinda Gates Foundation to help eradicate malaria, and $19 million from the Tsinghua Education Foundation to support the dual-degree program at Berkeley and Shenzhen Institute in China.

The effects of the recession on private funding are apparent, along with the steady recovery since. The sharp increase in corporate awards that began in 2015-16 is largely due to an increase in clinical trial sponsorship, and reflects the higher number and increasing cost for corporate clinical trials. The overall trend for both corporate and non-profit sponsorship shows a steady increase that is likely to continue as long as the economy remains strong, and the pharmaceutical industry continues to invest in developing new therapies and treatments.

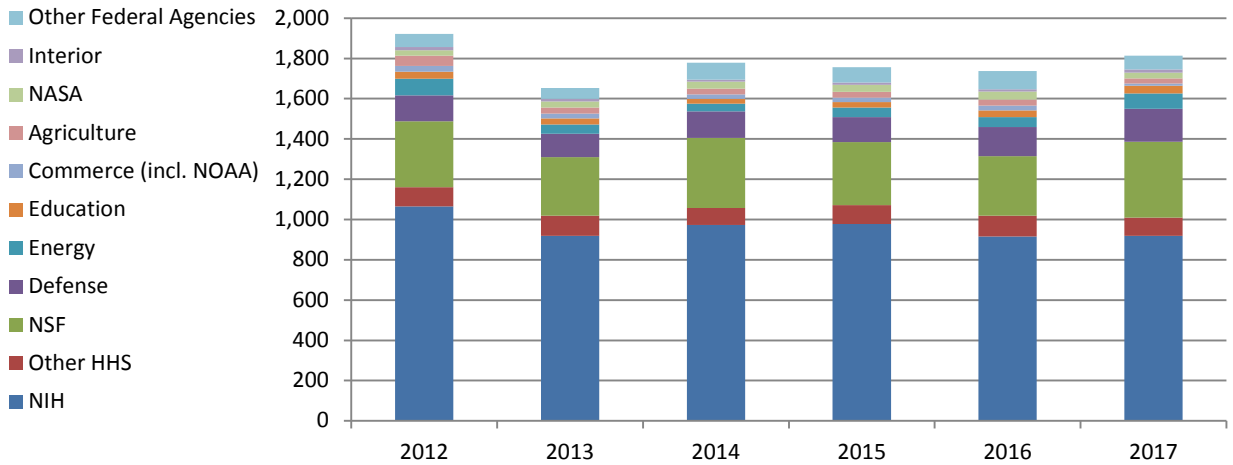
VII. Federal Agency Funding

Federal funding for the first two quarters of this year is about 4.3% higher than last year. But after adjusting for inflation, federal funding for the year to date is still less than during the period when Recovery Act funds were available. On an annual basis, federal awards are essentially where they were just prior to the recession. Recent agency funding trends pinpoint some of the major areas of change in the period following the Recovery Act (after 2010-11), which included the low point of the sequester in 2013, followed by three relatively stable years.

Federal agency awards, Q1-Q2, FY 2012 to 2017

$ millions, inflation-adjusted

AGENCY	2012	2013	2014	2015	2016	2017	% change
National Institutes of Health	1,065	918	973	977	916	920	0.4%
Other Health and Human Services	96	101	84	94	103	90	-12.9%
National Science Foundation	326	290	348	313	296	376	27.1%
Defense	129	116	132	124	144	164	13.9%
Energy	82	46	38	48	50	76	53.3%
Education	36	31	23	27	32	38	16.3%
Commerce (incl. NOAA)	29	23	23	23	25	11	-57.0%
Agriculture	50	30	29	28	29	26	-9.4%
NASA	27	31	34	36	40	28	-29.3%
Interior	16	12	10	10	11	16	44.7%
Other federal agencies	65	54	83	76	92	68	-26.1%
TOTAL	***1,921***	***1,654***	***1,778***	***1,756***	***1,738***	***1,813***	***4.3%***



VIII. Federal budget uncertainties — what's most at risk

The 2015 Congressional budget bill produced a two-year period of relative stability in federal funding for UC's research enterprise, but this is almost certain to change under the current administration. The federal government is currently operating under a Continuing Resolution that keeps 2016 budget levels intact only until the end of April, 2017. Past that date, with a new federal budget, agency support for academic research and development and social programs is highly uncertain.

The President's federal budget proposal would result in large cuts for most agencies, among them an 18 percent reduction for the US Department of Health and Human Services, which includes the National Institutes of Health, UC's largest single source of project sponsorship. During federal FY 2016, UC received about $2.4 billion from HHS: $2.1 billion directly from the agency, plus another $300 million as subawards from other institutions. An 18% reduction in this total would cut UC's federal funding by over $430 million from just this one department.

However, there may be little Congressional appetite for cutting medical research funding, to judge from the bipartisan support for the 21st Century Cures Act, which Congress passed in December 2016. That legislation would increase NIH's appropriation by nearly 5% in 2017 and by another 5% in 2018, taking the agency's funding in the opposite direction from the President's proposal.

What does appear to be at considerable risk is UC's research on climate and the environment, which is largely federally funded. Agencies that have historically supported climate research and data collection — the National Oceanic and Atmospheric Administration, the Department of Energy, NASA and the Environmental Protection Agency — are likely to see these programs cut or eliminated. During federal FY 2016, UC received about $70 million (including flow-through funds) for climate science research from these four agencies. UC also received another $62M from the National Science Foundation for earth and environmental sciences, but it is still unclear which program areas might be affected if the NSF appropriation is reduced.

By the end of April, when Congress is expected to pass a budget bill, there may be more clarity about the changes to expect in federal funding, and how this could affect research at UC.

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