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**CENTER FOR  
CLIMATE AND LIFE**

**BIENNIAL REPORT  
2018–2020**

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Lamont-Doherty Earth Observatory  
COLUMBIA UNIVERSITY | EARTH INSTITUTE

# MESSAGE FROM THE DIRECTOR

Dear friends,

At the Center for Climate and Life, we've taken a bold, new approach to advancing innovative research that informs solutions to the climate crisis. Our unique funding model is successfully incentivizing and accelerating use-inspired climate research.



With your support, the scientists we fund are uncovering the future of the Greenland Ice Sheet, advancing understanding of the polar vortex and other extreme weather, closing the air pollution data gap in Sub-Saharan Africa, and so much more.

I hope you enjoy this report and learning about our accomplishments from this 2018-2020 biennial period.

As you may know, I will step down from the Center in October 2020 to become the president of Woods Hole Oceanographic Institution. At that time, the Center will be elevated into the Lamont-Doherty Earth Observatory Directorate as the Climate and Life Initiative and led by Maureen Raymo, interim director.

Plans for the Climate and Life Initiative include continuing the success of our Fellows Program by funding seven new Fellows, recruiting junior research professors, and supporting a Scientific Instrument Repair Fund to benefit the entire Lamont campus.

I'm proud of what we've accomplished in our first four years. We couldn't advance our mission without the support of our donors, partners, staff, and Advisory Board, and I extend a sincere thanks to everyone who has contributed to our work.

Warmly,

A handwritten signature in black ink that reads "Peter de Menocal". The signature is fluid and cursive, with a long horizontal flourish at the end.

Peter de Menocal, Director

**2018–2020**

# HIGHLIGHTS

## Understanding Climate Challenges

We awarded an additional \$852,000 in research fellowships to four Columbia scientists. Since 2016, we've granted \$4 million in Fellowship awards to 14 scientists who lead critical research on topics central to our mission.

## Multiplying Our Investments

The \$852,000 in direct support we awarded to our Climate and Life Fellows has already leveraged more than \$7 million in additional federal and private research funding.

## Forging New Partnerships

Solutions to the climate crisis aren't possible without our partners. We collaborate with private sector organizations, such as Aon Reinsurance and Jupiter Intelligence, to fund ocean and climate research and address climate threats with action.

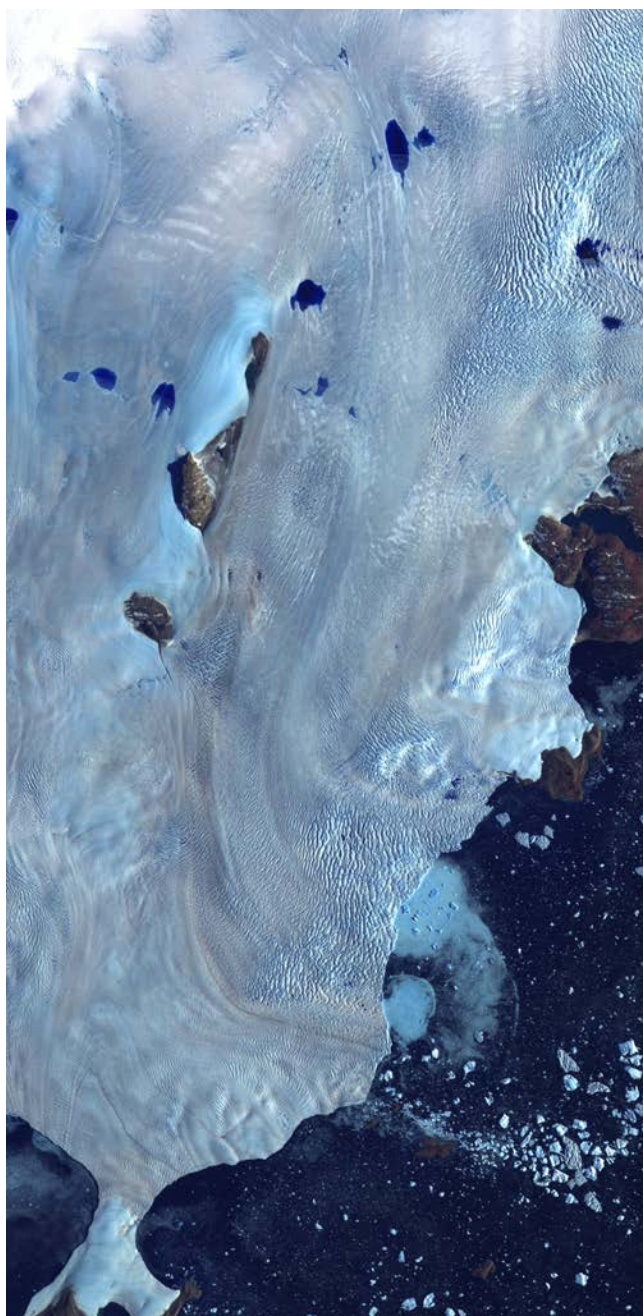
## Investing in Diversity and Inclusion

We support two Lamont initiatives that increase underrepresented diversity in science. The Seminar Diversity Speaker Series encourages diversity and inclusion in campus seminars, and the Secondary School Field Research Program provides hands-on research experience to high school and college students and their teachers.

## Inspiring Future Scientists

During the past two years, 16 high school students participated in our annual summer intern program, a four-week, immersive research experience that's now trained nearly 50 local students.





## IMPACT STORIES

### Uncovering the Future of the Greenland Ice Sheet

Joerg Schaefer and Gisela Winckler, 2017 Climate and Life Fellows, are part of a team awarded nearly \$7 million in National Science Foundation funding in 2020 for GreenDrill, a project that will reveal the Greenland Ice Sheet's past in unprecedented detail and enable more accurate predictions of how it may add to rising seas in the 21st century. The project was born out of a 2016 *Nature* paper led by Schaefer that provided the first evidence that Greenland once lost most of its ice, making it more prone to melting than scientists thought. Schaefer and Winckler used their Center funding to advance this pilot study, and say it was crucial to the success of the GreenDrill proposal.

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### Bridging the Air Pollution Gap in Sub-Saharan Africa

A lack of data makes it hard to know how harmful air pollution is in Africa. Dan Westervelt, a 2019 Climate and Life Fellow, is addressing this issue by setting up an air pollution monitoring network for three megacities in Sub-Saharan Africa. Building on this work, Westervelt was awarded \$2 million from the National Science Foundation for a new project that will support air pollution monitoring efforts in data-sparse areas of the world, particularly in Africa, by establishing an international network of sensors and scientists.

# IMPACT STORIES

## Examining How Early Humans Responded to Climate Change

Kevin Uno, a 2019 Climate and Life Fellow, and Rachel Lupien, a Lamont postdoctoral researcher who received funding from the Center, investigate how abrupt changes in climate affected Neolithic human culture and migration at Gobero, an archeological site in Niger, located in the middle of the Sahara Desert. During recent field expeditions in Africa, they gathered data and information that will help them reconstruct the diets and lives of the Gobero inhabitants. Their results will add to our understanding of how human populations in the Sahel and Sub-Saharan Africa responded to shifts in mean climate state in the past, and help scientists and policymakers plan for the future.



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## How the Loss of Arctic Sea Ice Impacts Extreme Weather

Research led by atmospheric scientist Yutian Wu, a 2018 Climate and Life Fellow, examines the Arctic's impact on North American weather and climate, particularly the changes in winter weather. Her modeling studies now have the potential to improve seasonal prediction of mid-latitude cold events over the North Atlantic and Eurasia, such as the polar vortex.

Visit [climateandlife.columbia.edu](https://climateandlife.columbia.edu) to learn more about our work.

# FINANCIAL SUMMARY

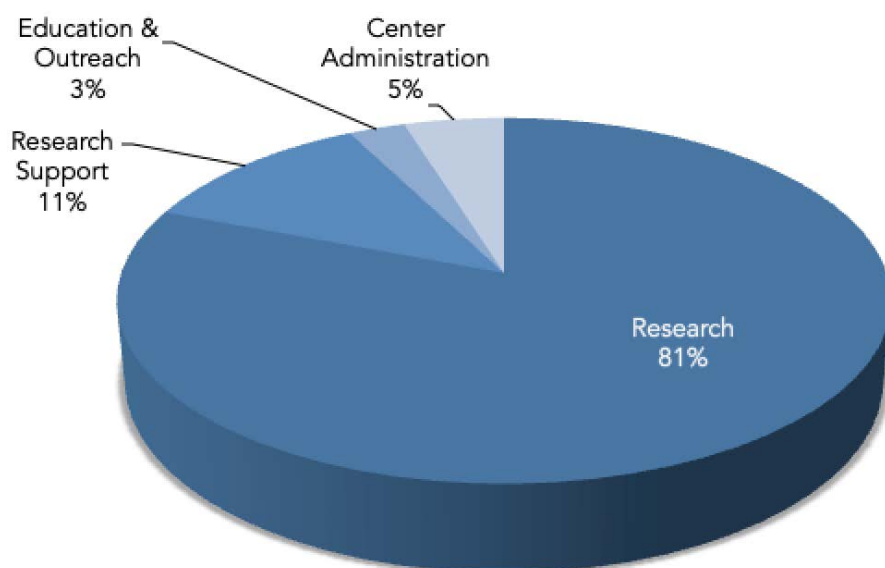
We continue to experience yearly growth in donor support, receiving more than \$3.2 million in additional gifts and grants.

Since 2016, the Center has awarded \$4 million in research grants to Columbia scientists, which led to an additional \$32.5 million in funding—a 7:1 return on our investment.

And we use more than 80 percent of our financial resources to directly advance Columbia climate research.

None of this would be possible without our passionate, dedicated donors. Their support advances our mission, helps us understand our planet, and finds solutions to climate challenges.

Sources of Revenue	FY19	FY20	Total
Gifts (Foundations)	\$1,346,790	\$346,175	\$1,692,965
Gifts (Individuals)	\$74,727	\$57,152	\$131,879
Foundation Grants	\$215,856	\$1,008,166	\$1,224,022
Industry Contracts	\$103,553	\$112,289	\$215,842
Columbia Endowment	\$490,000	\$317,000	\$807,000
<b>TOTAL INCOME</b>	<b>\$2,230,926</b>	<b>\$1,840,782</b>	<b>\$4,071,708</b>



## BREAKDOWN OF SPENDING FY2019-2020

# OUR DONORS

We are immensely grateful to everyone who supports our work. Your exceptional generosity has facilitated our transformative growth.

The following gifts were made between July 1, 2018, and June 30, 2020. With appreciation, we acknowledge the generosity of the following foundations, organizations, and individuals.

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