

Virtual Institute for the Carbon Cycle (VICC)

Request for Expressions of Intent

Submission Deadline: Friday, August 28th, 2026, 11:59 pm ET

Ready to Submit? Please submit your EOI [here](#).

I. Program Background

The Virtual Institute for the Carbon Cycle (VICC) is an initiative of [Schmidt Sciences](#) to support transformational research that dramatically reduces uncertainty in the global carbon cycle by an order of magnitude and provides robust scientific knowledge to guide effective climate policy and solutions. The goal of VICC is two-fold: (a) improve understanding and reduce uncertainty of both natural and anthropogenic components of the global carbon cycle to inform (detect/attribute) mitigation in carbon emissions, and (b) improve understanding and reduce uncertainty of future changes in the global carbon cycle, including carbon-climate feedbacks, to inform climate policies.

VICC is soliciting short expressions of intent (EOIs) for projects that enable these two goals. We aim to support several multidisciplinary and international teams of researchers by providing sustained funding for up to 5 years and networking support to pursue novel and ambitious research aligned with VICC goals. Projects may hinge on significantly improving our mechanistic understanding and constraints on key components of the carbon cycle via modeling, observational, data assimilation, or any combination of those approaches.

II. Our Mission

[Schmidt Sciences](#) is a nonprofit organization founded in 2024 by Eric and Wendy Schmidt that works to accelerate scientific knowledge and breakthroughs with the most promising, advanced tools to support a thriving planet. The organization prioritizes research in areas poised for impact including AI and advanced computing, astrophysics, biosciences, climate, and space—as well as supporting researchers in a variety of disciplines through its science systems program.

Schmidt Sciences' Climate Center supports fundamental science, decision-relevant tools and global research networks to deepen understanding of our interconnected Earth system and to bend the carbon curve toward a sustainable future for humanity and nature. We seek to advance fundamental science to understand the implications of climate change mitigation strategies and to ensure that such planning takes into account feedback and constraints across the land, atmosphere, and oceans. We aim to support transformational and transdisciplinary global research networks required to build the necessary models, data, platforms, science and technology that enable our vision of a future of energy sufficiency and carbon and resource neutrality. We believe the global research community has a key role in enabling us to see, plan, and build this future. VICC is one of the main Climate Center programs through which we aim to achieve this vision by understanding the fundamental science underpinning the global carbon cycle, such that climate mitigation and carbon neutrality strategies are scientifically credible, policy-relevant, and globally coordinated.

The mission of VICC is to support the fundamental research required to significantly improve our understanding of the global carbon cycle, including quantifying sources and sinks in the various global reservoirs (atmosphere, terrestrial biosphere including plants and soils, surface and deep ocean), constraining fluxes between and across those reservoirs and predicting future changes in those reservoirs. We aim to achieve corresponding improvements in accuracy at not just global and long-term scales but also intermediate spatial and temporal scales - for example, spatially from local to regional (e.g. ecosystem or basin) to continental and country-level scales, and temporally, from seasonal to interannual and decadal timescales. We believe that these intermediate scales are the ones most relevant to climate policy implementation and verification.

By categorically decreasing the uncertainty associated with the major components of the global carbon cycle, we expect two crucial outcomes to emerge from the projects funded by VICC. First, this research will enable future projections of atmospheric carbon on time horizons ranging from near real-time to centennial, and provide a better basis for anticipating and preparing for unexpected changes to carbon stocks and flows resulting from feedbacks with the climate system. Second, VICC-funded projects will enable the interpretation of current and proposed policies for carbon dioxide reduction on policy-relevant timescales (for instance, to be responsive to the [UN Global Stocktake](#)).

VICC is one initiative within the larger [Schmidt Sciences](#) Climate Center, along with the Virtual Earth System Research Institute ([VESRI](#)), the Ocean Biogeochemistry Virtual Institute ([OBVI](#)), the Virtual Institute for Earth's Water ([VIEW](#)), and the Decarbonization and Energy Virtual Institute ([DEVI](#)). The Climate Center portfolio may expand further to include initiatives focused on novel Earth observations, AI emulator research for climate and energy models, and more. We will foster communication and collaboration across all funded projects within the Climate Center. To that end, projects funded by VICC will be expected to regularly engage with other initiatives, including via sharing data, participating at collaborative in-person meetings, and assisting with efforts to align projects along shared objectives.

III. Existing VICC Projects

In 2025, the VICC program funded [four projects](#):

- **Combining land-use, modeling and remote-sensing to transform carbon budgets ([CLARiTy](#))**

CLARiTy seeks to reduce the persistently high land flux uncertainties, employing a combination of new datasets, a deeper process-understanding, sophisticated models and an improved experimental design. The project will transform the way we monitor land-use, disturbance, vegetation structure, biomass and biomass change using newly available high-resolution Earth Observation combined with the latest methodological advances in AI and modeling.

- **Constraining Ocean Carbon with Optimized Observing ([COCO2](#))**

COCO₂ will address the knowledge gaps currently preventing progress on constraining the ocean CO₂ sink by implementing a novel and scalable observing approach in the Southern Ocean. The project will pair state-of-the-art technology in air-sea CO₂ observing on uncrewed surface vehicles with adaptive, flexible observing design, explainable artificial intelligence methods, and observing system simulation experiments with numerical models. COCO₂ will deliver critical data targeted to reduce the observation-based ocean sink estimates in the annual Global Carbon Budget by 25% and advance our understanding of the processes driving air-sea CO₂ flux variability.

- **Congo Basin Carbon Flux Experiment (Congo-FLEX)**

Congo-Flex aims to produce the first in situ data-driven estimate of the net flux of carbon dioxide from the Congo Basin region, the world's second largest extent of tropical forest. The project will use twice-monthly aircraft flights to measure vertical profiles of carbon dioxide, carbon monoxide, and methane, across the Congo Basin region, combined with state-of-the-art inverse models to develop the first robust assessment of the carbon balance of central Africa's tropical forest region, including the world's largest tropical peatland complex. This net flux will be partitioned into annual gross fluxes for the region from deforestation, forest degradation, reforestation, and remaining intact forest, using expertise from countries across the Congo Basin to expand forest inventory datasets and recalibrate remotely sensed datasets to reflect central African conditions.

- **Rapid Permafrost Thaw Carbon Trajectories ([PeTCaT](#))**

PeTCaT will quantify impacts of permafrost thaw on globally important carbon feedbacks and identify core risks at policy-relevant timescales. The project aims to answer the question: What is the contribution of additional carbon dioxide (CO₂) and methane (CH₄) emissions from rapidly thawing permafrost to regional and global greenhouse gas budgets, and their role in meeting climate targets? PeTCaT will combine field and laboratory studies, remote sensing, deep learning, process and Earth System modelling to provide unique insights into the vulnerability of Earth's largest terrestrial carbon pool.

In addition, the Schmidt Sciences Climate Center has funded other projects addressing knowledge gaps in carbon cycle science, including:

- **The [Scripps CO₂ Program](#)**
- **Carbon Loss In Plants, Soils and Oceans ([CALIPSO](#))** – a project within the [VESRI program](#).
- **Fate, Emissions, and Transport of CH₄ ([FETCH4](#))** – a project within the [VESRI program](#).
- **Integration of Models and Observations across Scales ([InMOS](#))** – a project within the [OBVI program](#). InMOS operates alongside four other OBVI projects – West African Margins (WAM), Ocean Margins Initiative (OMI), Subtropical Underwater Biogeochemistry and Subsurface Export Alliance (SUBSEA), and Animals as Living Bioreactors – that collectively target critical gaps in ocean carbon cycling and biogeochemistry.
- **Carbon Research Frontiers Network ([C-RFN](#))** – a new Climate Center program that will fund carbon cycle research in India.

Taken together, these projects form the larger ecosystem of Schmidt Sciences' carbon cycle portfolio. We encourage interested participants to familiarize themselves with these projects and reach out to carbon@schmidtsciences.org (write "VICC EOI" in the subject line) for questions about these projects.

IV. Expressions of Intent

We are seeking brief Expressions of Intent (EOIs) for research projects that address knowledge gaps in carbon cycle science, yield categorical reductions in the uncertainty associated with the major components of the global carbon cycle, and improve the accuracy of their future projections. Projects could propose to achieve this through novel observations and measurements, or modeling approaches, or data assimilation improvements, or any combination thereof. Select EOIs will then be invited to move to Step 2 to submit a full proposal.

Submissions must be grounded in one or more of the following scientific themes that enable our overarching mission and goals, making a major leap in our understanding of:

Theme 1. Anthropogenic emissions and their fate in time and space, in order to make major

improvements in the accuracy of the global carbon budget. Projects under this theme could address any combination of land, ocean, and atmospheric components, including partitioning among reservoirs and their spatial and temporal variability, as well as feedbacks. Examples of specific topics include but are not limited to:

- Anthropogenic emissions quantification
- Trends in carbon sinks & variability
- Ocean interior carbon cycle
- Land-ocean-aquatic carbon continuum
- Belowground/soil organic carbon dynamics

Theme 2. Carbon cycle behavior on policy-relevant timescales in order to enable attribution and robust distinction between the response of the carbon cycle to natural and anthropogenic drivers. Examples of specific topics include but are not limited to:

- Ecosystem disturbance and impact of extreme events
- Role of climate variability on the carbon cycle
- Near real-time carbon stocks and flux monitoring
- Attribution and process understanding of decarbonization

Theme 3. The future of the land and ocean carbon stocks and fluxes in a changing climate on decadal to centennial timescales, including evaluating the potential for surprises and abrupt change. Examples of specific topics include but are not limited to:

- Vulnerability under multiple stressors
- Abrupt or persistent disturbance impacts
- Early-warning indicators for abrupt changes
- Detection of regime shifts and their impact on the long-term trajectory of the carbon cycle
- Carbon cycle response to climate mitigation

The scientific themes stated above are designed to cover timescales from historical, to contemporary, to future projections of the carbon cycle. Projects may span multiple themes (and hence timescales). Projects may also tackle non-CO₂ greenhouse gases, trace gas and oxygen isotopes, if they are relevant to the overall mission and goals of the VICC program. We welcome projects that primarily focus on either observational or modeling work, or a deep integration between the two. We also encourage submissions that consider new ways to leverage AI and machine learning in carbon cycle science, particularly through novel inversion and data assimilation approaches, process model emulation, and up- or down-scaling efforts.

V. Project Requirements

- **Team Composition:** We expect project teams to prioritize representation across disciplines, geographies, and backgrounds, and to provide opportunities for early career scientists. Proposed project team members can be presented as preliminary suggestions at the EOI stage, and can be changed at the RFP stage due to availability and/or fit. An individual may only serve as PI on one EOI submission. However, they may serve as a co-investigator / collaborator on multiple EOIs.
- **Open Source Data:** Project teams will be expected to make results and methods as transparent as possible across the Virtual Institute and publicly available as open source and open data in a timely manner, in accordance with FAIR principles.
- **Budget:**
 - The typical award for a Schmidt Sciences Virtual Institute project is USD 10M over 5 years.

- Teams should plan for a start date of October 1, 2027. A nominal 5-year period of performance implies that projects should aim to end by September 30, 2032.
- It is possible to consider variances on both the typical award size and the period of performance. We might consider smaller, shorter duration awards to explore highly exploratory, unconventional ideas, provided they are tightly scoped, clearly defined, and designed to answer focused questions or test specific hypotheses within the scope of VICC. Projects that require establishment of an observational network, new instrumentation or significant acquisition of novel data (in situ, airborne, seaborne, exploiting commercial satellite data) will also be considered even if they exceed USD 10M; however, the additional cost must be clearly justified within the scope of VICC.
- Teams should include funds to participate in an annual VICC-related Science Team meeting each year, lasting five days. Meeting locations are likely to alternate between Europe and the U.S. For planning purposes, teams should plan that the first meeting will happen in October 2027 in Europe.
- Indirect costs, irrespective of the budget amount, should not exceed 10% of the total project cost.

VI. Crafting Your Proposal

EOI submissions should provide a maximum 3-page proposal with the following information:

1. **A project narrative**, including:
 - The primary scientific theme of your proposed project
 - How your project is critical to addressing the goals and mission of the VICC program
 - The scope of the proposed research
2. **A clear research plan**, including:
 - Key project goals, scientific hypotheses, and methodologies
 - A brief description of data and computational tools that will be used
 - If applicable, how the proposed research could be used to inform environmental decision-making, management, investment, or policy-relevant science.
3. **A description of preliminary team composition, and potential external institutional partnerships**, including the proposed team members' scientific ability, relevant expertise, and scientific project management experience. Kindly note:
 - The **EOI proposal document should not include any PI, team, and partner names and affiliations** as the EOIs will go through a blind evaluation process. Team names and affiliations will be collected in a separate form. Proposals will be returned without evaluation if any identifying information is included in the EOI proposal document. See the "Formatting Questions" section in the FAQ document for further guidance on anonymization.
 - **An individual may only serve as the PI on one EOI.** They may serve as a co-investigator / collaborator on multiple EOIs.
 - Multidisciplinary and international teams of researchers are strongly encouraged
 - Early-to-mid-career researchers are welcome to submit proposals as the lead PI.
4. **A preliminary budget**, which includes a brief description of project expenses such as salary, equipment, travel, indirect costs, etc. Detailed budgets are not required for the EOI stage, but will be requested from teams invited to submit full RFPs in Step 2. Note that Schmidt Sciences caps indirect costs at 10%.
5. **A brief statement indicating if, and how, generative AI was used** in developing the proposal. This is for informational purposes only. Any details provided will be excluded from the formal merit evaluation process.

VII. Eligible Institutions

- Research teams in university, national laboratory, institute, or agency settings
- Multi-institute research consortiums, with regional and global partnerships (strongly encouraged)
- Teams which include industry and NGO partners
- Project teams do not need to include U.S.-based institutions

VIII. EOI Submission Guidelines and Review Process

To be considered for funding, proposals should adhere to the following guidelines:

- **Page Limit:** Proposals should not exceed 3 pages, including figures.
- **Language and Formatting:** The EOI should be written in English, and include no more than 3 pages of body text typed in single-spaced 11-point (or larger) font. The EOI should be formatted as .pdf.
- **Removal of Identifying Information:** The EOI proposal document should not include any PI, team, and institutional names and affiliations. Team names and affiliations will be collected in a separate form.
- **Citations:** We request that citations are formatted using the [Vancouver reference style](#) instead of the Harvard style (generally, “Author, year”). References should be listed in an additional document uploaded separately as .pdf.

Submission and Questions: Please submit your EOI [here](#). Should you have any questions, please reach out to carbon@schmidtsciences.org and write “VICC EOI” in the email subject line. Responses to frequently asked questions about this VICC request for EOIs can be found in the FAQ document at the submission link above.

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Review Process: The EOIs should be anonymized (removing names and identifying references) for a blind evaluation by an independent panel of experts, along with the VICC Advisory Board members and Schmidt Sciences team. All projects will be evaluated using the same merit criteria irrespective of the total proposed budget and the duration of the award. We intend to notify all applicants of the status of their application on or before November 1, 2026.

At that stage, selected teams will be invited to write a full proposal (Step 2) including providing more scientific and technical details, project budgets, timelines and team composition. Invited teams will have approximately 60 days to submit the full proposal. These proposals will be subsequently reviewed by an independent panel of experts, committee of advisors and the Schmidt Sciences team.

Following Step 2 review, we expect to award five-to-seven projects in this round of VICC funding. Potential calls in future years are likely to be more targeted and specific, aimed at complementing and integrating work done under VICC Phase 1 and Phase 2 from prior years.