

The second DECIMALS call for proposals

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The second call for proposals for DECIMALS modelling grants is open until 15 July 2022 (23:59 Central European Time). DECIMALS supports teams of scientists in developing countries as they model how solar radiation modification geoengineering (SRM) could affect their local climate. In this second round of DECIMALS funding, grants of up to USD 75,000 will support research teams as they explore how SRM could affect the climate impacts that matter most locally. Please read the application guide below for more information about the grants, eligibility and how to apply.

DECIMALS application guide

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Background

The research challenge

Solar radiation management (SRM) is a controversial proposal for reducing some of the impacts of climate change by reflecting away a small fraction of inbound sunlight. Learn more about SRM [here](#). To date, most SRM research has taken place in the Global North, and most SRM modelling research has focused on its potential impacts on the global climate.

There has been less study of the regional impacts of SRM, particularly in the Global South. How would SRM affect the climate variables that matter most to people's lives and livelihoods, such as extremes of temperature or precipitation, droughts, sea level rise, impacts on agriculture or biodiversity or health? These are the kinds of questions that DECIMALS was set up to explore.

With this second request for proposals, we are seeking research teams in developing countries and emerging economies who would like to understand how SRM could affect the local climate, and how its impacts compare to those of a warmed world.

About the DECIMALS Fund

The DECIMALS Fund is the first SRM research fund aimed entirely at developing countries and emerging economies. It was launched in 2018 by the Degrees Initiative (formerly SRMGI), Environmental Defense Fund, and The World Academy of Sciences (TWAS) in an effort to build the capacity of developing countries to evaluate solar radiation management.

[Read more about the Degrees Initiative](#)

The DECIMALS Fund provides grants to small research teams in developing countries, allowing them to analyse the impacts that SRM might have in their regions. To date DECIMALS has supported 11 SRM research projects, including the world's first projects in South America, the Caribbean, Africa, the Middle East and Southeast Asia. To get an idea of the DECIMALS studies to date, see the full list [here](#).

There are several objectives of the DECIMALS grants:

- to support excellent science on the potential impacts of SRM;
- to build the capacity of developing country scientists to play a greater role in evaluation and discussion of SRM;
- to expand the conversation around SRM with local stakeholders; and,
- and to build South-South and South-North links over SRM research and discussion.

[Read more about the DECIMALS experience](#)

Designing your DECIMALS research proposal

We invite applications from small research teams based in eligible countries (see [Eligibility and Selection](#) below) who have clear research proposals for how to model the potential local or regional impacts of SRM. Applicants will need relevant climate impacts modelling expertise, they are expected to formulate the scientific questions that their projects will address, and they must show that they will use modelling techniques that are appropriate for their projects.

Focus areas

The Degrees Initiative is not prescriptive about the focus of DECIMALS research projects or about the methods used to undertake the research. The research can address any aspect of physical climate change or any climate impact, such as extreme temperature or rainfall, agriculture, ecosystems, water resources. The first round of DECIMALS studies explored how SRM could affect, amongst other things:

- Rainfall in West Africa
- Extreme droughts in Cape Town
- Dust storms in the Middle East
- Extremes of temperature and precipitation in Indonesia

How SRM is modelled

SRM modelling studies simulate a warmed world without SRM and compare it to a world where SRM has been deployed to reduce the warming. In the past, SRM models would just reduce the amount of inbound solar energy to simulate SRM deployment, but more recent model runs have become much more sophisticated, and they simulate aerosols injection and particular latitudes and altitudes. These simulations typically involve the use of a fully coupled global climate model, sometimes alongside other models to study, for instance, how SRM might affect hydrology or crops. Impact studies have typically used downscaling and bias correction to analyse regional effects.

Datasets that DECIMALS modellers use

DECIMALS teams work with data generated by large climate model runs, such as:

- Geoengineering Model Intercomparison Project ([GeoMIP](#))
- NCAR's Geoengineering Large Ensemble ([GLENS](#))
- [ARISE-SAI](#) (Assessing Responses and Impacts of Solar climate intervention on the Earth system with Stratospheric Aerosol Injection) simulations
- [GAUSS](#) (Geoengineering Assessment across Uncertainty, Scenarios, and Strategies) dataset

Bias correction and downscaling

Many DECIMALS projects will require bias correction and statistical downscaling (such as projects looking at river runoff or crop impacts). Some will not require downscaling of any kind (such as studies of climate impacts with large-scale drivers like monsoon changes or tropical cyclones). Studies that would require dynamical downscaling are likely to be out of the scope of a DECIMALS grant because of the significant computing resources needed and the high financial costs. However, where applicants have the technical expertise and computer access required for dynamical downscaling and could complete their research within the time and financial limits, we would welcome the proposal. Whatever research methods are chosen, applications must demonstrate that suitable modelling techniques will be used and that the research team has the required experience and expertise.

Emissions and SRM deployment scenarios

Choice of emissions and SRM deployment scenarios will not be a major factor in the evaluation of applications as these are often driven by the data set that is used. For instance, the GLENS model simulates the creation of a stratospheric aerosol cloud to stabilise temperatures at 2020 levels under a very high emissions pathway, whereas the GeoMIP G6 scenarios simulate using either insolation reduction or stratospheric aerosols to approximately halve the climate forcing from a business-as-usual scenario.

Determining your DECIMALS modelling approach

DECIMALS researchers will be able to refine their choice of scenario and data set in consultation with their research collaborators, with the other DECIMALS teams, and at a research planning workshop. For the purposes of the application, it is necessary only to show that a suitable data set and modelling approach will be used to answer the research question.

To date there has been little regional analysis of the impacts of SRM, and so projects do not necessarily have to be very complex or ambitious to secure DECIMALS funding. A simple project that is well planned, managed and executed could be an excellent contribution.

A list of recommended key publications and background information on SRM science is available on our [Resources for applicants page](#).

What makes a good DECIMALS application?

There has been little or no SRM research in most of the world's countries and so applicants are not expected to be SRM experts. Instead, they need to show that they have experience modelling the impacts of climate change, have done appropriate background reading on SRM, and can demonstrate knowledge of the relevant SRM data sets and modelling techniques.

Project proposals do not have to be extremely complex or ambitious to secure funding. There has been little study of the regional impacts of SRM and so simple studies that are done well can make a real contribution. That said, ambitious projects that can be executed competently will score well.

Overall, applications will have a good chance of funding if they:

1. Have a clear scientific question, such as: "Compared to [warming scenario], how would different levels of SRM deployment affect crops of maize in India? Or "compared to [warming scenario], how would SRM affect rainfall and temperatures across Amazonia?" A suitable warming scenario could be something like SSP2-4.5. Please note that these are just examples of possible topics, not recommendations.
2. Are clear about the geographical area they propose to cover. This could be a region, or a country and it is up to applicants to explain why they have chosen the area that they have.
3. Propose a method that is suitable to answering the research question.
4. Have a team that can carry out the research competently. For instance, if a project requires bias correction and/or downscaling, applicants will need to show that their team has the relevant expertise.
5. Demonstrate a good grasp of the basics of SRM.

6. Explain why their proposed research would be of local importance and would help local stakeholders better evaluate SRM.

Capacity-building is also a key objective of DECIMALS. Degrees particularly welcomes applications from countries that do not already have SRM research projects, and we will seek a wide distribution for the DECIMALS grants – both in relation to geography and national income level. Teams from Least Developed Countries, or that have a mix of experienced and early-career scientists, or that include female scientists, will be looked on favourably. Finally, Degrees will be looking to support researchers that show promise to become regional leaders in the field of SRM research.

Applicants are welcome to discuss potential research projects with the Degrees Initiative before submission by emailing grants@degrees.ngo. But please note that we do not have the capacity to review proposals and provide comments on their likelihood of funding – here we are guided by independent peer review after the submission deadline.

Financial and logistical details for DECIMALS grants

The 2022 DECIMALS grants will be awarded in October 2022, with projects expected to be completed by the end of 2024. A research grant will amount to a maximum of USD 75,000.

Salary funding

Applicants will be able to apply for up to USD 60,000 to support salaries – perhaps covering a small amount of the time of a senior researcher alongside some more junior researchers. Capacity-building is a key part of the DECIMALS fund and applications that fund multiple investigators, especially early career researchers, will be looked on favourably. However, there are no set guidelines for how the salary funds should be allocated and applicants should explain why they are allocating money as they are.

Standard contribution

Each DECIMALS research team will also be allocated a standard contribution of USD 15,000 to support additional activities and equipment related to the grant, including:

- Purchase of computer equipment and software where necessary to complete the DECIMALS research activities (up to USD 2,000 per grant);
- Payment of open access journal publication fees (up to USD 5,000 per grant);
- Participation of up to two scientists in a research planning workshop (up to USD 3,000 per grant);
- Participation of up to two scientists in an international conference during the lifetime of the grant (up to USD 5,000 per grant).

Teams that do not need salary support may also apply for DECIMALS grants of \$15,000 to support all these sundry expenses. They would also enjoy all the other benefits of being in the DECIMALS research community, including support from world-leading experts as they do their analysis.

Grant administration

Grants will be awarded and administered by the Degrees Initiative through an agreement made between the Degrees Initiative, the principal investigator, and their institution.

The awarded institution will undertake to complete its DECIMALS research according to the agreement and to provide appropriate resources and facilities necessary for the project. Equipment, software, and literature provided for the project through the DECIMALS fund will remain the property of the institution after the project is completed. Each team will be expected to publish at least one research paper in a respected international journal and principal investigators will be required to submit a final report at the end of the grant period.

The funds for salaries will be paid to the awarded institution in arrears pending the satisfactory receipt of progress reports as established in the grant agreement. The funds for sundries (a standard contribution for, e.g., computers, publication fees, conference travel) will be kept at and administered by Degrees in consultation with the principal investigator

Research projects are due to run throughout the grant period, from November 2022 to December 2024.

Eligibility and selection

Eligibility

Principal investigators should have a PhD and appropriate research experience. They must be citizens of one of the following countries AND should work at a university or research institution in one of the listed countries:

Albania, Algeria, Angola, Antigua and Barbuda, Armenia, Azerbaijan, Bangladesh, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Central African Republic, Chad, China, Colombia, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Eswatini (Swaziland), Ethiopia, Fiji, Gabon, Gambia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iraq, Jamaica, Jordan, Kenya, Kiribati, Kosovo, Kyrgyzstan, Laos, Lebanon, Lesotho, Liberia, Libya, Madagascar, Malawi, Maldives, Mali, Marshall Islands, Mauritania, Mexico, Micronesia, Moldova, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Nicaragua, Niger, Nigeria, North Macedonia, Pakistan, Palestine, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Samoa, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Solomon Islands, Somalia, South Africa, Sri Lanka, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkmenistan, Tuvalu, Uganda, Ukraine, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.

Because there has been little SRM research outside of OECD countries and the current DECIMALS projects, we deliberately use a broad eligibility for DECIMALS: any countries with a Human Development Index (HDI) of less than 0.8.

Due to sanction regimes and/or operational limitations, we are unable to fund projects in Afghanistan, Cuba, Iran, North Korea, South Sudan, Sudan, Syria. Nationals of these states who are based in eligible countries can still apply for grants.

Please note:

- We particularly welcome applications from Least Developed Countries and the [66 S&T-lagging countries](#) designated by TWAS
- Applications from emerging economies with HDIs > 0.8 and that are located in developing regions will still be considered, but applicants will have to make the case for why they need DECIMALS research support and how their research will help developing countries to understand the impacts of SRM
- Specific individuals and/or entities might be subject to targeted sanctions, including in otherwise eligible countries. The Degrees Initiative will only consider proposals that can be supported within the limits of applicable sanctions from the United Nations, United Kingdom, and United States of America.
- To create a level playing field for applications and to encourage capacity-building in the Global South, Degrees will not consider applications that have established SRM experts from the Global North as team members. Teams will be connected with their research collaborators after DECIMALS grants have been awarded.
- Funding is only available for modelling or analysis of physical climate change or any climate impact, such as agriculture, ecosystems or water resources. There will be a separate call for proposals for research in the social sciences.

Review process

A review panel will make final decisions on the projects that will be funded, and its decisions will be informed by an independent peer review process, with applications evaluated against the following criteria:

1. A well-developed research question and suitable research methods. Does the proposal aim to answer a clearly defined and important scientific question? To what extent is the proposed research designed to return new, interesting or useful knowledge? Will the experimental design answer the research questions posed?
2. Research team experience and knowledge. Do the applicants have the necessary experience and capacity to carry out the project, and have they demonstrated expertise in the proposed research methods? A history of publication in international peer-reviewed/ISI indexed journals is an asset.
3. Project feasibility. Are the proposed time frame and staffing levels likely to produce high quality research? Does the project have a clear and appropriate management plan and are the resources requested appropriate and justified?
4. Benefits to the country and region. Has the application made a strong case for how the research will inform discussions of SRM in their country or regions? Is the proposed topic of study important? Will the project help local stakeholders better evaluate SRM? Research projects that explore impacts that affect lives and livelihoods (which could be anything from rainfall to temperatures to agriculture to biodiversity to heatwaves) are likely to score higher than projects that explore, for instance, only the physical processes that underlie climate impacts.

Notification of decision

The review committee will meet in September and notification of the results will be made shortly afterwards upon approval by the Trustees of the Degrees Initiative. Applicants shortlisted for a grant will receive a conditional grant offer letter addressed to the principal investigator and their head of institution and undergo a due diligence process. Shortlisted applicants that meet the due diligence requirements will then be officially awarded upon signature of a grant agreement.

How to apply

- Complete the electronic application form available [here](#), before 23:59 on 15 July 2022 (Central European Time).
- Each scientist named in an application should provide a copy of their passport or ID card and a CV with their full list of publications.
- A researcher may only submit one application as principal investigator for this call. There are no limits to the number of proposals on which a researcher is listed in other roles.
- Incomplete applications cannot be considered.
- Each applicant will receive an automated email to acknowledge receipt of an application. If you do not receive such acknowledgment within 24 hours, please contact us at grants@degrees.ngo