EARTH SYSTEMS SCIENCE RESEARCH PROGRAMME (ESSRP)

KNOWLDGE ADVANCEMENT & SUPPORT (KAS)

Framework Document and Funding Guide

January 2024

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SECTION 1 – EARTH SYSTEMS SCIENCE RESEARCH PROGRAMME DESCRIPTION AND CONTEXT

Earth Systems Science Research Programme (ESSRP) within the ambit of the Global Change Research Plan

1. Description

South Africa is a country facing a complex set of developmental challenges and opportunities. Amongst the most pressing are achieving equity, equality and human well-being in the context of a sustainable environment, as laid out in South Africa's National Development Plan. This includes fundamental issues of extending water, energy and food security to all of South Africa's citizens; the pursuit of sustainable, socio-economic development that is socially just; and the creation and enhancement of equitable governance and sound institutions to govern such 'just transitions'. The achievement of these sustainable development aspirations is linked to approaches dealing with global change challenges, as reflected repeatedly in South Africa's National Development Plan. These include the issues of climate change, ecological change and degradation, and ever-increasing extractive pressures on environmental resources and ecosystems, both terrestrial and marine, as well as the wellbeing of society under conditions of urbanisation and population growth.

As a consequence of the increasing pressures driven by global change, South Africa faces the urgent priority of training a new generation of scientists who will support decision makers through undertaking excellent and appropriate global change research, and guiding the implementation of responses advanced by the best available science. Skills development in global change science also promises to unlock a wide variety of further capacity building benefits for the country and the broader economy, including complex systems numerical analysis and modelling, and technological innovation based on robotics and remote sensing that relies on innovation with many national and international uses opportunities. These developments are also often linked to strides in communications and data transfer, which underpin modern economic growth and are creating new jobs around the world.

While strongly focused on local opportunities and challenges, South African science policy decision makers are mindful of international policy developments in the global change arena. These would include international multilateral agreements such as the now ratified Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC), and South Africa's global commitments relating to climate change, the Sendai Framework (relating to disaster risk), many emerging urban agendas like Habitat for Humanity, and overarching global sustainability goals such as the comprehensive Sustainable Development Goals (SDGs). Recent international political developments show that multilateral agreements and institutions such as these may play a critical role in helping to maintain international cooperative action on the environmental issues that increasingly threaten the very fabric of modern human society at all levels from global to local.

Fundamental science to support all these interlinked national and international policy developments is well positioned under the general theme of global change research. Indeed, the trans-disciplinary approaches required to support such international policy trends has been strengthened recently through the establishment of the international research framework entitled "Future Earth", which amalgamates the previously distinct specialized Programmes of the International Geosphere Biosphere Programme (IGBP);

International Human Dimensions Programme (IHDP), and the international Programme on biological diversity (Diversitas), with the World Meteorological Organisation (WMO) acting as an observer.

The 10-year Global Change Research Plan (GCRP), adopted by the Department of Science and Technology (DSI) in 2008, provides a broad framework for undertaking global change research in South Africa that can help address some of these issues facing the country. This Programme anticipated the amalgamation internationally of specialized science Programmes mentioned above, in attempting to set out a coherent framework for both specialized and trans-disciplinary research. The world has, however, changed rapidly from the time of the development of the 10-year plan, with a highly fluid international scene resulting from political shifts, some of which may even be attributable to adverse global change impacts on nations.

This has stimulated the DSI and the National Research Foundation (NRF), through the Global Change Science Committee, to draft a document that provokes a debate on how to strengthen South Africa's efforts in Earth Systems Science (ESS) through the vehicle of a coordinated Programme. This effort should draw on the relevant elements of the Global Change Grand Challenge, and position the Programme as both a fundamental science and policy supporting research instrument that is relevant in an ever-evolving geo-political and environmentally shifting world.

An updated plan should not only take into account the shifting landscapes mentioned above, but also remain focused on furthering the effort to harness the extraordinary and comparative geographical advantage presented by our country. This would include being located at the southern tip of the African continent and surrounded by the oceans that play a crucial role in regional and global climate, possessing a rich biodiversity, contrasting climate systems and the array of socio-economic development challenges and opportunities locally, regionally and internationally.

South Africa's comparative advantage lies particularly in its access to ocean systems that are increasingly deeply influencing regional and global climate, and carbon and energy balances. South Africa already plays a key role in long term globally coordinated observations of the ocean climate variables.

This geographical advantage allows South Africa to position itself as a preferred destination for global international research in global change, and further enhances its reputation and leadership in the field.

The plan has two clear domains which it seeks to both explore and to integrate, namely– bio-physical (ESS focus) and the social domain including socio-economic, socio-ecological, socio-cultural contexts (in essence a broad sustainability and 'systems' science focus). This framework seeks to stimulate the consolidation and refocus on mainly biophysical ESS questions A parallel process aims at developing a related focus on global change science and society.

2. Rationale

Global change is universally recognised as a complex challenge to the well-being of societies and the environment. The development and spread of technology seeking to advance socio-economic development now affects the fundamental functioning of this planet. The consequences and implications are, however, hard to predict. The observed impacts on the global climate and the biosphere are wide-

ranging and has adverse effects on socio-economic well-being. Environmental change, driven by both natural and socio-economic drivers of change, is also undermining the resilience of the natural world, and reducing its capacity to support human quality of life. These impacts are often felt by the poorest in society, with emerging, developing and least developed economies most vulnerable.

Global change is therefore a significant risk to the developing world. The majority of the science being done to understand it however is done in the developed world, and in the Northern Hemisphere. As a result, several global-change related questions of critical importance to emerging and developing economies in the southern hemisphere are not adequately addressed. ESS provides an appropriate framework within which scientific work can be done to provide urgently needed understanding on the biophysical aspects of global change as well as an effective and exciting platform to encourage the youth to train for careers in science and technology.

South Africa also has a particular set of strategic advantages as a geographical base for an Earth System Science Research Programme (ESSRP). These include its geographical position at the southern tip of the African continent with globally important ocean interactions and strong tropical-extratropical regional interactions that drive rainfall and temperature patterns over the country (See Figure 1), strong climatic gradients that underpin its ecology and agricultural economy, extraordinary biodiversity both marine and terrestrial, diverse vegetation structure and faunal composition that is both representative of Africa as a whole, but also unique in Africa, large protected areas conserving the last of the world's major mammal assemblages providing key insights into the ecology of systems before mass extinctions and the rise of the Anthropocene, and an emerging economy in transitions of various kinds. South Africa is also subject to the early impacts of global climate change that appear to be interacting with natural long term climate variability that has been an historical feature impinging upon this region. Equally important is that South Africa boasts world class research and academic institutions that have made significant contribution to advancing our understanding of the earth system. Taken together, these features offer almost unparalleled opportunities for contributing to knowledge advances in ESS that will be beneficial both nationally and internationally.

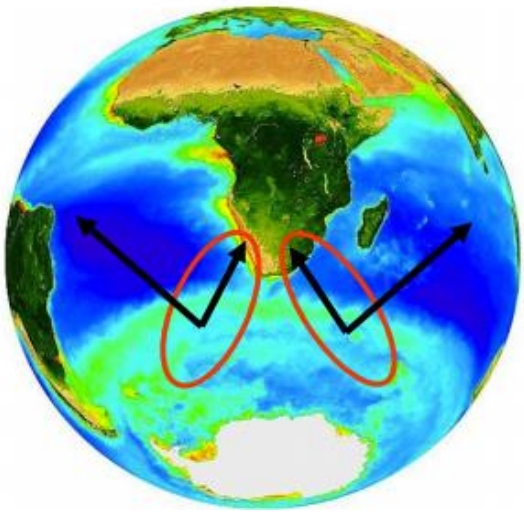

Figure 1: South Africa is located at the tip of the African continent, adjacent to ocean bodies that influence global climate patterns and atmospheric greenhouse gas concentrations in unique ways, from ACCESS website.

The attraction of South Africa as a base for global change research is not only due to biophysical factors but also the inherent vulnerability to global change has important socio-economic aspects. South Africa provides a valuable case study as an emerging economy in transition, interacting with and influenced by global change impacts. Thus scientific questions about global change in an emerging economy like South Africa's should be shaped both by the need for better biophysical and socio-economic understanding, and also the need to identify and implement the appropriate policies and practices. Who ultimately makes such decisions and based on what knowledge are critical questions that must be interrogated.

3. Aim and Objectives

3.1 General Aim

To provide a framework for research support in ESS research that pursues fundamental and integrated systems perspectives on global change, located largely in the biophysical sciences, but informed by the socio-economic and social-ecological research spheres.

3.2 Specific Objectives of the ESSRP

- To provide a coherent and identifiable base for thought leadership in ESS, that addresses key questions in the field;
- To improve the continuity, coordination and coherence of efforts in ESS for global change research and towards national socio-economic benefits;
- To facilitate the development of observation infrastructure and modelling capacity as a key component of sustained global change research;
- To facilitate cooperation and collaboration among individuals and entities engaged in global change research both locally and internationally focusing on both current and existing future areas of investment;
- To facilitate the integration generally of ESS research in global change and, specifically modelling frameworks, and their implementation;
- To systematize information about the diverse efforts in ESS research in global change in South Africa, and the evolving national and international risks, and facilitate its access to a wide range of users and decision makers nationally and internationally.

3.3 Science/research objectives

To generate new knowledge and understanding about:

- Oceanographic, atmospheric and terrestrial biophysical changes, their interactive effects on earth system components and processes in southern Africa, and the key biophysical feedbacks (systemic behaviour).
- Critical changes and tipping points for climate, and terrestrial and ocean ecosystems and biodiversity in the southern African region, including paleo-climatic to potential future states of the

earth system (systemic resilience and vulnerability), and potential societal impact, and accompanying adaptation and/or mitigation approaches.

- The role of either sub-decadal to decadal scale climate variability, as well as longer-term global change trends in shaping the biosphere and affecting interactions between the biosphere (including its biogeochemical processes) and the provisioning of ecosystem goods and services (systemic variability).
- The links between climate and earth system processes (trends and cycles and their impacts).
- The links between variability in climate change and earth system processes at sub-decadal, decadal and longer-term time scales (extremes and frequency of occurrence).
- The exploration and development of novel and innovative means of using new knowledge for policy, impact, practice and regulation (fostering links to policy and decision-making) while prioritising societal impact.

3.4 Education & training objectives

These objectives seek to:

- Contribute to the development of research capacity in South Africa through formal, post-graduate and non-formal education and training of earth systems scientists;
- Contribute to the transformation of the earth systems science research community specifically and that of the global change community generally in South Africa, in respect of race, gender and age;
- Contribute to improving the research capacity of Historically Black Universities (HBUs) and/or rural universities in South Africa, and their collaboration and participation in the field.

3.5 Criteria for responding to the GCSSRP call

- While **Transdisciplinary** is a priority, proposals should be informed by the earth and natural sciences and should be led by researchers from these disciplines, but should include non -academic stakeholders as well.
- Each proposal should address one or more objectives from section 3.3 and should focus on global change research that contributes to impact, especially looking at broader societal benefit and must elaborate how this will happen within the context of the project.
- There should be an explicit commitment, with outlined approaches, for supporting capacity of early career researchers to participate fully in the project.
- Knowledge production within the context of the project should extend beyond the writing of academic papers only, and should consider at least one or more additional mode of knowledge co-production and sharing within academic and non-academic stakeholders/or participants.

4. NRF and DSI perspectives

The ESSRP is a research programme located within the Global Change Grand Challenge (GCGC) and provides opportunities for targeted research grants and human capital development through student support. This is in line with the NRF's Strategy 2020 which envisages the following for South Africa:

- World-class research;
- Transformed society; and
- Sustainable environment.

The Global Change Grand Challenge GCGC was identified in the 10-year Innovation Plan (TYIP) as one of

the five strategic areas of focus that would set the country on a transition to a knowledge economy. It seeks to optimize socio-economic benefits through improving scientific understanding of global change, developing technological innovations to address global environmental change, and bridging the science-policy-practice divide. The DSI is responsible for creating enabling environment, in terms of policy and strategy, while the NRF is responsible for programme development and research management, including creating appropriate instruments to support the implementation of research programmers and initiatives.

The ESSRP framework document is intended to:

- coordinate and fund ESSRP research managed by the NRF;
- guide the call for proposals to ensure inter-operability of funded sub-projects
- ensure that outcomes are coordinated and applied where appropriate

5. Institutional arrangement for implementation

The Knowledge Advancement & Support (KAS) directorate through the Global Change Project Management Unit (PMU is responsible for the overall management and strategic alignment of the ESSR programme. The Reviews and Evaluation directorate is responsible for the review processes up to the recommendations of awards, with the Grant Management and Systems Administration (GMSA) Directorate responsible for placing of funding calls, managing the application submission process, disbursement of grant funds and ensuring adherence to the conditions of the grant.

6. Information sources

- Finalised and approved Earth System Science Research Programme Concept Note (available on request from Jonathan Diederiks (CJ.Diederiks@risa.nrf.ac.za)
- DSI Decal Plan (available on request from Jonathan Diederiks (CJ.Diederiks@risa.nrf.ac.za)
- National Research and Development Strategy (2025). https://www.nrf.ac.za/about-us/plans-reports/
- DSI White Paper on Science Technology and Innovation
  https://www.dst.gov.za/images/2019/White_paper_web_copyv1.pdf

SECTION 2: GUIDE TO THE CALL

This 2024/25 Call for the ESSRP proposals invites applications that address and respond to:

1. Focus areas

It is a targeted call for **transdisciplinary** research focussed on the following themes as identified within the ESS Concept Document as approved by DSI in February 2018, primarily addressing the following:

- Sources and consequences of climate change and variability at all time scales (fostering linkages where relevant with other relevant projects and/or initiatives);
- Building a predictive understanding of societally relevant linkages and feedbacks between land, ocean, atmosphere and climate (fostering links with MARS strategy and SANAP Programmes where

relevant);

- Direct effects of rising atmospheric CO_2 and other anthropogenic pollutants on marine and terrestrial ecosystems and biodiversity, and biophysical processes
- Quantifying trends in and developing a predictive understanding of ocean and terrestrial greenhouse gas fluxes, sources and sinks (fostering links with SAEON and EFTEON infrastructure where appropriate and feasible) ;
- Environmental risks of geo-engineering solutions for carbon sequestration or planetary albedo management;
- Trends in and consequences of ecosystem transformation and utilization for terrestrial and marine ecosystems, including their biodiversity;
- Hydrological and other relevant consequences of land cover change, ecosystem transformation and utilization and climatic change in terrestrial ecosystems;
- Impacts of climate change mitigation and adaptation programmes on southern African ecosystems and societies, including the impact of adaptation options such as water management, intensification of agriculture etc.;
- Relationships between biodiversity and ecosystem resilience, and relevant links to human society (fostering links with the Foundational Information for Biodiversity Programme where appropriate)

Although this funding instrument is unique, it is part and parcel of instruments, programmes and initiatives like ACCESS; FBIP; and others that support and address the Global Change Grand Challenge. It is the DSI and NRF aim to ensure that more researchers participate in the various programmes of the Grand Challenge and at the same time expand the areas of focus of research in the grand challenge. Therefore, quality applications that include and or from newer partnerships/collaborations and approaches to the field will be encouraged and more favourably considered for support

Failure to adhere to these specifications and those subsequently mentioned in this framework will render the application unsuccessful.

2. Call for proposals

- The ESSRP invites applicants to submit proposals for the three-year funding;
- Successful applicants will have their proposal funded for three years (2025 - 2027);
- All application materials *must* be submitted electronically via the NRF's Submission system at https://nrfconnect.nrf.ac.za/
- All applications *must* be endorsed by the Designated Authority at the research office or equivalent of the principal investigator's institution before submission to the NRF;
- It is the responsibility of each applicant to familiarise himself / herself with the internal closing dates set by their institution in order to meet the NRF closing date.
- Incomplete or late submissions *will not* be accepted, and without exception will be rejected without review.
- As indicated above: Although this funding instrument is unique, it is part and parcel of instruments, programmes and initiatives like ACCESS; FBIP; RVSC's, GCSSRP; and others that support and address the Global Change Research Plan (GCRP) portfolio. It is the DSI and NRF aim to ensure that more researchers participate in the various programmes of the Grand Challenge and at the same time expand the areas of focus of research in the grand challenge. Therefore, quality

applications that include and or from newer partnerships/collaborations and approaches to the field will be encouraged and more favourably considered for support

Call opens: 01 February 2024

Call closes: 15 April 2024

REFER ALL TECHNICAL QUERIES TO:	REFER ALL OTHER QUERIES TO:
SUPPORT DESK **012 481 4202** **Supportdesk@nrf.ac.za**	**Jonathan Diederiks** **Director : Global Change, NRF** **012 481 4104** **CJ.Diederiks@risa.nrf.ac.za** **Kelebogile Pule** **Administrative Assistant: Global Change, NRF** **012 481 4318** **K.Pule@risa.nrf.ac.za**

2.1 Required documentation:

- Completed online application form (see Appendix 1A: Guidelines to proposals).
- Letters from all team members (co-investigators and collaborators) confirming their participation and role in the proposed knowledge production process (to be attached as attachments in online application).

2.2 Eligibility & Selection Criteria

This instrument is suitable for Universities, Science Councils and research agencies of government. Partnerships among individual researchers representing targeted institutions are required. Only researchers at NRF recognised research institutions in South Africa are eligible to apply as a principal investigator. Please note that post-doctoral fellows, students, technical and support staff are not eligible to apply. **Most importantly:** Funding will only be provided by the NRF through legally binding agreements to organisations/institutions that are recognised as legal entities in South Africa and that can illustrate proof of financial accountability (e.g. financial reports).

2.3 Application screening

All applications validated by the appropriate designated authority of the institution and submitted before deadline to the NRF via the NRF's Submission system at https://nrfconnect.nrf.ac.za, are screened by the NRF for compliance with the eligibility criteria and online application requirements. All eligible and appropriately completed applications are subjected to assessment as detailed in section 4.5 below.

2.4 Application assessment

All eligible and appropriately completed applications are subjected to a competitive review process. The assessment of applications will be the quality of the proposal, as well as by the logistics and environmental feasibility.

3. Proposal requirements (A guideline for proposals and an assessment scheme is provided in Appendixes 1A, 1B and 2)

- All proposals must demonstrate the relationship and contribution to further development of the research identified in the Earth Systems Science Concept Note.
- While a clear articulation of the relationship that the proposed research work will have and will make on other relevant research investments while the contribution it will deliver to policy and regularity practice expressed in relevant documentation will be an advantage.
- All proposals must explicitly state the relevance and/or implications of the proposed research on social development (broadly defined) whether scientific or societal in scope.
- For these applications the core research team consists of a principal investigator (i.e. applicant) and one or more co-investigator(s). The project may also include research associates / collaborators. The research team structure rules are described under point 4 below.
- Funding will only be allocated to projects involving at least 3 target institutions, but teams must be led by an identified principle investigator. Funds will be made to a recognised research institution under the name of the principle investigator and his/her institution who will allocate part of the grant to team member institutions as per NRF conditions of grant.
- Projects must include a collaborative team from a minimum of three institutions, the participation of at least one HBU in the team is a requirement.
- Project teams must include at least 4 emerging researchers (younger than 40 at the time of application) and ensure adequate mentorship and involvement as necessary.
- Projects must include postgraduate training (30% min of total funding, which will be administered by the NRF).
- The funding of technical expertise cannot exceed 40% of the proposal budget.
- Projects must identify specific users of the knowledge and information generated.
- The transdisciplinary nature of the proposed work must be explicit and must include academic and non-academic stakeholders.
- Projects must clearly state the impact of the project on understanding and adaptation/mitigation of global change.
- Projects must be demonstrably and explicitly aligned with one of the focus areas identified (See 1 above).
- Researchers with existing NRF grants cannot apply as the PI.
- Projects should where possible demonstrate the use other research calls as leverage for their proposed research and budget.
- Successful applicants must sign the NRF Conditions of Grant (COG) agreement as specified in the

attachments to the award letter. This will include reporting commitments, financial accounting procedures among others.

4. Project team composition and project design

The following eligibility criteria are applicable in respect of the project team composition and project design. The core research/knowledge generation team may consists of a principal investigator and co-investigator(s) and collaborator(s).

- The **PRINCIPAL INVESTIGATOR** (i.e. the applicant) must be an active academic researcher who takes intellectual responsibility for the conception of the project, its strategic decision and the communication of results. S/he will also take responsibility for managing and administering resources allocated to the project. Such a person must have the capacity to make serious commitment to the project and cannot assume the role of a supplier of resources for work that will largely be placed in the hands of others.

- A **CO-INVESTIGATOR(S)** is an active academic researcher who provides significant commitment, intellectual input and the relevant expertise into the design and implementation of the knowledge production process and application, and will be involved in, all or at least some well-defined knowledge production activities within the scope of the proposal.

- **COLLABORATORS** are individuals or groups who are anticipated to make relatively small but meaningful contribution(s) to the knowledge production endeavours outlined in the proposal.
    - Post-doctoral fellows, students, technical and support staff may NOT be listed as principal OR co-investigators.

5. Timelines

The ESSRP grants will be awarded over a period of three years. Successful grantees who wish to apply for further funding after the completion of a three-year funding cycle MUST submit new applications. All applications will be assessed on a competitive basis. The ESSRP funding cannot be automatically renewed or extended. Preferential treatment will not be given to those who have previously received NRF funding.

6. Management of the ESSRP Funding

The GCSSRP programme is managed via the Global Change Programme of the NRF. The Knowledge Advancement & Support (KAS) Directorate of the NRF manages the GCSSRP programme and is primarily responsible for:

- Strategic oversight and management of the programme;
- Coordinating and facilitating activities of the programme funding;
- Compiling funding instrument research and evaluation reports;
- Stakeholder engagement; and
- Ensuring that the funding instrument delivers on its intended goal(s).

7. Financials

7.1 Funding model

The ESSRP funding is made possible through ring-fenced funds as part of the larger Global Change Research Plan (GCRP) from the Department of Science and Technology (DSI).

7.2 Funding ranges

Proposals up to a maximum of R6 000 000 can be considered for an ESSRP grant award distributed over 3 years (R6 million over 3 years, i.e.: R2 million a year). Prudent and efficient budgeting is advised and expected.

7.3 Project funding

Project Funding will be awarded to successful applicants for a period of three years. Successful applicants who wish to apply for further funding after the completion of a three-year funding cycle **must** submit new applications. These applications will be assessed on a competitive basis, there is **no** automatic renewal or extension of funding and **no** preferential treatment will be given to those who have previously received NRF funding. Please note that the funding of technical expertise cannot exceed 40% of the proposal budget and at least 30% should be allocated to student (M and PhD) support.

7.4 Postgraduate student support

The National Research Foundation (NRF) has developed a new Postgraduate Student Funding Policy that will use postgraduate student funding as a lever to address the challenges of inequity of access, success and throughput. The policy is underpinned by the pursuit of research excellence in all of its dimensions and has transformation of the postgraduate cohort as the core objective. Its purpose is to retain high academic achievers in the system to pursue postgraduate studies up to the doctoral level, as part of a national drive to grow the next generation of academics to sustain South Africa's knowledge enterprise. The NRF is prioritising postgraduate students with research inclination, with the aim to grow the pool of early career researchers. Another motivation for this policy is to fast-track the development of postgraduate students in high-impact, priority and vulnerable disciplines critical for national socio-economic development.

All the postgraduate students will be expected to apply on the NRF Online Submission System by accessing the link: https://nrfconnect.nrf.ac.za/. This single entry point will allow the NRF to co-ordinate the applications that have not yet had the financial means test conducted, this financial means test will be conducted by Ikusasa Students Financial Aid Programme (ISFAP). Postgraduate students will be funded either at Full Cost of Study (FCS) or Partial Cost of Study (PCS) under the new policy. To ensure equity of access to postgraduate studies, financially needy students (i.e., those whose combined household income is R350 000 per annum or less) and students with a disability will be funded at FCS. Academic high fliers achieving a distinction or first-class pass will also be eligible for funding at FCS. International students as well as any other South African student who is not eligible to be funded at FCS will be eligible for PCS funding.

The students are expected to meet the NRF minimum entry requirement in order to be eligible for FCS or PCS as illustrated in Table 1 below.

Table 1: Eligibility criteria for NRF postgraduate funding for FCS and PCS

<table>
<tr><th rowspan="2">Study Level</th><th colspan="2">Full Cost of Study

(South African Citizens and Permanent Residents only)</th><th>Partial Cost of Study

(South African Citizens; South African Permanent Residents and 5% Non-South African Citizens)</th></tr>
<tr><th>Exceptional Achievers</th><th>Financially Needy & Students with Disability</th><th>Other</th></tr>
<tr><td rowspan="2">Honours</td><td>• ≥ 75% Mark in Final Year of study</td><td>• ≥ 65% Mark in Final Year of study</td><td>• ≥ 65% Mark in Final Year of study</td></tr>
<tr><td colspan="3">Honours students must be 28 years of age or younger in the year of application.
Non South African Citizens are not eligible for Honours Scholarships.</td></tr>
<tr><td rowspan="2">Masters</td><td>• ≥ 75% Mark for Honours
• Completed Honours in one year</td><td>• ≥ 65% Mark for Honours
• Completed Honours in one year</td><td>• ≥ 65% Mark for Honours
• Completed Honours in one year</td></tr>
<tr><td colspan="3">Masters students must be 30 years of age or younger in the year of application.</td></tr>
<tr><td rowspan="2">Doctoral</td><td>• ≥ 75% Mark for Masters
• Completed Masters in two years</td><td>• ≥ 65% Mark for Masters
• Completed Masters in two years</td><td>• ≥ 65% Mark for Masters
• Completed Masters in two years</td></tr>
<tr><td colspan="3">Doctoral students must be 32 years of age or younger in the year of application.</td></tr>
</table>

In cases where a grade is not indicated, the application will not be considered for funding by the NRF.

The NRF will allocates all postgraduate bursaries under its management control as follows:

- 95% South African citizens and permanent residents;
- 5% students from SADC countries and from the rest of the world; and
- 55% women.

The NRF disaggregates these targets for South African citizens and permanent residents as follows:

- 90% Black (African, Coloured, and Indian);
- 10% White; and
- 1% students living with a disability.

For further details on the NRF Postgraduate Funding policy, kindly refer to the framework document which is available on www.nrf.ac.za

7.5 Financial control and reporting

These grants are to be used for the purposes of GCSSRP and human capital development under the auspices of the NRF grant and finance policies. The funds are released on acceptance of the conditions of grant both by the applicant and his/her employing/affiliated institution.

The funds will be awarded against a number of items such as equipment, running costs, travel costs, staff development, etc.

Successful applicants will be expected to provide a written annual Progress Report (PR) in order for the NRF to ensure that the objectives of proposed knowledge production are met. The PR will address specific indicators as prescribed by the NRF. The submission of the reports is a prerequisite for the release of the subsequent year's funding. These grants will fall under the NRF audit requirements for beneficiary institutions.

7.6 Access to research outputs/ achievements

Research outputs must be reported on request and will be made available in the format of data citation which will include:

- Summary of research project
- Creator(s)/Authors
- Publication/production Year
- Title of dataset/ research paper
- Publisher/producer
- Location

Datasets will be made available subject to copyright and Intellectual Property Rights.

8. ACRONYMNS

DSI	Department of Science and Technology
EFTEON	Expanded Freshwater & Terrestrial Environmental Observation Network
ESSRP	Earth Systems Science Research Programme
GCGC	Global Change Grand Challenge
GCRP	Global Change Research Plan
GMSA	Grant Management and Systems Administration
HBU	Historically Black Universities
IGBP	International Geosphere Biosphere Programme
IHDP	International Human Dimensions Programme
KAS	Knowledge Fields Advancement & Support
KPI	Key Performance Indicator
MTEF	Medium-Term Expenditure Framework
NRF	National Research Foundation
NSI	National System of Innovation
RE	Reviews and Evaluation
RISA	Research and Innovation Support and Advancement
SAEON	South African Earth Observation Network
SDG	Sustainable Development Goals
SARIR	South. African Research Infrastructure Roadmap

SOCCO	Southern Ocean Carbon & Climate Observatory
UNFCCC	United Nations Framework Convention on Climate Change
WMO	World Meteorological Organisation

Appendix 1A: Guideline for proposals

1. Working title of the project
2. Name, position, institution and contact details of PI
3. Name(s), position(s), institution and contact details of co-PI(s)
4. Name(s), position(s), institution and contact details of collaborators
5. List of participating institutions
6. Comprehensive list of project team members
7. Science content abstract (200 words)
8. Relevance and impact abstract (200 words)
9. Human Capacity Development abstract (200 words)
10. Science content • Problem statement / introduction (≤ 1000 words, excluding figures and references) • Strategic orientation in relation to this call for proposals (≤ 500 words) • Approach (and structure of proposal if appropriate) (≤ 1000 words, excluding figures and references) • Key research questions (≤ 500 words) • Activities in relation to research questions and key personnel involved • Data acquisition requirements (including existing data and new observation and acquisitions anticipated) • Outputs planned (≤ 500 words) • Please provide a Gantt chart of activities • Please provide a set of up to five objectively verifiable indicators for assessment of success of the planned research.
11. Research relevance and impact • How is this research relevant and to whom? (refer to recommended documentation) (≤ 500 words) • What contribution will it make scientifically and/or socially? (≤ 500 words) • Outcomes anticipated (≤ 1000 words) • Pathway to impact (how will this research be utilized and by whom) (≤ 1000 words) with appropriate objectively verifiable indicators for assessment of success.
12. Human Capital Development (HCD) • What particular area of HCD will be developed /augmented in the project? (≤ 500 words) • How many post-graduates, and at what level, will be engaged in the project at which institutions (including co-supervision from collaborators)? – Please provide a table. • What (if any) training workshops and other related training activities are planned • Please provide a set of up to three objectively verifiable indicators for assessment of success of the planned HCD activities.
13. Funding requirements (see appendix 2) 14. Summary of financial requirements 15. Please tabulate the funding requirements for each of the three years respectively. Please include: 16. capital equipment required (item and costs)[1]

17. small equipment requirements (item and costs)
18. consumables
19. field costs
20. travel costs

- Bursaries (excluding running costs included above)
- Personnel costs[2]
- Justification of budget (narrative, explanation of budget items where required)
- Funding leverage
- Please account for any in-kind contributions to the project (salary costs, equipment and facilities to be used)
- Co-funding from any source

[1]The programme cannot fund substantial capital equipment costs but can attempt to leverage funding

[2]Personal costs will only be available to non-salaried staff or staff of institutions that operate on a cost-recovery model. Short term co-funding of technical staff is also eligible for funding. No funding for administrative support will be permitted.

Appendix 1B: Full Proposal Assessment Scheme

Qualification	
• On time and complete	Qualified or Disqualified
• Eligibility and Requirements as in 4.4, 4.5 and 4.6	Qualified or Disqualified or exception granted
• Budget requirements met	Qualified or Disqualified
Content Assessment For range 1-6: 6 = Perfect 5 = Convincing 4 = Somewhat convincing 3 = Not convincing 2 = Poor 1 = Nonsense	For range 1-10: 10 = Perfect 9 = Almost perfect 8 = Convincing 7 = Almost convincing 6 = Moderately convincing 5 = 50/50 4 = Not convincing 3 = Poor 2 = Very poor 1 = Nonsense
1. Science content (30%)	
Fit to call	x/6
Feasibility and veracity of approach and planned activities	x/6
Veracity of Outputs planned	x/6
Role of partners defined	x/6
Suitable science assessment OVIs supplied	x/6
	Total X / 30
2. Research relevance and impact (30%)	
Reference to source material	x/6
Veracity of relevance argument	x/6
Validity of outcomes planned	x/6
Reasonable pathway to impact	x/6
Suitable impact OVIs supplied	x/6
	Total X/ 30
3. Human Capital Development (HCD) (30%)	
Veracity of HCD narrative	x/10
HCD requirements met	x/10
Suitable HCD OVIs supplied	x/10
	Total x / 30
4. Budget (10%)	
Budget requirements met	x/10
Feasibility of the budget	x/10
Veracity of budget justification	x/10
	Total X / 30 (Contribution X/3)

Appendix 2: Funding allocation guidelines

a. Knowledge production-related operating costs

Costs for materials and supplies, travel (including conferences) and subsistence, equipment and technical/ad hoc assistance and sabbaticals to other organizations and institutions of higher learning, may be included within the context of the project application. These costs should be justified and commensurate with the planned outputs, as they will be assessed on the criteria provided in the framework. The amount awarded within this framework can be used at the discretion of the applicant.

b. Materials and supplies

Generally (except if central to the knowledge production process itself or if the knowledge producers are based at organizations / institutions which are not state-funded), the NRF does not provide financial support for:

- Basic work supplies including stationery, photocopying and printing costs
- Journal publication costs, journal subscription costs, book costs.
- Telephone, fax and internet costs

c. Travel and subsistence

- International conference attendance: Generally the NRF restricts this amount to R25, 000 per person to a maximum of R50, 000 per application per year for a team proposal, i.e. for principal investigators and co-investigators (local only). The NRF does not pay for students to attend international conferences.
- International visits: These will be considered on a case by case basis. Such visits must be integral to the knowledge production plan and strong motivations should accompany these requests. Realistic funding allocations will be based on the requested activities. Only outgoing visits will be considered depending on the availability of funding.
- Local conference attendance: Generally the NRF restricts expenditure against this item to R4000 per person (all costs). Support for local conference attendance could be requested for all listed co-investigators and postgraduate students. The applicant should motivate for:
  - The benefits to attend more than one local conference per annum if so requested
  - The number of people that should be funded to attend local conferences.
- Local travel: The NRF does not stipulate any rate for mileage as this will depend on the rate which varies per institution/organisation. Applicants are requested to provide details of this rate as well as the estimated distance to be travelled within the given year.
- Local accommodation costs should not exceed R700 per night per person.

d. Technical / ad hoc assistants/ professional costs

- *This funding instrument does not provide funding for the salaries of the team members if they are based at organisations/institutions where the salaries are state funded. In cases where the salaries are not state funded, the total salary amount for all team members will be limited to up to 35% of the overall grant amount. A strong motivation for the salary component must accompany the request.*
- *The NRF would encourage applicants to engage students to undertake the knowledge production rather than employing consultants. This guideline however does not apply when specific and/or highly specialized*

technical expertise is required. This should be CLEARLY motivated for in the proposal.

- *Administrative assistance does not qualify under this category.*