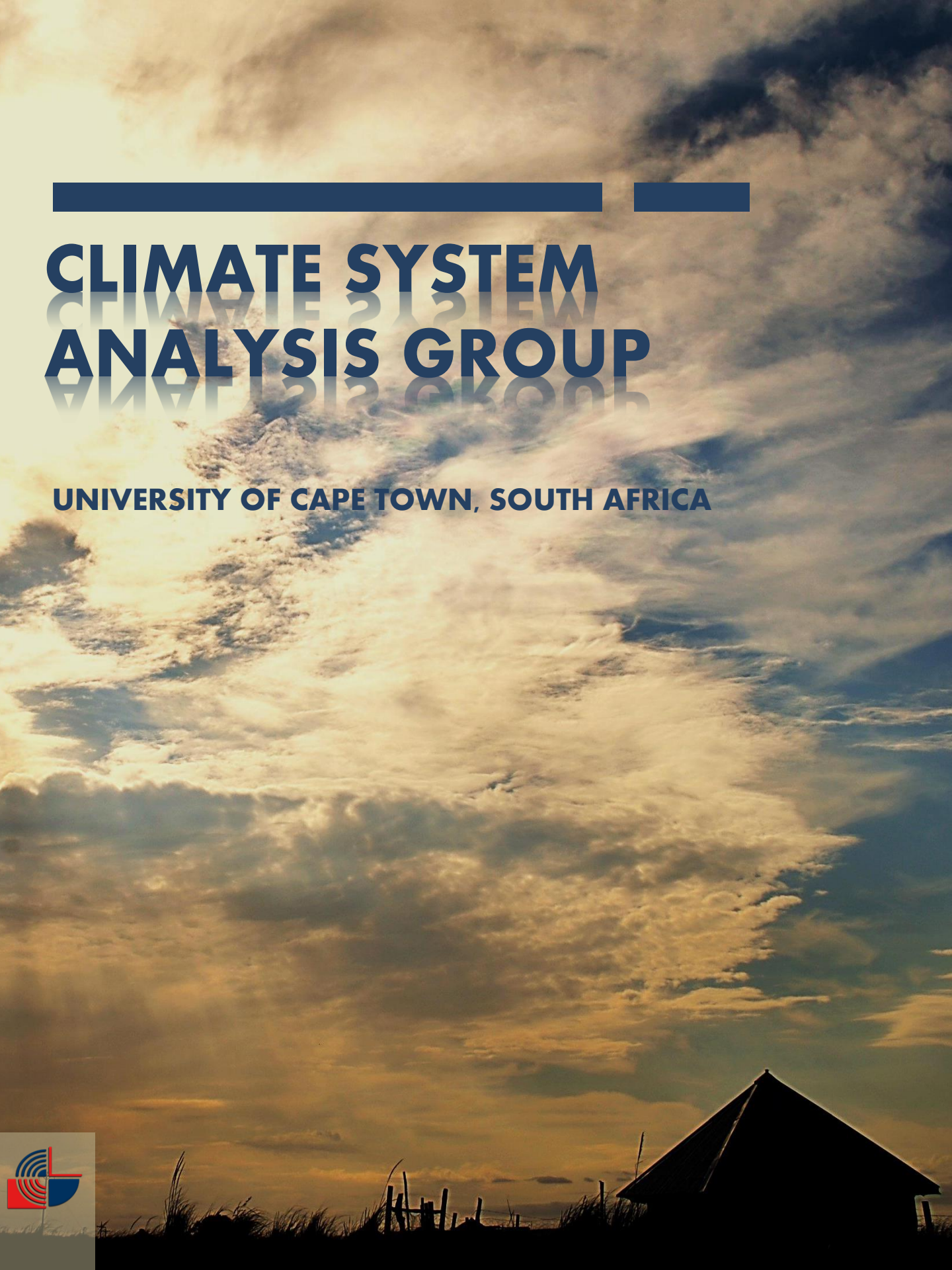
CLIMATE SYSTEM
ANALYSIS GROUP
UNIVERSITY OF CAPE TOWN, SOUTH AFRICA

CONTENTS

ABOUT CSAG

The Climate System Analysis Group (CSAG), based at the University of Cape Town, South Africa, is a multi-disciplinary research group that since its inception in 1992 has been evolving a nuanced strategy for research in Africa.

Blending atmospheric science, climate modelling, and applied climate analysis with multidisciplinary elements of vulnerability, impacts and adaptation science, CSAG offers a unique integration of research relevant to developing nation needs. These resources are coupled with proactive capacity building activities across the continent, and with strategic efforts to bridge the challenges of science-society communication. From these foundations CSAG seeks to apply the core research to meet the knowledge needs of responding to climate variability and change.

CSAG's core disciplinary depth is in climate modelling, but we believe that in order for climate science to be user relevant the users need to be involved from the start in order to inform the development of information for climate change analysis. Thus, we have broadened our expertise to include vulnerability and adaptation application.

CSAG is involved in numerous projects in Africa , specifically targeted at engaging users in aiding development of climate information but also in disseminating climate information in a decision-relevant manner.

Central to our portfolio of activities is the intent to be **relevant** to the knowledge needs of developing nations

MEET THE TEAM

CSAG is comprised of a mix of senior scientists, post-docs, MSc and PhD students, with administrative and IT support staff, backed by the institutional support of the University of cape Town. The members of CSAG have excellent national and international collaborative experience with formal links to a number of foreign institutions, and with senior personnel participating in key international activities, including leading roles within the IPCC.

Bruce Hewitson heads the Climate Systems Analysis Group with foci on climate modelling, variability, change and regional projections. He is extensively engaged with capacity building in Africa and with the communication of regional climate information supporting responses to climate change. He serves numerous roles internationally, including the role of coordinating lead author in the Intergovernmental Panel on Climate Change (IPCC), and currently co-chairs both the IPCC TGICA task group and the World Climate Research Program (WCRP) working group on regional climates. He is a lead coordinator in the WCRP global CORDEX program to develop regional climate projections.

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Dr. Chris Jack
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Chris Jack heads up development of the Climate System Analysis Group's Climate Information Platform as well as being extensively involved in science society interfacing. His background is a mix of computer science and climate science with broad experience ranging from regional and global climate modeling, climate systems analysis, climate change projections and downscaling. He has experience in capacity development and training in Africa having facilitated and contributed to a number of training activities on the continent over the past five years. He is leading several international collaborations with foci ranging from climate data management (NASA JPL) through to supporting climate change adaptation decision making (SEI - Oxford).

Lisa Coop is a researcher within the Climate System Analysis Group. Her responsibilities include the implementation, validation and dissemination of output from the evolving statistical downscaling and historic climate analysis techniques. She is also involved in CSAG's extension services working on a number of research and consulting projects. Lisa received her undergraduate degree (BSc) in Biology, Earth and Environmental Sciences in 2002, her Honours degree (BSc Hons) in Atmospheric Science (2003) and Masters degree in Environmental and Geographical Science (2007) at the University of Cape Town.

Lisa Coop
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Anna has a background in Climate Science but has particular expertise and focus on the impacts of climate change and adaptation to those changes. Anna has recently returned to South Africa after spending five years at the UK Climate Impacts Programme based at Oxford University. The programme developed a reputation for being the world-leader on the development and application of tools to support climate adaptation as well as being a user-led research programme. With this background, Anna brings practical experience on development and application of tools for adaptation in the user community, together with complementary climate science knowledge.

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Ruwani Walawege
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Ruwani completed her MSc in Atmospheric Science at the UCT and now works at CSAG where she focuses on stakeholder engagement and training. Ruwani leads the oraganisation of CSAG's annual Winterschool, a two-week intensive course aimed for mid-career professionals engaged in decision and policy development which may involve issues related to climate change and adaptation. Ruwani has interests in bettering the communication of the vast amounts of climate communication produced at CSAG, and the translation of this information into useful information for various stakeholders. Part of doing this is to provide information that is easily accessible and understandable.

Chris is a regional climate modeller and uses WRF in a number of projects. He also keeps links with the real world through engaging with users of climate information. Chris is involved in a number of projects at CSAG such as the Wind Atlas for South Africa (WASA) project, investigating potential changes in the synoptic drivers of extreme rainfall in South Africa, seasonal forecasting , decadal predictions, and Cordex Africa. In the CORDEX downscaling work Chris uses the WRF model to downscale the ERA-Interim and CMIP 5 GCM data. In addition to this, he is also the co-ordinator for the Cordex-Africa Analysis Project.

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Dr. Peter Johnston
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Working as a project manager within CSAG, Peter managed a DACST-funded project on seasonal climate forecasting and completed his PhD in the process focusing on seasonal forecast information and dissemination for maize farmers. Peter also lectures, supervises and has considerable engagement with the agriculture and water sectors. Peter is currently working with maize and wheat farmers in order to better understand the decision-making processes vis-à-vis climate forecasts. In addition, Peter has been involved with a WRC funded project assessing climate change impacts and adaptation options for agriculture in South Africa.

Babatunde is a member of CSAG as well as a senior lecturer for the Environmental and |Geographical Science Department at the University of Cape Town. He teaches climatology, climate modeling, atmospheric sciences, and a post graduate level research methods course. Babatunde completed his undergraduate studies in Nigeria. From 1997-2003 he moved back and forth between Nigeria and Sweden to earn a PhD in meteorology. After his PhD he did his post-doc at Iowa State where he started working with CSAG. He then came to Cape Town to do his post-doc and began lecturing at UCT.

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Dr. Piotr Wolski
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Piotr uses climate models' output for hydrological analyses in the context of climate change impact assessment, attribution and seasonal forecasting. Piotr uses data programs such as Python, R, ssh, vim and qsub. Piotr's research attempts to figure out how the uncertainties and errors propagate through the various processing steps, and how to extract useful information . By doing so, Piotr bridges surprisingly disparate worlds of climate and hydrological modellers.

Olivier comes from a computer science background and focuses on multiobjective optimisation techniques. Olivier has been involved with agricultural systems and uses crop models to optimise irrigation strategies subject to random historical weather. At CSAG Olivier has coupled this research with climate change issues, and assesses climate change impacts on agriculture in southern Africa, and explores management options to adapt to those changes.

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Phillip Mukwenha
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Phillip completed his undergraduate and postgraduate degree in Zimbabwe at the Midlands State University. In his honours year he specialized in information systems. He then went on to work for the University of Zimbabwe as an Analysis programmer. In 2007, in order to advance his career, he left Zimbabwe and moved to the University of Cape Town where he now manages IT related issues. His responsibilities within CSAG involves desktop management and thus the management of Windows and Linux clients while also installing and updating anti-viruses.

Roger currently works as the systems administrator for CSAG and handles all the technicalities of the computer systems in the department. Currently Roger is building a new cluster of computers for the CSAG department which will allow multiple processing jobs to be done and be used for the running of climate models and massive data storage.

Rodger Duffett
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Kate is a research assistant at CSAG with a background in Zoology. With excellent technical reporting skills and a unique background within CSAG, Kate adds valuable diversity to CSAG. Kate is involved in building climate smart services through a science society interface. Together with her interest in climate change and information sharing, Kate is engaged in the communication and tailoring of the research produced by CSAG to different community needs.

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Dr. Joe Daron
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Joe moved to Cape Town in October 2011 to begin a postdoc in CSAG researching the use of climate information for decision making within a developing country context. How society uses climate science to make decisions regarding mitigation and adaptation is a complex and often confusing subject, which is what makes it so interesting. Joe did his PhD at the London School of Economics where he was able to explore this subject in preparation of his thesis titled, "Examining the decision-relevance of climate model information for the insurance industry". Joe has interests in the fundamental predictability of climate under climate change in relation to chaos and nonlinear dynamics theory.

Ross joined the CSAG team at the end of 2012 after his postgraduate studies. His primary responsibilities are to support the group by providing a thorough analysis of historical and current climate, using various methods and data sources. His background in convective systems, ocean-atmosphere interactions, and climate variability compliment the current research undertaken within the group.

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WHAT WE DO

As a leading climate research group in Africa, CSAG is uniquely positioned to target the critical knowledge needs of the region. CSAG focuses on the generation of robust, relevant, regional climate change information, while advancing our understanding of the coupled climate system. In collaboration with users, CSAG develops products to better address needs and support the research activities of other disciplines. CSAG does this in two ways, firstly through numerous research projects, and secondly through our climate consultancy services.

RESEARCH

CSAG has an international research profile in climate change with a strong track record in the management, processing, and analysis of climate data. In addition, CSAG brings intellectual leadership and resource capacity in operational seasonal forecasting, climate change modeling and projections, and delivery of climate information

CSAG has excellent national and international collaborative experience with formal links to a number of leading international research institutions and programs. CSAG is the START Africa regional node of excellence in climate modeling and has representation on key international activities (e.g. 3 IPCC authors in WG1 and WG2, co-chair of the IPCC TGICA, WCRP Task Force on Regional Climate Downscaling).

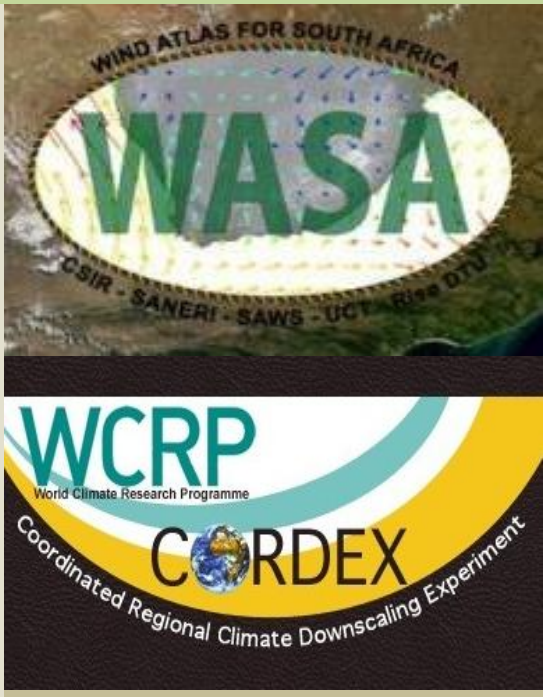
The CSAG team has developed a statistical downscaling method (SOMD) and produced statistically downscaled projections for Africa and Asia. These projections have been extremely well received by the end user community through a large number of engagements and collaborative research projects. A critical component of this initiative is the Climate Information Portal (CIP) that has been developed to deliver CMIP3 and CMIP5 statistically downscaled projections to end users through a web based, guidance text rich, interface.

RESEARCH PROJECTS

CSAG is involved in numerous research projects and since its inception in 1992 has built strong relationships which enable great collaboration and partnerships with other institutions. Our research projects are available for viewing on our website. Below are summaries of two of our key projects.

The Wind Atlas For South Africa (WASA) project is divided into a number of work packages which include an observations campaign, high resolution as well as microscale modeling, extreme wind climate assessment, wind climate assessment techniques as well as data dissemination. The cumulative objective of these efforts is to generate a very high resolution wind atlas for South Africa to provide stakeholders with knowledge allowing them to make informed decisions.

There is an increasing need for detailed, high-resolution regional information regarding future climate. Constraints on available computing resources will always limit model resolution; therefore, various techniques have been developed for 'downscaling' global climate projections (and shorter-term climate predictions) and for producing fine-scale regional climate information. The CO-ordinated Regional Downscaling Experiment (CORDEX) was initiated in order to tackle this problem. The task of CORDEX is to organize an internationally coordinated framework to produce an improved generation of regional climate change projection information world-wide for input into impact and adaptation studies within the AR5 timeline and beyond.



CSAG welcomes collaborative and inter-disciplinary research, should you wish to find out more about any of the research projects we are involved in, contact us for more information

CSAG has a long and extensive track record in partnering with other organisations to deliver climate related services. In particular CSAG is a key partner active in Africa and Southern Africa in the Climate Change adaptation and mitigation arena.

CSAG offers the following in terms of consulting services:

- Global and regional climate modelling supported by an in house high performance computing facility
- Stakeholder engagement and training
- Agricultural and Hydrological modelling and end user engagement
- Seasonal forecasting and forecast dissemination
- Statistical and dynamic downscaling of climate change projections
- Dissemination of climate information for use in Vulnerability, Impacts and Adaptation decision-making.
- Community vulnerability, resilience and adaptation studies and engagement

CONSULTING

CLIMATE SERVICES

CSAG is rapidly expanding its engagement with society. This recognizes that science can only be useful if translated, communicated and understood in ways that are applicable. To this end, CSAG has created a dedicated engagement team who have a unique blend of experience in both climate science and with communicating with the policy, adaptation, and decision maker communities. Working with stakeholders goes deeper than mere dissemination of a data product.

CSAG believe that active communication is two directional within a knowledge network of climate and non-climatic information - that climate services are more than a one-way delivery of data. Engaging with stakeholders in the co-production of knowledge leads to climate related products that are user-focussed and decision-relevant, while engendering a sustainable relationship between science and society.

A central theme to complement climate services is one of capacity building through training. CSAG is active in hosting training workshops, mentoring junior scientists, and supporting climate change projects across Africa. These capacity building activities include mid-career professional training on climate change, such as in the 2-week Winter School focused on using climate information for adaptation and policy development, as well as the hosting of visiting scientists and students, and interns.

STUDY

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STUDY WITH US

The Climate System Analysis Group hosts honours, masters, and PhD students who are enrolled in the Atmospheric Science stream within the Environmental and Geographical Science Department at the University of Cape Town. In addition to facilitating the research projects of these students, CSAG has post-doctoral research positions. Postdoctoral research fellows at CSAG have the opportunity to engage with researchers at the top of their field, on research projects that are on the frontiers of science.

To join the CSAG team as a honours, masters, PhD, or Postdoctoral fellow, candidates need to apply through the faculty of Science within the University of Cape Town (www.science.uct.ac.za)

CONTACT US

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