

Proposal to be a Host Institution for the African Climate Change Fellowship Program

1. Proposing Host Institution

Name of institution: Climate Systems Analysis Group
University of Cape Town

City and country of location: Cape Town, South Africa

Type of institution: Tertiary education

Primary mission of institution: Education and Research

Secondary missions of institution: Climate science application and communication

Main thematic area(s) of work: Physical climate science, climate modeling and analysis, impacts and adaptation, multi-disciplinary science

Working language(s): English

2. Proposal Leader(s)

Name: Bruce Hewitson
Title: Prof
Address: CSAG, EGS Department
University of Cape Town
Private Bag X3
Rondebosch, 7701
Cape Town
South Africa
Telephone: +27 21 650 2784
E-mail: hewitson@csag.uct.ac.za

Name: Gina Ziervogel
Title: Dr
Address: CSAG, EGS Department
University of Cape Town
Private Bag X3
Rondebosch, 7701
Cape Town
South Africa
Telephone: +27 21 650 2784
E-mail: gina@csag.uct.ac.za

Name: Mark Tadross
Title: Dr
Address: CSAG, EGS Department
University of Cape Town
Private Bag X3
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South Africa
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E-mail: mtadross@csag.uct.ac.za

3. Collaborating Institutions (if applicable)

Collaborating Institutions are institutions that would assist the Host Institution by, for example, helping to supervise or mentor a Fellow, involving a Fellow in its research or other work, engaging a Fellow in policy applications, providing training etc. Please provide the following information for each Collaborating Institution:

Name of institution:

City and country of location:

Primary mission of the institution:

Secondary missions of the institution:

Main thematic areas of work (e.g. water, agriculture, development etc):

Working languages of the institution:

Name and title of principal contact person:

E-mail address of principal contact person:

4. Fellowship Experiences to be Offered

Briefly describe the Fellowship experiences that could be offered to visiting Fellows, including opportunities for involving Fellows in research, education, training, community projects, government planning and policy activities, common activities for visiting Fellows to develop synergies, access to data, access to research facilities, support services, etc. (Maximum of 2 pages)

The CSAG group is multi-disciplinary, spanning core physical systems research through to impacts and adaptation issues in climate change. The opportunity for exposure is thus broad and extensive. Specific details are, naturally, subject to the activities ongoing at the time of a fellowship residency. Nonetheless, the group has a momentum such that there are, at all times, some activity in all the areas of the portfolio of work.

The key areas within the group's portfolio of expertise include ongoing activities in the following areas:

- a) Climate modeling (GCM and RCM) for seasonal forecasting and climate change, and for exploring climate system dynamics over Africa
- b) Downscaling: methodological developments, generating regional scenarios, and evaluating past and future regional change
- c) Physical climatology: base research on the physical system dynamics
- d) Adaptation: assessing vulnerability to climate change and exploring appropriate responses at the household and municipality scale
- e) Communication and dissemination of climate science information to stakeholder communities, including education activities, and exploring the pedagogy of communication
- f) Workshop training activities in climate change science.

It is important that fellows have their own ideas to contribute to the group. We would welcome people who have different methodological experience from the group and want to share their knowledge at the same time as learning new techniques. It would also be beneficial if people want to bridge disciplines. For example, some people may be involved in developing impact models and want to work more closely with climate scientists whereas others might have experience in climate science and want to explore the implications of a changing climate in a community or sector context.

Fellows will have access to a wide range of resources, data sets, and high end computing facilities to run complex climate or mathematical models if they require. In addition, CSAG is well connected with other institutions nationally and internationally, and with good relationships with stakeholder communities. Generally the fellows will benefit from exposure to a wide range of activities that span the spectrum of climate change science and, therefore, there is excellent opportunity to undertake integrated multidisciplinary research.

5. Administrative and Cost Issues

Please provide answers to the following questions:

Q1: How many visiting Fellows would you be interested and capable to host at one time?

One to four fellows, depending on level, and on other activities ongoing at the time of the visit.

Q2: Are there specific dates on which visiting Fellows should begin their Fellowships (e.g. beginning of a school term or fiscal year)?

It is preferable to synchronize with the core academic calendar, primarily February and August as logical start times. However, this is not a strict requirement. The December-January period should be avoided.

Q3: What is your best estimate of the cost per month that a visiting Fellow would incur for housing, meals and other incidentals?

This is dependent on residency duration. Long term fellows may obtain accommodation at cheaper rates. As an estimate (assuming no spouse or family accompanying), at current ZAR:US\$ exchange rates the accommodation costs would be of the order of:

Short to medium term: ~\$30-40/night

Longer term: \$300-400/month

Incidentals (food, public transport, etc) would be of the order of \$20/day

Q4: What, if any, registration fees, administrative fees or direct costs would be charged by your institution to host a visiting Fellow?

These depend on the formal status of the fellow, and whether registration as a student status is warranted. If registered for a course for non-degree purposes, there are university fees that vary per course. If registered for degree purposes, there are formal registration procedures and associated tuition costs. For non-coursework, experience and collaboration purposes a levy of 20% of the award will apply to cover facilities costs. If significant host institution staff time allocation is anticipated (for example, to provide intensive one-on-one training), additional costs could apply.

Q5: Are there any other requirements that a Fellow must meet to be hosted by your institution?

Fellows will be required to have full medical coverage, and arrive with the requisite educational qualifications for the identified activities.

6. Qualifications of the Host Institution

a) Institutional Capacity:

Please describe briefly the capacity of the institution to host and provide valuable experiences to visiting Fellows that would enhance their capabilities for promoting climate change adaptation. (Maximum of 1 page).

The University is ranked as the leading research institution on the continent and has commensurate capacity. CSAG is a leading climate change research group of ~30 members, including 4 senior scientists, 4 or more post-doctoral residents, IT and administrative support staff, and a range of MSc and PhD graduate students. CSAG is hosted within the Environmental and Geographical Science department with associated skills in physical and social sciences. In addition, CSAG enjoys good collaboration with other university groupings, including the Energy Research Center, and the Department of Oceanography.

b) Project Experience:

Please describe briefly up to 5 recent or current projects or major activities that demonstrate capabilities of the institution relevant to climate change adaptation. Include information about the objectives, activities, partners, and outcomes for each project. (Maximum of 2 pages).

Seasonal forecasting: National flagship project using the new SA Centre for High Performance Computing. The project uses two GCMs and a range of other methodological approaches to address stakeholder relevant seasonal forecasting needs. The project is partnered with the SA Weather Service and the University of Pretoria

Climate change communication and dissemination: Funded by central government, this project engages with stakeholders on providing climate change information, develops regional tailored climate change products, and explores the pedagogy of climate change information communication.

Uncertainty in climate change projections: This theme spans three funded projects to examine the issue of uncertainty. Using perturbed physics modeling experiments, along with targeted regional climate model simulations on feedback mechanisms, the work seeks to understand the limits of climate change projections, and better develop user relevant products by providing users with guidance and likelihood information.

Regional climate downscaling: this work develops methodologies to generate regional climate change products. Included is analysis work on the variability and attributes of the climate information. The work is closely partnered with the Stockholm environment Institute's weAdapt.org program to integrate the work into the broader multi-disciplinary context and user community interface.

Regional climate models for assessing feedbacks of soil moisture, vegetation and aerosols with the regional climate. This work in part seeks to determine how these feedbacks may alter the response to large scale forcing of the global climate under climate change.

Technical support for country assessments (2nd communications, NAPAs) of climate change e.g. Madagascar, Namibia and Mozambique. Comparing observed changes in climate from station observations with future projections of change.

Risk assessments, particularly for crops and agriculture. Using station data for weather risk insurance.

Application of climate science for adaptation: An assessment of how climate change information is currently being used to develop adaptation responses within the agricultural sector in Africa, commissioned by Rockefeller Foundation.

Integrating community based adaptation and disaster risk reduction: Case studies in Malawi, Zambia and Mozambique provided understanding of current vulnerability and response to climate variability in order to inform Oxfam GB's response to climate change.

WeAdapt platform: A collaboration across the physical and human sciences to develop tools for analyzing climate scenario data and integrating information about climate change in planning adaptation responses. Themes include risk communication, decision analysis tools, urban adaptation, and institutional adaptation among many others.

c) Publications Record:

Please list publications of the proposing host institution (specifically, if applicable, the proposing department/division) and its staff or faculty for the past 5 years that are most relevant to the goals of the Fellowship Program to enable climate change adaptation (include full bibliographic information for each listed publication).

This is an extensive list and inappropriate for inclusion here. The last 5 years includes over 50 publications, and the full bibliography is available online at <http://www.csag.uct.ac.za/biblio>.

d) Experience Hosting Fellows: (How many in past 5 years?)

Please indicate if your institution has hosted the following types of Fellows in the past:

- i) Post-doctoral fellows: 8
- ii) Doctoral fellows: ~16
- iii) Policy fellows: 0
- iv) Teaching fellows: 0
- v) Other types of fellows: Numerous visiting scientists for varying periods

7. Qualifications of Collaborating Institutions

a) Institutional Capacity:

Please describe briefly the capacity of the institution(s) to support the Host Institution to provide visiting Fellows with valuable experiences that will enhance their capabilities for promoting climate change adaptation. (Maximum of half page per collaborating institution)

b) Relationship with Host Institution:

Please describe briefly the existing relationship, if any, between the Host and Collaborating Institution(s) including past and current projects, partnerships, and collaborations (maximum of 250 words per collaborating institution)

8. Supervisor/Mentor Team

Please provide the information requested below for the specific individuals from the primary Host Institution and any Collaborating Institution(s) who would be available to supervise and mentor visiting Fellows and attach a resume for each:

In addition to the key names listed below, there is in addition a rolling presence of post-docs who can be involved, as appropriate.

Name: Bruce Hewitson
Title and institutional affiliation: Prof., University of Cape Town
Highest degree, discipline, conferring institution: PhD, Climatology, Penn State University
Areas of expertise: Climate modeling, Downscaling, Climate analysis
Number and types of fellows supervised in past 5 years:
Depends on what is included in "Fellow", but including graduate students, ~25

Name: Mark Tadross
Title and institutional affiliation: Dr., University of Cape Town
Highest degree, discipline, conferring institution: PhD, Climatology, University of Cambridge
Areas of expertise: Climate modeling, climate risk assessment particularly with respect to agriculture
Number and types of fellows supervised in past 5 years:
Depends on what is included in "Fellow", but including graduate students, ~12

Name: Gina Ziervogel
Title and institutional affiliation: Dr., University of Cape Town
Highest degree, discipline, conferring institution: PhD, Geography, University of Oxford
Areas of expertise: Vulnerability, adaptation, rural livelihoods
Number and types of fellows supervised in past 5 years:
Depends on what is included in "Fellow", but including graduate students, ~5

Name: Babatunde Abiodun
Title and institutional affiliation: Dr., University of Cape Town
Highest degree, discipline, conferring institution: PhD, Meteorology, Federal University of Technology Akure, Nigeria, in collaboration with Uppsala University, Uppsala, Sweden
Areas of expertise: Climate modeling, Climate impact analysis
Number and types of fellows supervised in past 5 years: ~2

9. Interest in Applicant Review

In your proposal, please indicate if your institution would be interested to participate in the review of proposals from those applicants that express interest in basing their Fellowship experience at your institution.

Not in the initial screening, but certainly in the final approval.

Summary Curriculum Vitae: Bruce Hewitson

Current Appointment: Professor, SA Research Chair in Climate Change, University of Cape Town

Career Summary

1979-1983 Cape Technikon, National Higher Diploma (Electrical Engineering)
 1985-1987 University of Cape Town, BSc (Environmental and Geographical Science)
 1989-1990 Pennsylvania State University, MS (Climatology)
 1991 Pennsylvania State University, PhD (Climatology)
 1992 Pennsylvania State University, Post-doctoral research associate
 1992-present University of Cape Town, Climate System Analysis Group (CSAG) and the Environmental and Geographical Science department.

Responsibilities (selected)

International Task group – TGICA ¹	Committee member, 2004-present
International Meeting on Statistical Climatology	Steering Committee Member, 2001-present
IPCC ² WGI Regional Climate Change Projections	Coordinating Lead Author, 2002-present
South African Society for Atmospheric Sciences	Council member, 1995-present
WRC project steering committees (various)	Committee member, 1997-present
AESEDA ³	Africa lead partner, 2004-present
ACCCA ⁴	Coordinating partner, 2006-present

Research:

Activities revolve around the coupled climate system, its dynamics, feedbacks, modeling, and exploration in terms of fundamental processes. Key elements within this include methodological development, climate downscaling, and regional climate change.

Core funding in support of these has been received for major national and international funding sources since 1994. Agencies include the World Bank and EU, national agency funds from the UK, Germany, and the USA, and within South Africa from the National Research Foundation, the Water Research Commission, the Department of Science and Technology, and others.

Examples of current funding (as PI or Co-PI):

<i>Title</i>	<i>Funding Agency</i>
Climate Change Information dissemination	Water Research Commission, SA
Secondary impacts of climate change on water	Water Research Commission, SA
Applications of Rainfall Forecasts for Agriculturally Related Decision Making	Water Research Commission, SA
Climate System Dynamics	National Research Foundation, SA
West Coast Fog: Regional climate dynamics	Department of Science and Technology, SA
Seasonal forecasting – flagship project	SA Centre for High Performance Computing
Climate science communication	SA Government

¹ International Task Group on Data and Scenario Support for Impact and Climate Analysis
 See http://ipcc-wg1.ucar.edu/wg1/wg1_tgica.html

² Inter-governmental Panel on Climate Change (<http://www.ipcc.ch>)

³ Alliance for Earth sciences, Engineering, and Development in Africa. (<http://www.aeseda.psu.edu>)

⁴ Advancing Capacity to Support Climate change Adaptation. (<http://www.acccaproject.org>)

Selected Peer-reviewed publications (last 8 years)

- Thomas, D.S.G., Twyman, C., Osbahr, H. and Hewitson, B., 2007: Adapting to climate change and variability in southern Africa: farmer responses to intra-seasonal precipitation trends, *Climate Change*, in press.
- Mackellar, N.C., Hewitson B.C., Tadross M.A., 2007: Namaqualand's climate: recent historical changes and future scenarios. *Journal of Arid Environments*, in press.
- Christensen, J., Hewitson, B.C., et al., 2007: Regional Climate Projections, in IPCC Fourth Assessment Report "Climate Change 2007: The Scientific Basis" (Solomon et al., eds.), Cambridge University Press, in press
- Solomon, S., et al., 2007, *Climate Change 2007: The Physical Science Basis – Technical summary*, Cambridge University Press, in press
- Hewitson, B.C., and Crane, R.G., 2006: Consensus between GCM climate change projections with empirical downscaling, *Int. J. of Climatology*, 26: 1315–1337.
- Tadross, M.A., Gutowski W.J. Jr., Hewitson B.C., Jack C.J., New M., 2006: MM5 simulations of interannual change and the diurnal cycle of southern African regional climate. *Theoretical and Applied Climatology*, 86, 63-80. DOI 10.1007/s00704-005-0208-2.
- New M., Hewitson, B., et al. 2006, Evidence of trends in daily climate extremes over southern and West Africa, *J. Geophys. Res.*, 111, D14102, doi:10.1029/2005JD006289.
- Cavazos, T. and B.C. Hewitson, 2005: Performance of NCEP variables in statistical downscaling of daily precipitation. *Climate Research*, 28, 95-107.
- Tadross, M.A., B.C. Hewitson and M.T. Usman., 2005: The Interannual Variability of the Onset of the Maize Growing Season over South Africa and Zimbabwe. *Journal of Climate: Vol. 18, No. 16*, pp. 3356–3372.
- Hewitson, B.C., and Crane, R.G., 2005: Gridded Area-Averaged Daily Precipitation via Conditional Interpolation, *J. Climate*, 18, 41-57.
- Tadross, M.A., Jack C., and Hewitson B.C., 2005: On RCM-based projections of change in southern African summer climate. *Geophysical Research Letters*, 32(23), L23713, doi 10.1029/2005GL024460.
- Tadross, M., Mdoka, M., Hewitson, B.C., 2005: Climate trends and implications for maize production in southern Africa, in review in *Climate Research*.
- Hewitson B.C., Tadross, M.A., Sarr A., Jain S., Mdoka M., Jack C., McKellar N., Walawege R., Intsiful J., Gutowski W.J.Jr., Crane R., Stendel M., 2005: The development of regional climate change scenarios for sub-sahara Africa. *Assessment of Impacts and Adaptation to Climate Change project AF07, START secretariat*, Washington DC, US, pp 115.
- Cook, C., Reason, C.R., Hewitson, B.C., 2004. Wet and dry spells within particularly wet and dry summers in the South African summer rainfall season, *Climate Research*, (26) 1616-1572.
- Crane, R.G. and Hewitson, B.C., 2003: Upscaling of station precipitation records to regional patterns using Self-Organizing Maps (SOMs), *Climate Research*, (25) 95-107
- New, M., Hewitson, B., Jack, C., Washington, R. (2003). Sensitivity of southern African rainfall to soil moisture, *Clivar Exchanges*, No 27, 45-47.
- Tennant, W.J. and Hewitson, B.C., 2002: Intra-Seasonal Rainfall Characteristics and their Importance to the Seasonal Prediction Problem, *Int. J. Climatol.*, 22, 1033-1048.
- Giorgi, F., Hewitson, B.C., Christensen, J., Hulme, M., Von Storch, H., Whetton, P., Jones, R., L., Mearns, L., Fu, C., 2001: Regional Climate Information - Evaluation and Projections, in IPCC TAR "Climate Change 2001: The Scientific Basis" (Houghton et al., eds.), Cambridge University Press.
- Crane, R.G., Yarnal, B., Barron, E., Hewitson, B.C., 2001: Scale interactions and regional climate: Examples from the Susquehanna river basin, *Journal of Human and Ecological Risk Assessment*, Vol. 8, No. 1, 149-158.
- Giorgi, F., Hewitson, B.C., Christensen, J., Hulme, M., Von Storch, H., Whetton, P., Jones, R., L., Mearns, L., Fu, C., 2001: Regional Climate Information - Evaluation and Projections, in "Climate Change 2001: The Scientific Basis" (Houghton et al., eds.), Cambridge University Press.
- Giorgi F., Whetton P., Jones R., Christensen J., Mearns L., Hewitson B., vonStorch H., Francisco R., Jack C., 2001: Emerging patterns of simulated regional climatic changes for the 21st century due to anthropogenic forcings, *Geophys. Res. Lett.* Vol. 28, No. 17 , p. 3317

GINA ZIERVOGEL

Department of Environmental & Geographical Science, University of Cape Town

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Work Experience

2005 – present *Climate Systems Analysis Group*, University of Cape Town (40% time)
2002 – present *Stockholm Environment Institute* (60% time)
2004 – 2005 *Disaster Mitigation for Sustainable Livelihoods Programme*, University of Cape Town
1999- 2001 *Research assistant, Environmental Change Institute*, University of Oxford.
1999 *Research Clusters Research Assistant, School of Geography*, University of Oxford.
1998 *Assistant Researcher, Geography Department*, Rhodes University, Grahamstown.

Academic Qualifications

1999 – 2002 University of Oxford, U.K. Ph.D. in Geography. *Seasonal climate forecasts applications: A case study of smallholder farmers in Lesotho.*
1997 Rhodes University, Grahamstown, South Africa. Postgraduate Honours degree; BSc (Hons) in Environmental Water Management.
1994 -1996 University of Cape Town. BSc in Environmental and Geographical Science and Ocean and Atmospheric Science.

Selected Publications

Ziervogel, G. and Drimie, S. (2008). The integration of support for HIV and AIDS and livelihood security: district level institutional analysis in southern Africa. *Population and Environment*. 28. 3-4.
Ziervogel, G. and Taylor, A. (2008). Feeling Stressed: Integrating Climate Adaptation with Other Priorities in South Africa. *Environment*. 50, 2. 32-41.
Mukeibir, P. and Ziervogel, G. (2007). Developing a Municipal Adaptation Plan (MAP) for climate change: the city of Cape Town. *Environment & Urbanization*. 19(1).
Ziervogel, G., Bharwani, S. and Downing, T.E. (2006). Adapting to climate variability: pumpkins, people and policy. *Natural Resource Forum*. 30 (4). 294–305.
Ziervogel, G., Bithell, M., Washington, R. and Downing, T. (2005). Agent-based social simulation: a method for assessing the impact of seasonal climate forecast applications among smallholder farmers. *Agricultural Systems*. 83.1. 1-26.

Teaching

2006-2008 Disaster risk science (DRS) seminars: Adapting to climate change
2008 ACCCA training of trainers workshop (Risk communication modules)
2007 Facilitated 2 week ACCCA training on linking climate science and adaptation responses
2007 SAEON Students conference: Responding to environmental change lecture & workshop
2007 UCT Conservation Biology Masters Course: Climate change module
2005, 2008 UCT Summer school on climate change
2004 UNITAR workshop on vulnerability and adaptation assessment methodology
2004 Disaster risk managers short course: Rural risk and environmental change

Funded projects led by Gina Ziervogel

- Climate change and agricultural development in Africa (*Rockefeller Foundation funded, 2008*)
- Climate for water (*Water Research Commission funded, 2005-2008*)
- Poverty and Vulnerability programme: Adaptation to multiple stresses of climate, water and health (*SIDA funded, 2006-2007*)
- UNRAVEL: HIV and environmental stressors on livelihoods in Malawi, Zambia and South Africa (*Trocaire funded, 2004-2005*)

Dr Mark Alexander Tadross

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South Africa.

Date of Birth: 19 January 1970
Nationality: British
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Cell/Mobile: +27 (0)83 5446354
Email: mtadross@csag.uct.ac.za
Full CV: <http://www.csag.uct.ac.za/~mtadross>

Areas of expertise: Climate research for forecasting, assessing regional impacts and risks. Computer modelling and remote sensing.

Projects as a consultant/principal investigator:

Assessing climate change impacts on disaster risk management in Mozambique - INGC/UNDP
Agricultural weather risk management in Mozambique - World Bank
Climate Analysis and Technical Assistance for mainstreaming climate risk management in the agriculture sector of the Philippines – World Bank
Assessing changes in cyclone and agricultural risk in Madagascar: developing regional scenarios of vulnerability to climate change - World Bank
Vulnerability and adaptation to climate change in preparation of the 2nd national communication of Namibia – provide climate change projections for modelling impacts on water and agriculture (DRFN/UNDP)
Changes in daily rainfall characteristics affecting agriculture: Observations and projections for Malawi, Mozambique, Zimbabwe and Zambia – World Bank
Projected changes in summer climate and the implications for growing maize in southern Africa – NSF funding through START/PACOM
Assessing RCM parameterisation uncertainties for modelling African climate – collaboration with IBM, USA.
The role of antecedent conditions in determining rainfall characteristics during the early part of the rainfall season – Water Research Commission of South Africa.
Assessment of potential climate change impacts and adaptations to the long-term sustainability of the water supply to Polokwane municipality – deliver downscaled climate change projections to USAID project
Climate change implications for the sandveld – work with Potato and Rooibos tea farmers, funded by Greater Cederberg Biodiversity Corridor.
Climate change scenarios to 2050: Assessing impacts, vulnerability and adaptation in key South African sectors – provide climate advice as part of the South African Long-Term Mitigation Study.

Since 2000: Senior Research Fellow investigating African climate variability, seasonal forecasting, climate change and risks associated with forecast changes and impacts

Research interests include intra-seasonal rainfall characteristics important for agriculture (e.g. rainfall onset/cessation and frequency/intensity of dry/wet spells), their physical causes and potential predictability. Presented at regional climate forums (SARCOF), farmers associations, local and international conferences.

- INGC/UNDP: Support assessment of climate change impacts on disaster risk management in Mozambique
- Support World Bank projects in Madagascar, Philippines and Mozambique:
 - i) Assess implications of climate change on cyclone and agricultural risk;
 - ii) Comparison of historical climate trends with those expected from climate change;
 - iii) Assess potential for weather risk insurance.
- World Bank: Assessing trends in agriculturally relevant rainfall indices from station records over Zambia, Zimbabwe, Mozambique, Malawi and comparison with downscaled scenarios of climate change.
- Climate Change Adaptation in Africa (CCAA): providing seasonal forecasts and climate change projections for project “Managing climate risk for agriculture and water resources development in south-western South Africa: Quantifying the costs, benefits and risks associated with planning and management alternatives”
- CCAA: providing climate analysis support to project “Managing risk, reducing vulnerability and enhancing agricultural productivity under a changing climate” for countries in East Africa.
- PI and senior researcher in 3 Water Research Commission (WRC) projects to: a) assess the effect of land surface – climate interactions on Southern African climate using RCMs; b) assess the potential of daily to seasonal climate forecasts for agricultural management; c) provide climate change scenarios to assess potential changes in secondary impacts e.g. water quality.
- South African Earth Observation Network: convert climate change scenarios to GIS formats to aid uptake and analysis by the wider research community.
- Conservation International: provide perturbed climate surfaces for bioclimatic modelling of species distribution in Madagascar.

- WWF: assist interpretation of climate forecasts for Rooibos tea farmers in the Suidebokkeveld.
- Reviewer for IPCC WGII AR4; contributing author chapter 11 WGI AR4.
- Project manager on Assessment of Impacts and Adaptations to Climate Change (AIACC) funded project AF07 (<http://www.aiaccproject.org>). Project attained the following:
 - i) Developed downscaled climate change scenarios for Africa using Regional Climate Models;
 - ii) built modelling capacity (Linux based PCs) at University of Zambia, University Cheik Anta-Diop (Senegal) and Zimbabwe Meteorological Service;
 - iii) assessed the ability of GCMs and RCMs (MM5, PRECIS) to simulate southern African climate, choice of appropriate RCM physics and implications for the modelled hydrological cycle;
 - iv) modelled vegetation- and soil moisture- climate feedbacks.
- Developed CSAG seasonal forecasting system (<http://www.gfcsa.net/csag>) using UKMO GCM (UM). Tested physics options to reduce simulation biases in the southern African region.

1999: Alcatel Schweiz AG (Zürich, Switzerland); <http://www.alcatel.ch>

Unix consultant, setting up Solaris test systems on a private network to replicate external services: Veritas volume manager, Netscape suitespot, DNS, mailing lists, web servers etc. Year 2000 testing. Debugging shell and Perl scripts. Documenting procedures.

1998-1999: European Southern Observatory (European Space Agency); <http://www.eso.org>

Garching bei München, Germany

Supported 250+ astronomers at a busy helpdesk. Spent 4 months working with multiple Sun Ultra Enterprise 450/3000/4000 servers. Installing new Ultra Sparcs, printing, email, installing software etc.

Paranal Observatory in the Atacama desert, Chile

7 months working as one of two Unix administrators providing support for 28 HP-UX systems used to control some of the world's largest astronomical telescopes (VLT), its instruments and archive astronomical, geological and local meteorological data. The VLT project is situated in the desert 120 km from Antofagasta.

1993-1997: Scott Polar Research Institute (Cambridge, U.K.); <http://www.spri.cam.ac.uk>

Post-doctoral research assistant (Sea Ice Group)

Post-doctoral research assistant - completed a six month project, C coding a model for SAR system noise and investigating the response of a sea ice classification algorithm.

Research Student (Sea Ice Group)

Research student specialising in satellite microwave remote sensing. Developed novel methods for detecting newly forming sea ice using satellite microwave (SSM/I) data and investigated waves within sea ice using synthetic aperture radar (SAR).

Fieldwork

- Collection and interpretation of oceanographic data in the central Greenland Sea (Jan 1993);
- Sea-ice scientist with the Ocean Drilling Program, drilling ocean sediments in the Arctic. Tasks included briefing scientists and drilling personnel on likely ice conditions, running an ice-physics program and investigating the use of satellite data for ice navigation (Jul-Sep 1993);
- Collection, cataloguing and later interpretation of sea-ice and oceanographic data using GPS, ARGOS drifters, wavebuoys and CTDs deployed from an icebreaker and zodiac dingy (Mar 1997).

1991-1992: Geco-Prakla geophysical company (Woking, U.K.); <http://www.westerngeco.com>

Geco-Prakla is a subsidiary company of Schlumberger, involved in the acquisition and processing of seismic data both on land and at sea. Employed as a geophysicist in the seismic data processing section.

Languages English (mother tongue), French and Spanish (basic).

Education

1993 to 1997 Ph.D. thesis; "Microwave remote sensing of young sea ice in the Greenland Sea."

Scott Polar Research Institute, University of Cambridge, U.K.

1988 to 1991 BSc. Hons. (1st Class) Astronomy and Astrophysics

Course option: Geophysics

University of Newcastle upon Tyne, U.K.

Selected publications:

Tadross M., Luc Randriamarolaza, Zo Rabefitia, Zheng Ki Yip (2008) Climate change in Madagascar; recent past and future. World Bank, Washington DC. pp 18

Tadross M. (2008) Climate Analysis and Technical Assistance for Climate Modelling. Report based on findings of World Bank mission to provide technical assistance for mainstreaming climate risk management in the agriculture sector of the Philippines, September 27 - October 5, 2007. pp 23.

Tadross M., Dirkx E., Hager C., Mwangala S. (2007) Changes in historical climate and the projected future climate of

- Namibia. Climate Change Vulnerability Assessment undertaken in support of Namibia's 2nd National Communication to the UNFCCC. pp 21.
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