Programme	Title of the Project and research team	Project Overview	Objectives/ Outcomes
Alliance for Collaboration on Climate and Earth Systems Science (ACCESS) hosted at the CSIR. ACCESS represents network of global change research organizations. ACCESS runs several sub-programmes including the suite of projects organized under the umbrella of the ACCESS Annual Cycle and Seasonality Project (ACyS) sub programme – see below. ACCESS also runs the Habitable Planet programme which targets undergraduate and school science students, and (co-)manages several consortia working on other projects such as the Infectious Diseases Early Warning System (iDEWs project) and the Extreme Events in the Benguela Upwelling Systems (EXEBUS) project along with a set of other activities. Visit access.ac.za ACCESS Annual Cycle and Seasonality Project (ACyS): Recognizing that climate change manifests through changes to the properties of seasons, in terms of the amplitude (extremes) and timing of the variation in the annual cycle, the programme addresses a range of questions that seek to explore the implications of this as per the 6 projects below.			
ACCESS	**1. Investigating predictability of seasonal anomalies for societal benefit.** Team leader is Professor Willem A. Landman, University of Pretoria. Tel +27 (0)12 420 3713, Cell +27 (0)82 644 5304 Email Willem.Landman@up.ac.za Other participants are at UCT (Prof Mathieu Rouault), University of Venda (Dr Hector Chickoore, now moved to UJ), WITS University (Prof Colleen Vogel) and the CSIR (Dr Asmerom Beraki) and SAWS (Dr Christien Engelbrecht) and students. Start date: 2018	- This primarily modelling based project is an investment in continuously developing seasonal climate prediction technology which aims to improve the efficacy of climate forecasting systems in both areas with existing forecasting skill and those where the skill is low. The project has an end-to-end approach looking at both model development, developing downscaling methodology and tailored applications for specific sectoral users.	
	2. Changes in the annual cycle over South Africa and ocean hotspots	- Southern African climate dynamics and the annual cycle is driven and influenced by a number of factors, at a range of scales. Given that the demonstrable need for improved	

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	Leader is Professor Chris Reason, University of Cape Town. Tel +27 (0)21 6503277, Email chris.reason@uct.ac.za Professor Hectore Chikoore (U Venda, now UJ) and Issufo Halo (CPUT) Start date: 2018	seasonal scale forecasting is rising, the project goes back to first principles to look at the dynamics of key regional ocean-atmosphere hotspots (Agulhas Current & retroflection, the Seychelles-Chagos thermocline ridge, and the Angola– Benguela frontal zone) located around southern Africa, at weather to seasonal time ranges. The aim is to contribute to understanding the role of these oceanographic features in the annual cycle and the models that are used to predict seasonal climate.	
	3. Impacts of changing seasonal cycles & elevated atmospheric CO2 on production & dynamics in managed & natural biological systems Leader is Professor Brad Ripley, Prof. Brad Ripley, Department of Botany, +27 (0) 46 603 8707, email: b.ripley@ru.ac.za Other participants are Prof Sue Vetter (RU), Prof Charles Mutengwa (UFH), Prof Mike Cramer (UCT) and Prof Guy Midgley (SU) and students. Start date: 2018	- This project exploits the varying climate regimes across the sub-region in order to examine the complex impact of changing seasonal climate in relation to changing CO_2 concentration, on a variety of plants and crops. The lab and field based experimental project will examine these dynamics in a variety of natural biomes (fynbos, savanna, thicket), and others along a climate gradient in the country, as well as the responses in several important crop species.	

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	4. The role of phytoplankton in mediating global climate through stratus cloud albedo in the coupled ocean – atmosphere of the Benguela System. Leader is Dr Sandy Thomalla, Principal Scientist, Southern Ocean Carbon and Climate Observatory, CSIR. Tel: +27 (0)21 658 2764. Email: sandy.thomalla@gmail.com Other participants are Professor Sarah Fawcett & Professor Katye Altieri (UCT), Professor Stuart Piketh (NWU) and Professor Francois Engelbrecht (WITS). Start date: 2018	- The Benguela current system on the west coast is a highly productive upwelling system, and plays a key role in global climate dynamics, particularly due to its cumulus cloud deck which is affects albedo. This is one of the major outstanding climate model challenges, and the link between ocean processes and atmospheric dynamics is where this project focusses. The role of seasonally productive phytoplankton, producing the aerosols biochemicals that seed this cloud formation, is examined.	
	5. Exploring multi-dimensional landscape attributes through the lens of seasonality Leader is Professor Res Altwegg, Director centre for Statistics in Ecology, Environment and Conservation, Department of Statistical Sciences, University of Cape Town Tel. +27 (0) 21 650 5750. Email: res.altwegg@gmail.com. Other participants are Professor Steven Foord (University of Venda) and Professor	- This project, located in the Greater Cape Floristic Region, seeks to explore the interaction of ecological and social dimensions of seasonality in the South African context by considering rainfall seasonality shifts and how this manifests in relation to volumes, periodicity, flows, and extreme events; associated shifts in fire regimes and biodiversity biome-level outcomes. In association it will explore seasonal use and shifts in ecosystem services and human livelihood in response to change.	

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	Guy Midgely (Stellenbosch University) and students. Start date: 2018		
	6. Human well-being and environmental degradation – the impact of changes of seasonality. Leader is Professor, Wayne Twine, Wits Rural Knowledge Hub, University of the Witwatersrand, Tel: +27 (0)15 793 7501, email: wayne.twine@wits.ac.za Other participants are professor Kingsley Ayisi (University of Limpopo) and Professor Jude Odhiambo & Professor Stefan Foord (University of Venda) and students. Start date: 2018	- Rural savanna communities, are often heavily reliant directly on communal natural resources or they have a more cash-dominated livelihood strategy, both of which are subject to highly seasonal provision of ecosystem goods and services. This project explores the effect of seasonality and changes in seasonality on the relationship between well-being and resource degradation in the rural Lowveld of Mpumalanga and Limpopo, a coupled social-ecological system with a variety of land uses, including private and state-owned protected areas	