

Using enhanced knowledge of climate variability for the benefit of water resource management

Climate 4 Water (C4W); K5/1566

Progress Report

March 2006

Management

There have been 3 team meetings of the whole study team during the course of the 1st year and an additional 5 meetings of the University of Cape Town team members.

These regular meetings have enabled the team to keep up to date on developments within the project and discuss proposed plans.

There has been one steering committee meeting that was useful in guiding and supporting what we are doing and plan to do.

Case studies

Two case studies have been undertaken

- Cape Town Metropole Area
- Overstrand

Cape Town Metropole Area

The results from the Cape Town Metropole interviews were submitted in December and are attached in Appendix A.

An institutional map of the linkages in water management and information flow for the CMA was developed subsequently and is attached in Appendix B. This is a work in progress and is open to comment and will be updated after the workshops.

Overstrand

The Overstrand local municipality covers Hangklip/Kleinmond, Greater Hermanus, Stanford and Gansbaai.

Interviews have been undertaken with a number of stakeholders in the municipality. The results from these interviews are being compiled and will form background material for the workshop. This information will also be integrated into the Overstrand case study material.

Workshop planning

The initial research has enabled us to plan the outline for the stakeholder workshops. The outline for these workshops is presented in the Workplan for 2006/7. The workshop outputs will help to guide the development of a pilot system of climate variability information delivery culminating in a climate variability information training toolkit.

Appendix A: C4W Inventory

Task: Gather information on production of climate information and use of climate information
(there is an accompanying excel spreadsheet with more details)

Climate variability information								
Source	Type of data	Data format	Resolution	Geographical area covered	Lead time	Perceived Skill	Dissemination method	Freely available (quality)
UCT	Seasonal forecast	Maps predicted prob	National	South Africa	1 month	Not available	Website	Internet access
	Satellite images	images	Regional	Southern Africa	0 days	n/a	Website	Internet access
	MyWeather	Maps	Urban	Cape Peninsula	0 – 6 days	n/a	Website	Internet access
SAWS	Seasonal forecast	Maps predicted prob	National, regional	South Africa		n/a	Website	Internet access
	Satellite images	images	Regional	Southern Africa	0 days	n/a	Website	Internet access
	1 – 3 day forecast	Maps, text	National	South Africa	0 – 2 days	n/a	Newspapers, television, radio, phone	yes
	1 – 7 day forecast	Maps, text	National	South Africa	0 – 6 days	n/a	Website	Access to internet
GFCSA	Seasonal forecasts	Maps predicted prob	National	South Africa	varies	n/a	Website	Internet access
IRI	Seasonal forecasts		Global	Global	varies	n/a	Website	Internet access
Anton Sparks	Weekly bulletin with climate and weather info and dam levels.	Maps, graphs, text	Provincial	Western Cape	0	n/a	Email	Sent to limited group
Johan v.d.Berg	SOI predictions	Data, graphs		Maize/wheat areas	1 month	n/a	Email	Sent to limited group

Climate variability information:

Interviews with water resource managers in Cape Town.

Water resource managers	Type of climate info accessed	Access Source	Dissemination method	Data format	Ease of access 1-10	Passed on (to whom, how)	Skill	Usage and application	Shortcomings /suggestions
Bulk water manager, DWAF	7 day	CSAG SAWS	website	maps	9	Planning committee make management decisions. Includes CCT, Paarl, Stellenbosch, WCoast municipalities, DWAF, consultants. Irrigation board meet fortnightly if restrictions, bi-monthly in quieter periods. Follow up meetings with council. <u>Transfer of info:</u> DWAF provide targets, make overall decisions about restriction level and where CT must take water. Rest from irrigation boards and municipalities.	Trust CSAG forecast more than SAWS: SAWS = govt forecast for country, must be more conservative. Academics can be more adventurous & CSAG is Western Cape based.	Advisory role - advise farmers in water mgt. DWAF guide & interact with agriculture.	* Improved long-term forecasts * Need a 3 to 4 day rainfall (temp) forecast for sluices. Rainfall over 8.5 mm indication
	1 month	CSAG SAWS	website	maps	9				
	3-month	SAWS CSAG	website	maps	9				
	Seasonal & Long-term averages (for dams): Anton Spark's bulletin.	Anton Sparks	Email		9				
Anton Sparks Ninham Shand	Monthly and climate f/cast.	CSAG	website	Maps	9	Water managers. Produce a weekly bulletin with climate and weather info and dam levels. NS responsible for coordinating climate and dam level info CCT. Have a seasonal meeting – 20 people. Bulletin goes to 40/50 people - Irrigation board chairmen, urban areas, farmers that manage dams, DWAF.	Unsure how to interpret forecasts & how much reliability to put on them. is 60% skill acceptable? CSAG f/cast is better than SAWS. Don't know where the rain is occurring. Trend better than numbers	Help water managers make decisions on - water use from dams - restrictions NS have been compiling this info for 10 years	Basic questions are answered on website. Questions of interest are more general. Would like to know principal drivers behind long-term forecast. Could pick out from initial conditions. Would increase
	Seasonal f/cast: just see if SAWS concurs with CSAG	CSAG SAWS	website	Maps	9				
	Agricultural f/cast. Gives 0-5mm and specific amounts for areas - preferable because it tries to give intensity.	SAWS	website		8				

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	Descriptive forecast. He interacts with farmers & DWAF. Unsure of reliability but useful to show range.	Sakkie Nigrini		description	8		CSAG could provide indication of likelihood.		Would increase confidence.
	Raw data	Airport	Phone	data	7				
	Rain data	Theewaterskloof	Phone		7				
Department of Agriculture	seasonal f/cast, rainfall maps, temp, 10 day & monthly rain f/cast .	SAWS	website	Maps	7 (website unfriendly) trying to find monthly map.	Website: National report put on it. Elsenberg.com - media – agrioutlook National Agrometeorological Committee – meet once a quarter, report every month from each province. NARCOF –Sept meeting – because of maize industry. Crop estimate committee. Disseminate info at meetings with mgt (local department). compile a report. Not original mandate to pass on to irrigation. Protein research foundation get report bi monthly and report for farmers association. Farmers look to Dept for info as he has more contacts.		Advice to farmers and agricultural committees.	SAWS have national view of climate. We need our own in WCape.
	SOI predictions. Explains climate from 30 – 50%. Doesn't interpolate mountain info..	Johan vd Berg	Get info direct – don't pay.	No maps –time & prob	10				
	?	ARC ISCW	Monthly report, pay but only get on 20 th	data figures	Since Reinhardt left always lacking				
	daily weather for test	Giel Hugo	phone	data figures	9				
	daily rain and weekly	Camel Defleisjaer	Phone	data figures	9				

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Soil conservation, Dept of Agriculture (ii)	WCape – sub-surface drainage, flood control structures – contour banks, dams based on hydrological study – for catchment or farm. Vorster graphs - runoff algorithms - predictions for soil erosion purposes. (Agric Research Institute Pretoria. Vorster. <i>Ingenieursprobleme by gronderosie-betryding</i>) . Not using seasonal forecast or climate scenarios.	*City: AWS stations *SAWS *ARC: Nietvoorbij daily info			10	Designs river erosion. Pass info to ward technician – Farmer calls with problem. Technician called and dept will subsidise. Does hydrological design using Midgely or Vorster. Use extension officers. Presented at Agricultural Engineering Conference.	Vorster (small scale) 7/10 Midgely (large scale) 7/10	Spill ways & conservation measures	Would appreciate studies on rainfall spatial and temporal distribution as well as intensity Also rainfall response to changes.
Cape Nature (Fresh Water Fish)	Minimal Forecasts (incl seasonal) would be used if packaged for them.	SAWS							
	Drainage basin temperature (+ night time) would be useful to see influence of cc		As / when available	CD Book	Rainfall: MTO (Safcol) DWAF	9 business units in CNC: info sent to 4 regional ecologists (1 per 2 units) Also conservancy, stewardship fora. C.A.P.E.	7/10 would be necessary	River temp Changing rainfall pattern	Data loggers in rivers: best 2 = Olifants-Dorings Gouritz Climate change: air temp relate to water temp

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CCT bulk water and waste	DAILY	CSAG	website	Maps	9	Operations to minimise wastage		Daily mgt – strategic shifting of water	ignorant of all available f/casts Would like specific tailored f/casts with ppt intensity
		SAWS	website	maps	10	ditto			
	WEEKLY plus	SAWS 2 week rainfall 5mm & 20 mm	Website	Maps	10			Release to applicable dams. 20mm f/cast more useful as background info/guideline	has shortcomings
	MONTH/3 MONTH	SAWS	website	Maps tercile prob.	10			SAWS – 55/45 assumptions	only semi analysed
		CSAG	website					monthlies more accurate, no interpretation offered	Would like links to NORMALS and indicate expectations also show skill levels.
		GFCSA	website	Maps predictd prob.	10				
CCT Bulkwater	Short term: CSAG: esp rain intensity, severe storm risks SAWS: mostly use	CSAG	Website	Maps	10	Discuss with DWAF and others we are in touch with such as local authorities in system – liaison meetings – forum and provincial liaison	Best 7/10	Ops: usage from dams. Rainfall intensity most NB – difficult	Better info on rain intensity. Research on changes to vegetation.
		SAWS	Website	Maps, text	10		Fair 6/10		

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	5day Agric f'cast – for rain intensity	iafrica.com (1 st Weather)	Website	Maps	10	committee. People express concern at a political level and then one informs. long term predictions informs thinking on future resources along the line of diversification.		to get info Weather patterns influence water demand AND resource mgt.	TMG: what's the effect on fynbos ecosystem of pumping aquifer? What will happen in TMG wetlands?
	Mostly rain intensity chart link	CT Airport	Email/ fax	data	10				
	Peak temperatures	CCT stations	Phone/ automatic	data					
	Raingauge, evaporation etc	Sakkie Nigrini	Website		10				
	Seasonal:	CSAG	Website	Maps	10		A period forecast changes over the months- indicating less skill!	Mainly used in drought management	
	Longterm: Very interested in CC								