

Looking at the Water Management System site inventory through Google Earth. September 2007
 M J Silberbauer (SilberbauerM@dwaf.gov.za) Business Support Workshop for Water Quality

Back Search Favorites Bookmarks PageRank 7 blocked Check AutoLink AutoFill Send to Settings

Address <http://www.dwaf.gov.za/iwqs/wms/data/000key.htm>

Resource Quality Services water quality data exploration tool

Resource Quality Services, WMS, Department of Water Affairs and Forestry.

This browser tool provides access to more than 60000 sites, some monitored as early as the 1950s. Links are available to pre-packaged PDF graphs and data files listing the more common water quality constituents. Files for displaying data in Google Earth help to orient the user and provide a general overview of the sampling network.

Follow one of the links below and then choose whether to view data in tabular form or with Google Earth as a front end (for detailed help with Google Earth, download the [User Guide](#)).

Browse water quality sites by:

[primary drainage region](#) [water management area](#)

Address http://www.dwaf.gov.za/iwqs/wms/data/WMS_pri_txt.htm

Resource Quality Services water grouped by primary drainage region

WMS sites home page [Select sites from map](#)

Please click on a drainage region name to view the sites in Google Earth. If it is not installed on your computer (Depending on the configuration of Google Earth on your computer, you may need to save the KML file).

Select optional data formats (these are not recommended if you have a slow data line or limited computer memory):

1. **Icon markers** marks sites according to type.
2. **Maucha markers** places [Maucha ionic marker symbols](#) at each site.
3. **Boreholes** adds thousands of borehole sites.

(Note: you will need to download and install the free [Google Earth](#) application).

Google Earth, no boreholes		Google Earth with boreholes		Tabular view	
Icon markers	Maucha markers	Icon markers	Maucha markers	No boreholes	Boreholes
A: Limpopo	(Maucha)	(bore-icon)	(bore-Maucha)	A: Limpopo	(bore)
B: Olifants (E)	(Maucha)	(bore-icon)	(bore-Maucha)	B: Olifants (E)	(bore)
C: Vaal	(Maucha)	(bore-icon)	(bore-Maucha)	C: Vaal	(bore)
D: Orange	(Maucha)	(bore-icon)	(bore-Maucha)	D: Orange	(bore)
E: Olifants (W) et al	(Maucha)	(bore-icon)	(bore-Maucha)	E: Olifants (W) et al	(bore)
F: Buffels et al	(Maucha)	(bore-icon)	(bore-Maucha)	F: Buffels et al	(bore)
G: Great Berg et al	(Maucha)	(bore-icon)	(bore-Maucha)	G: Great Berg et al	(bore)

G_reg_WMS_nobor.kml - ScITE

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7612 - <i>Estuary/Lagoon</i> water quality<br>G4R003Q01 Bot River Vlei On Bo
7613 - Samples: 445<br>
7614 - 1978-04-25 to 2006-11-15<br>
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7619 - <a href="http://www.dwaf.gov.za/iwqs/gis_apps/maucha.pdf">key</a>|
7620 - 
7621 - ]]></description>
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7643 - <description><![CDATA[<b>WMS G40_102012

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Google Earth

File Edit View Tools Add Help

Search

Fly To Find Businesses Directions

Fly to e.g., 37 25.818' N, 122 05.36' W

Places

- Temporary Places
- Surface
- Canal
- Class pending
- Dam / Barrage
- Estuary/Lagoon
- Industrial Property
- Lake
- Other Ground Fractures
- Pan
- Pipeline
- Rivers
- Sewage Works
- Spring/Eye
- Tunnel
- Water/Effluent Treatment
- Wetland

Layers

View: Core

- Primary Database
- Terrain
- Geographic Web
- Featured Content

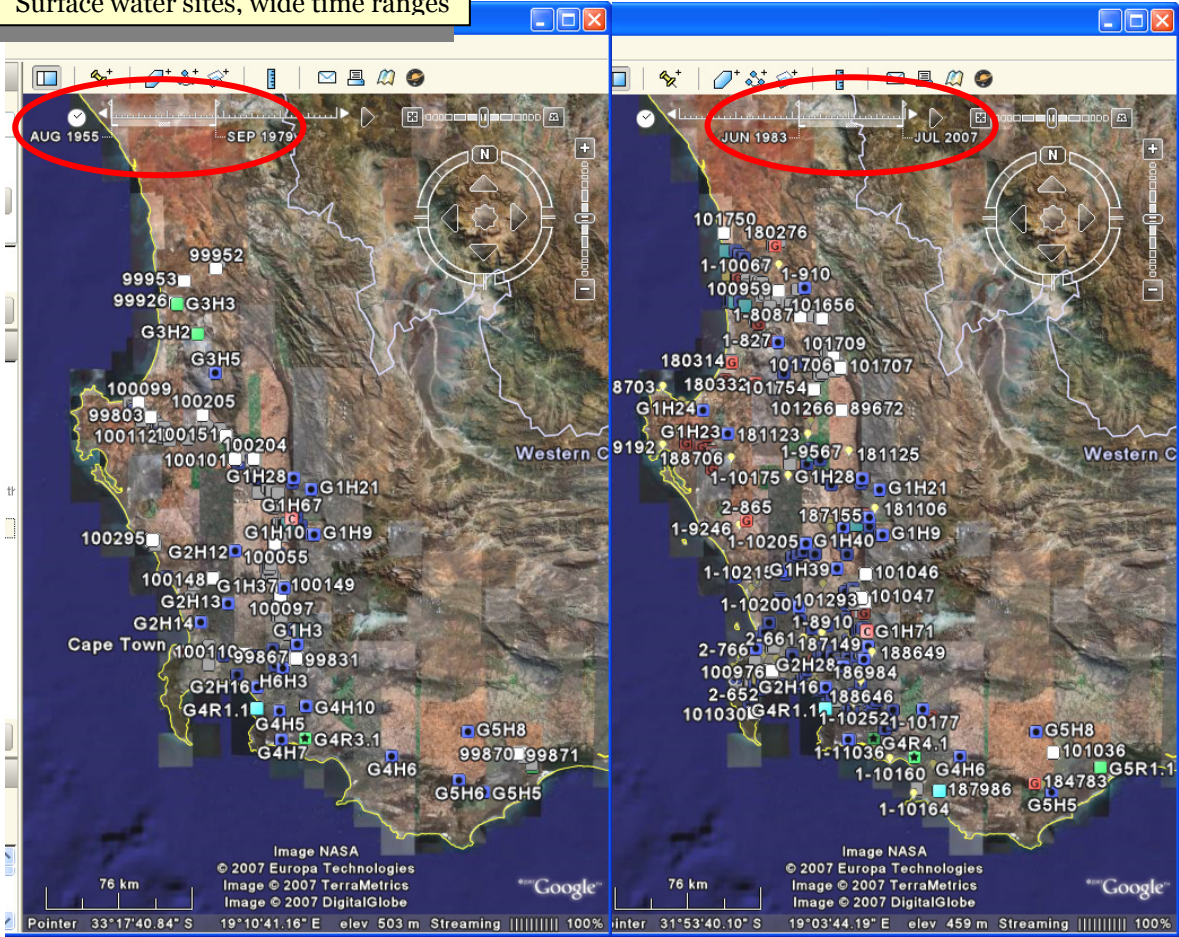
Western Cape

Image NASA
 © 2007 Europa Technologies
 Image © 2007 TerraMetrics
 Image © 2007 DigitalGlobe

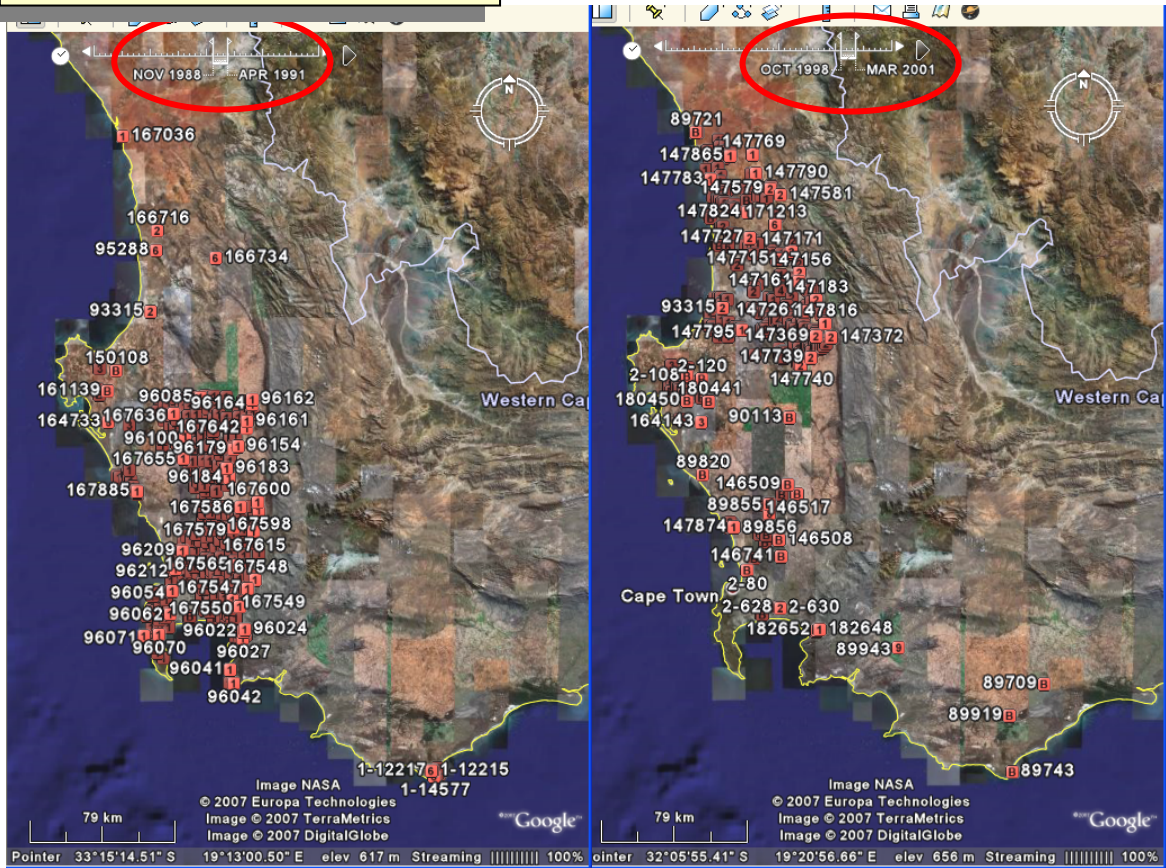
©2007 Google

Pointer: 33°32'20.60" S 20°08'08.65" E elev 767 m Streaming 100% Eye alt 387.84 km

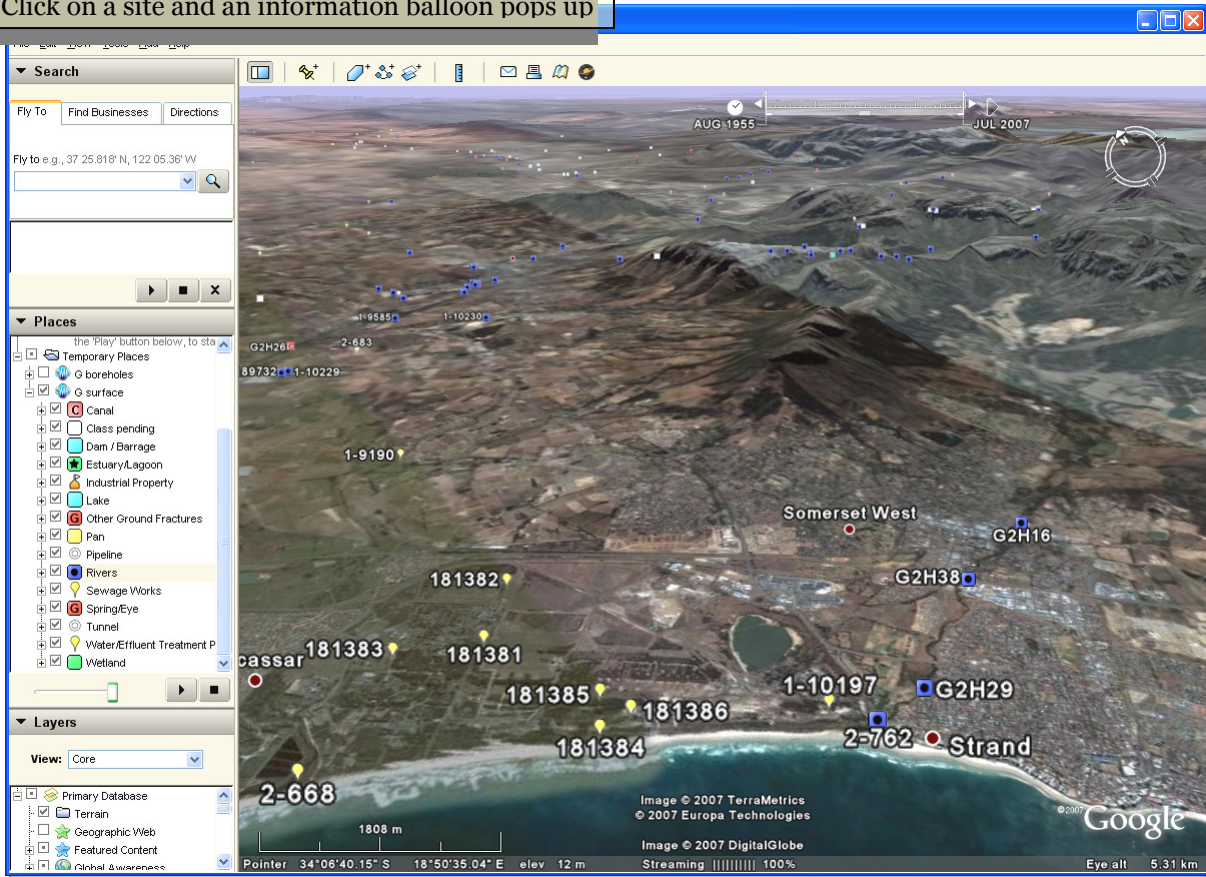
Surface water sites, wide time ranges



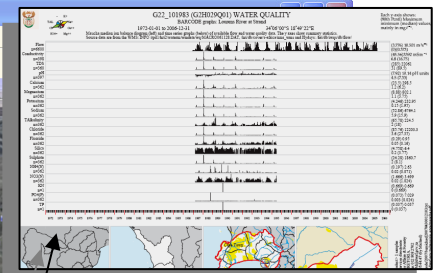
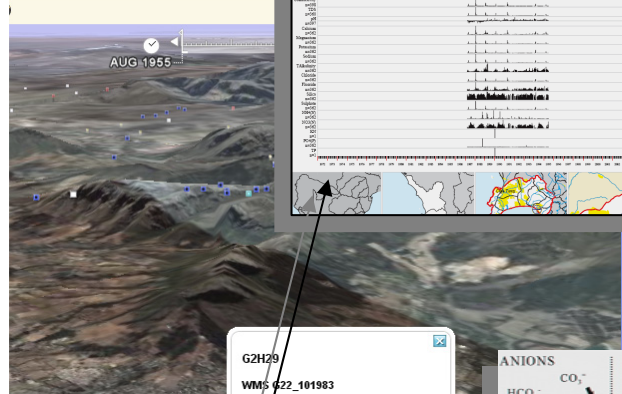
Groundwater sites, narrow time ranges



Click on a site and an information balloon pops up



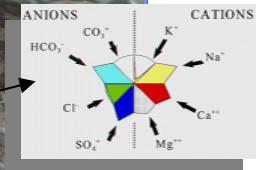
Google Earth
File Edit View Tools Add Help



G2H29

WMS G22_101983
Rivers water quality
G2H29 G01 Lourens River At Strand
1995-03-18 to 1995-06-20
[View data \(not for home use\)](#)

Directions: [To here](#) - [From here](#)

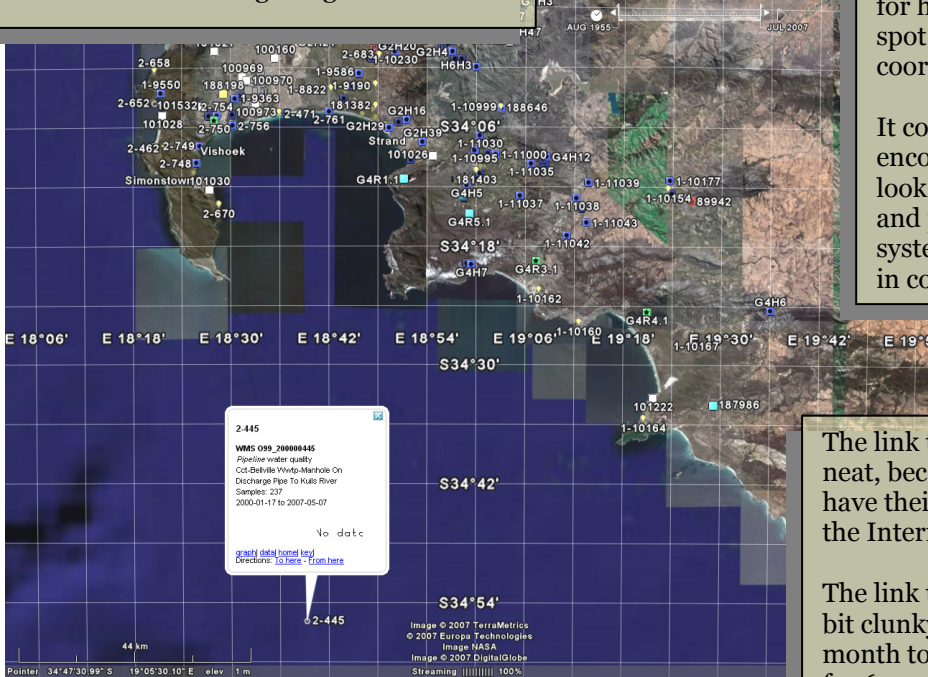


STATION	TERTIARY_DATE	TME	SODIUM	POTASSIUM	CALCIUM	MAGNESIUM	PH	CONDUCTIVITY	CHLORIDE					
"G2H29Q01"	"G22"	"18-MAR-1987"	"0717"	14.1	5.7	3.6	9.95	15.8	25.8	17.0	2.2	0.013	0.04	0.6
"G2H29Q01"	"G22"	"25-MAR-1987"	"0727"	18.1	8.7	4.7	10.19	23.32	6.24	0.1	0.019	0.05	0.3	
"G2H29Q01"	"G22"	"01-APR-1987"	"0811"	15.2	6.8	4.8	22.7	40.113	0.269	35.43	0.1	0.054	0.1	
"G2H29Q01"	"G22"	"08-APR-1987"	"0727"	43.4	1.24	8.7	40.44	4.71	22.54	0.2	0.060	0.08	0.1	
"G2H29Q01"	"G22"	"15-APR-1987"	"0834"	7.0	0.9	2.2	5.30	8.0	16.7	6.0	1.0	0.016	0.12	0.23
"G2H29Q01"	"G22"	"22-APR-1987"	"0815"	16.1	4.6	3.6	9.90	15.8	25.8	17.0	2.2	0.013	0.04	0.6
"G2H29Q01"	"G22"	"29-APR-1987"	"0755"	17.6	6.0	2.76	194.7	0.906	2.955	540.34	0.2	0.05	0.3	
"G2H29Q01"	"G22"	"06-MAY-1987"	"0825"	11.1	1.5	3.3	6.20	12.1	21.8	10.0	1.0	0.058	0.06	0.4
"G2H29Q01"	"G22"	"13-MAY-1987"	"0740"	6.0	0.7	2.2	5.40	7.6	14.8	7.0	1.0	0.029	0.06	0.33
"G2H29Q01"	"G22"	"20-MAY-1987"	"0855"	11.1	1.6	4.2	4.50	11.2	23.5	9.0	1.0	0.008	0.02	1.18
"G2H29Q01"	"G22"	"27-MAY-1987"	"0800"	12.1	2.5	3.6	13.7	23.8	15.0	1.0	0.031	0.09	1.2	
"G2H29Q01"	"G22"	"03-JUN-1987"	"0843"	11.1	1.0	5.3	6.10	12.4	21.7	10.0	1.0	0.019	0.05	1.1
"G2H29Q01"	"G22"	"10-JUN-1987"	"0822"	13.1	1.3	3.3	6.50	14.6	28.8	13.0	2.0	0.025	0.09	1.1
"G2H29Q01"	"G22"	"17-JUN-1987"	"0800"	7.1	1.5	3.2	5.00	7.6	15.4	6.0	1.0	0.015	0.11	0.72
"G2H29Q01"	"G22"	"24-JUN-1987"	"0800"	9.2	5.7	2.6	20.11	2.17	6.14	0.1	0.042	0.13	1.02	
"G2H29Q01"	"G22"	"01-JUL-1987"	"0745"	11.1	1.7	4.3	6.80	10.4	18.6	9.0	1.0	0.013	0.11	2.25
"G2H29Q01"	"G22"	"08-JUL-1987"	"0800"	11.1	1.2	4.3	6.00	11.8	20.4	7.0	1.0	0.003	0.12	1.56
"G2H29Q01"	"G22"	"15-JUL-1987"	"0812"	17.1	1.6	6.4	6.30	17.6	31.7	10.0	1.0	0.010	0.06	2.2
"G2H29Q01"	"G22"	"22-JUL-1987"	"0840"	15.1	1.6	6.4	6.00	16.2	25.8	9.0	1.0	0.010	0.07	2.46
"G2H29Q01"	"G22"	"29-JUL-1987"	"0805"	15.2	1.5	3.5	39.15	4.28	9.11	0.1	0.110	0.66	2.3	
"G2H29Q01"	"G22"	"05-AUG-1987"	"0800"	14.1	1.7	4.3	5.81	13.1	24.8	11.0	1.0	0.071	0.37	2.9

Here are 1000 randomly selected and rounded results of the data for all stations (G2H29,G01,G02,G03,G04,G05):

STATION	TERTIARY_DATE	TME	SODIUM	POTASSIUM	CALCIUM	MAGNESIUM	PH	CONDUCTIVITY	CHLORIDE
"G2H29Q01"	"G22"	"18-MAR-1987"	"0717"	14.1	5.7	3.6	9.95	15.8	25.8
"G2H29Q01"	"G22"	"25-MAR-1987"	"0727"	18.1	8.7	4.7	10.19	23.32	6.24
"G2H29Q01"	"G22"	"01-APR-1987"	"0811"	15.2	6.8	4.8	22.7	40.113	0.269
"G2H29Q01"	"G22"	"08-APR-1987"	"0727"	43.4	1.24	8.7	40.44	4.71	22.54
"G2H29Q01"	"G22"	"15-APR-1987"	"0834"	7.0	0.9	2.2	5.30	8.0	16.7
"G2H29Q01"	"G22"	"22-APR-1987"	"0815"	16.1	4.6	3.6	9.90	15.8	25.8
"G2H29Q01"	"G22"	"29-APR-1987"	"0755"	17.6	6.0	2.76	194.7	0.906	2.955
"G2H29Q01"	"G22"	"06-MAY-1987"	"0825"	11.1	1.5	3.3	6.20	12.1	21.8
"G2H29Q01"	"G22"	"13-MAY-1987"	"0740"	6.0	0.7	2.2	5.40	7.6	14.8
"G2H29Q01"	"G22"	"20-MAY-1987"	"0855"	11.1	1.6	4.2	4.50	11.2	23.5
"G2H29Q01"	"G22"	"27-MAY-1987"	"0800"	12.1	2.5	3.6	13.7	23.8	15.0
"G2H29Q01"	"G22"	"03-JUN-1987"	"0843"	11.1	1.0	5.3	6.10	12.4	21.7
"G2H29Q01"	"G22"	"10-JUN-1987"	"0822"	13.1	1.3	3.3	6.50	14.6	28.8
"G2H29Q01"	"G22"	"17-JUN-1987"	"0800"	7.1	1.5	3.2	5.00	7.6	15.4
"G2H29Q01"	"G22"	"24-JUN-1987"	"0800"	9.2	5.7	2.6	20.11	2.17	6.14
"G2H29Q01"	"G22"	"01-JUL-1987"	"0745"	11.1	1.7	4.3	6.80	10.4	18.6
"G2H29Q01"	"G22"	"08-JUL-1987"	"0800"	11.1	1.2	4.3	6.00	11.8	20.4
"G2H29Q01"	"G22"	"15-JUL-1987"	"0812"	17.1	1.6	6.4	6.30	17.6	31.7
"G2H29Q01"	"G22"	"22-JUL-1987"	"0840"	15.1	1.6	6.4	6.00	16.2	25.8
"G2H29Q01"	"G22"	"29-JUL-1987"	"0805"	15.2	1.5	3.5	39.15	4.28	9.11
"G2H29Q01"	"G22"	"05-AUG-1987"	"0800"	14.1	1.7	4.3	5.81	13.1	24.8

Manhole cover drifting in Agulhas current...



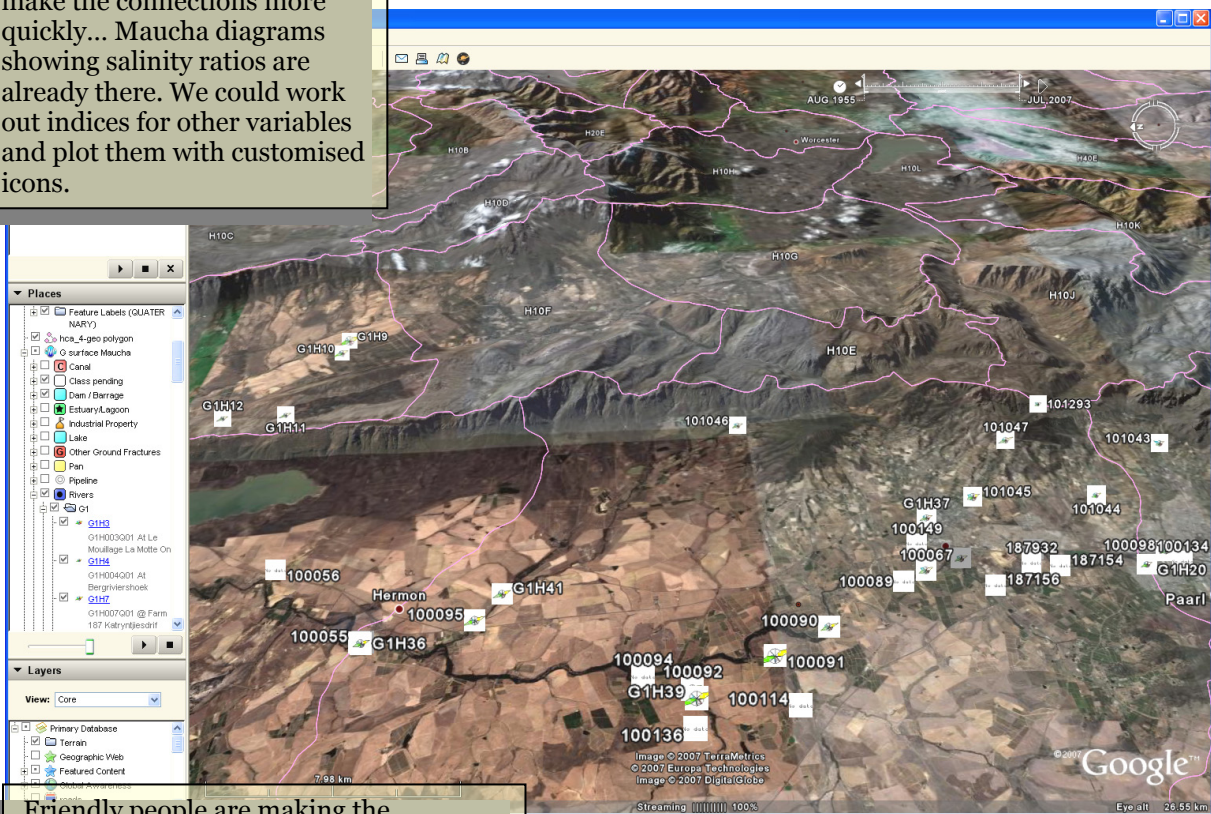
The interface has the potential for helping regional officers to spot errors and fix site coordinates.

It could provide encouragement to users to look around their catchments and put missing data on the system so that they can see it in context.

The link to flow data is quite neat, because the hydrologists have their data accessible on the Internet.

The link to water quality is a bit clunky, and it takes about a month to download the data for 60 000 sites and convert it into graphs and data tables.

Water quality displayed on the landscape allows the user to make the connections more quickly... Maucha diagrams showing salinity ratios are already there. We could work out indices for other variables and plot them with customised icons.



Friendly people are making the conversion process to KML files less painful: a few free Excel to KML converters are out there on the net. GIS packages include exporters for point and polygon data. When ESRI catches up, we will be able to serve up our standard coverages in ArcGIS Explorer.

KML isn't all that hard to generate, so many programmers will be able to add it as an output option.



Web Personalized Results 1 - 10 of about 29,700,000 for kml. (0.22 second)
KML - Overview
 KML is a file format used to display geographic data in an Earth browser, such as Google Earth, Google Maps, and Google Maps for mobile. ...