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A MONTHLY outlook of Water in South Africa

The National Water Quantity Service (NWQS)

Presented by
Mark Thompson, GTI

An open data service supporting Government water resource management.

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What is the National Water Quantity Service?

- Monthly updated, national coverage information service provided to all tiers of SA Government, through a license agreement between SANSA and GTI/EkoSource.

- Spatial and tabulated information on where water exists in the landscape, and the current volume in all dams and reservoirs.

- And its *free and open access* to all Government departments, State organisations, Universities, and 3rd parties working on government funded contracts.

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NWQS. Why should you be interested ?

- South Africa is a water scarce country.
- Water security issues impact social and environmental aspects, public health, quality of life, energy provision, food security, ecosystem functionality, biodiversity, and cultural practices.
- Sustainable water management is deemed crucial for preserving these interconnected aspects of society.
- Accurate, reliable, consistent and regular information is a critical pre-requisite for sustainable water resource management, especially in water scarce and water-challenged countries.

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What does the Service offer ?

- Monthly data histories from 2016 to present.
- National and local detail content reporting.
- Publicly accessible dynamic dashboards for visual information.
- Registered users can access downloadable GIS and Excel data for own analytics.

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NWQS supporting Natural Capital Accounting

- **Unlimited options for possible data use cases …**
- **Monitoring of Pans & Wetlands – assessing seasonal permanency, historical trends.**
- **Distinguishing and quantifying natural versus man-made water resources.**
- **Monitoring Estuarine trends and characteristics.**
- **Understanding water availability and security across the landscape.**
- **Understanding landscape wide water flow characteristics and land-use impacts.**
- **Monitoring impact and management of invasive water plants.**

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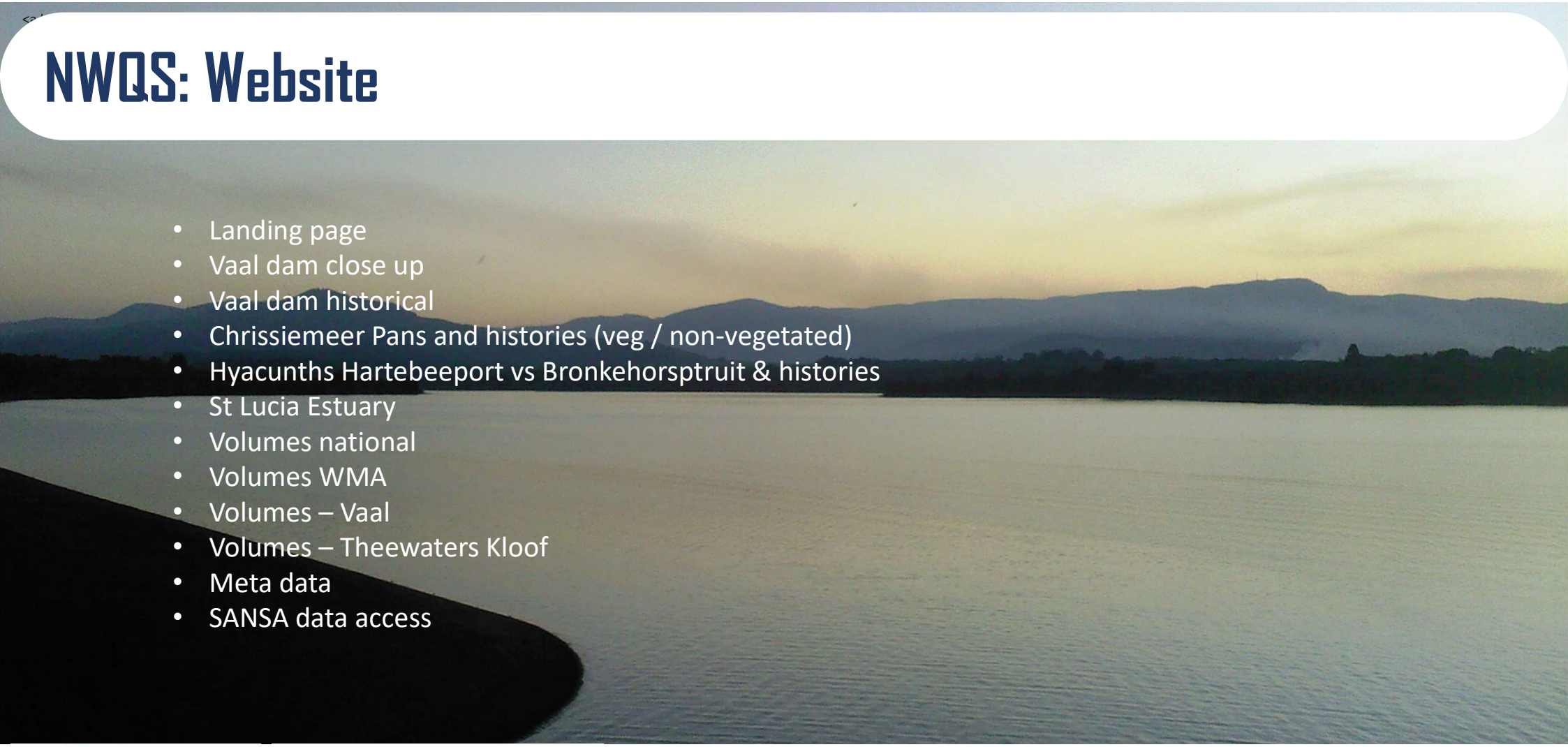
NWQS: Website



- Landing page
- Vaal dam close up
- Vaal dam historical
- Chrissiemeer Pans and histories (veg / non-vegetated)
- Hyacunths Hartebeeport vs Bronkehorsptruit & histories
- St Lucia Estuary
- Volumes national
- Volumes WMA
- Volumes – Vaal
- Volumes – Theewaters Kloof
- Meta data
- SANSA data access

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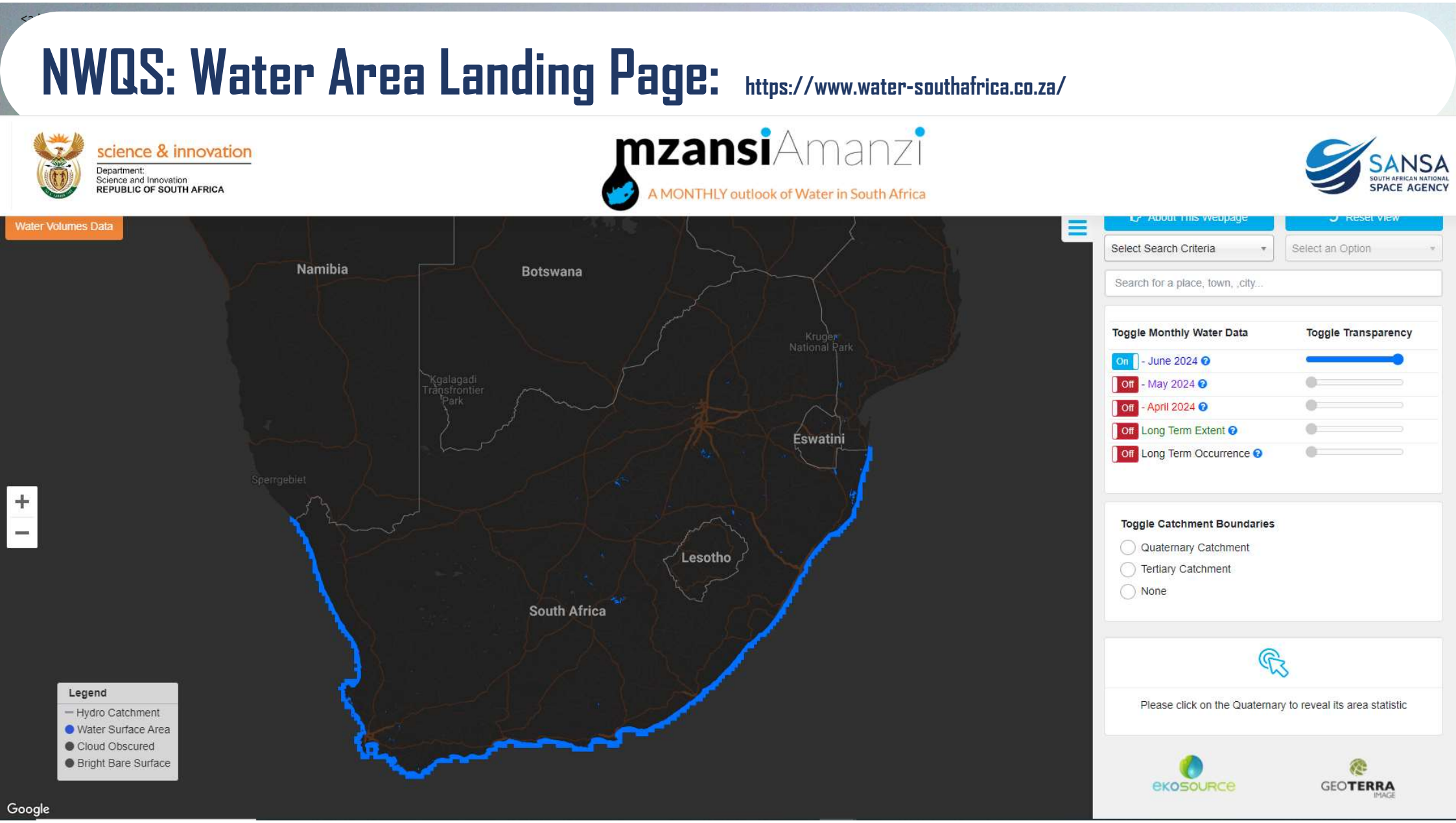
NWQS: Water Area Landing Page: https://www.water-southafrica.co.za/



NWQS: Vaal Dam surface area June 2024

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NWQS: Vaal Dam surface history 2016 - 2024

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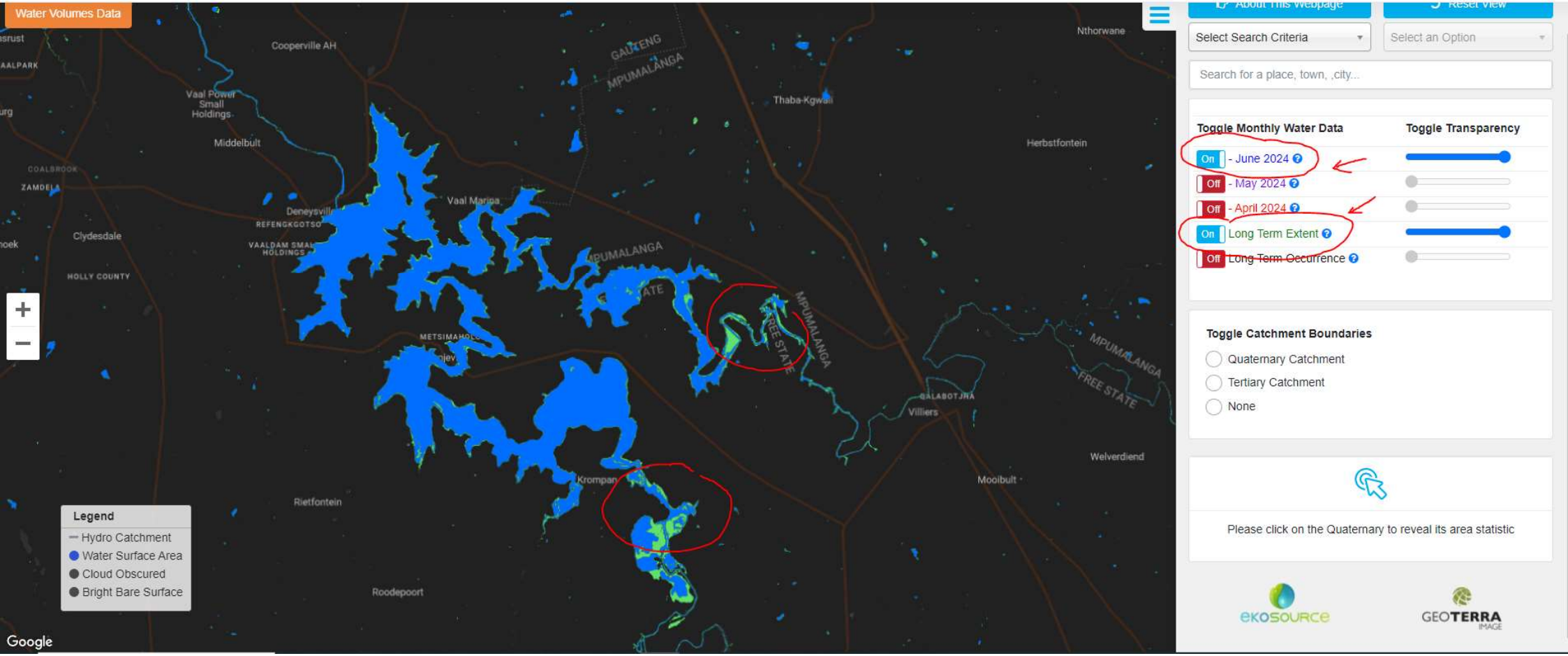

NWQS: Chrissiesmeer Pans Long-term 2016 - 2024

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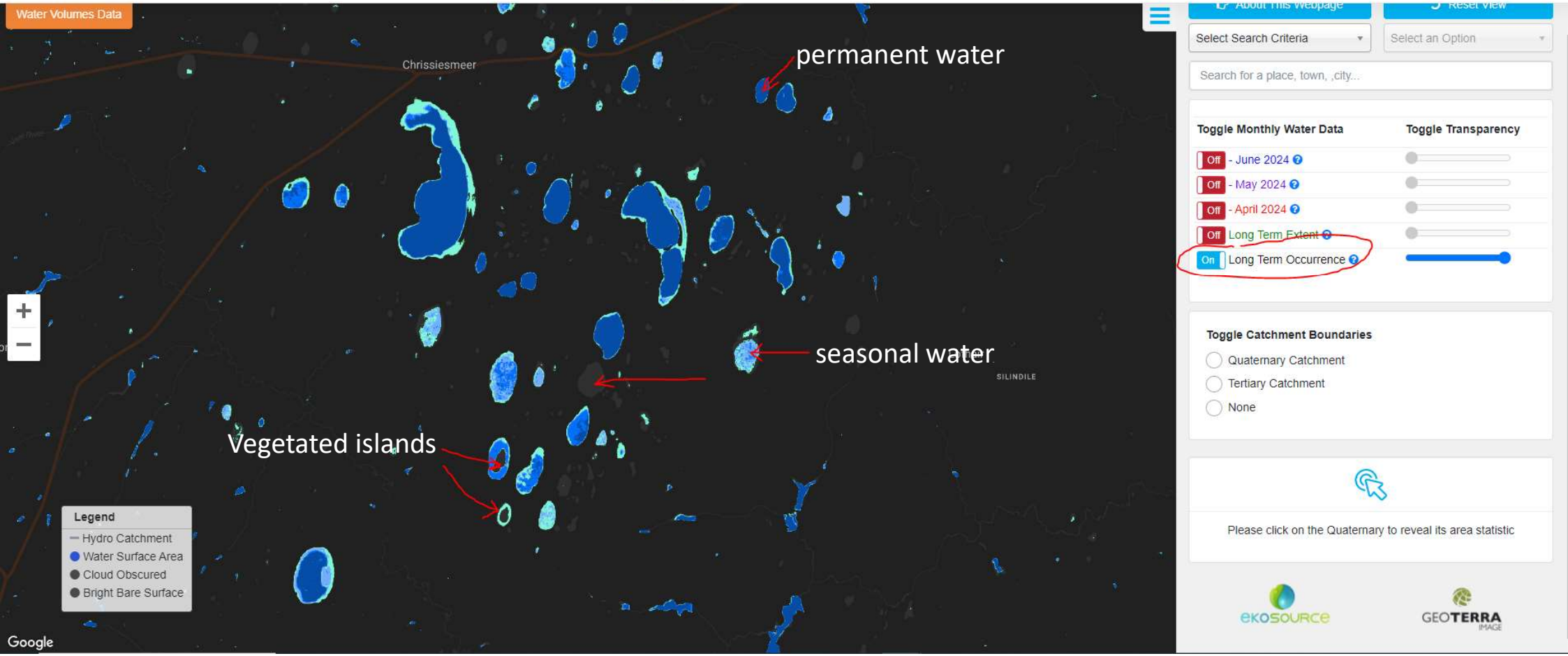
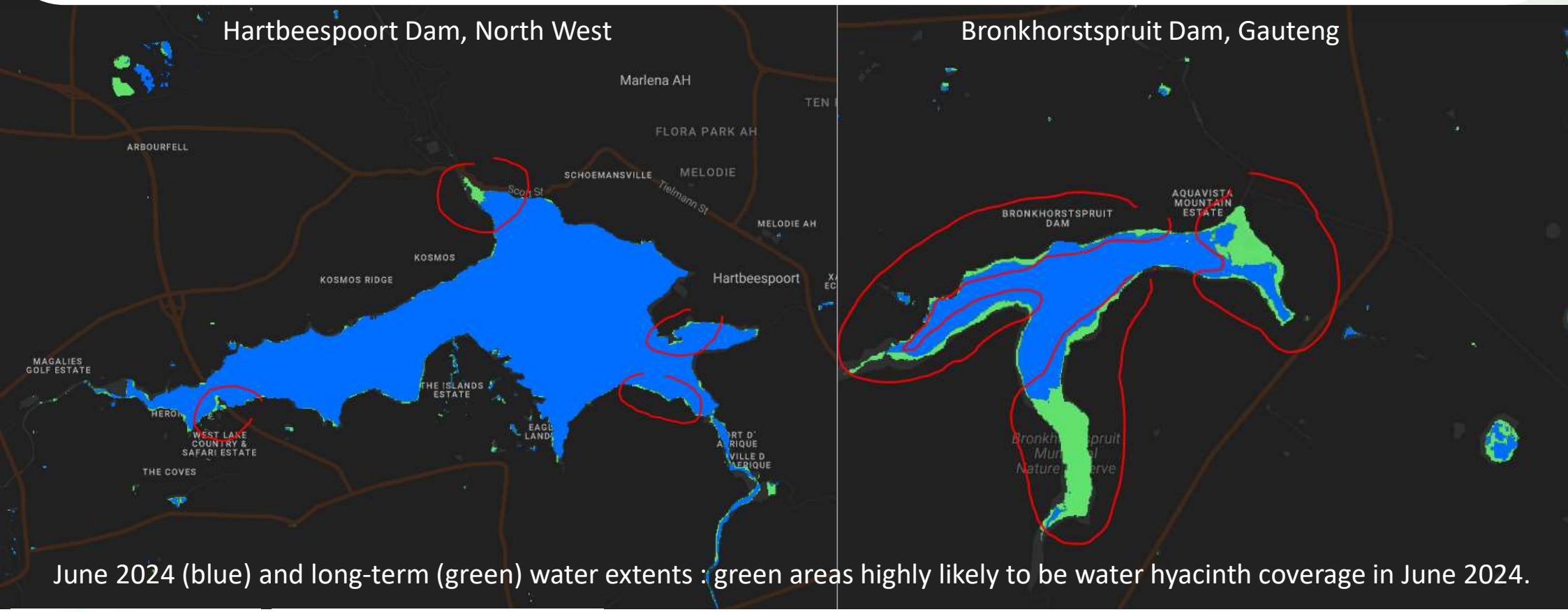


NWQS: Tracking Water Hyacinths



June 2024 (blue) and long-term (green) water extents : green areas highly likely to be water hyacinth coverage in June 2024.

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NWQS: Tracking Estuary Changes 2016 - 2024

NWQS: Dam Volumes Landing Page http://sbdvc.ekodata.co.za/

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Satellite Based Dams Volumes Calculator

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Large Dams

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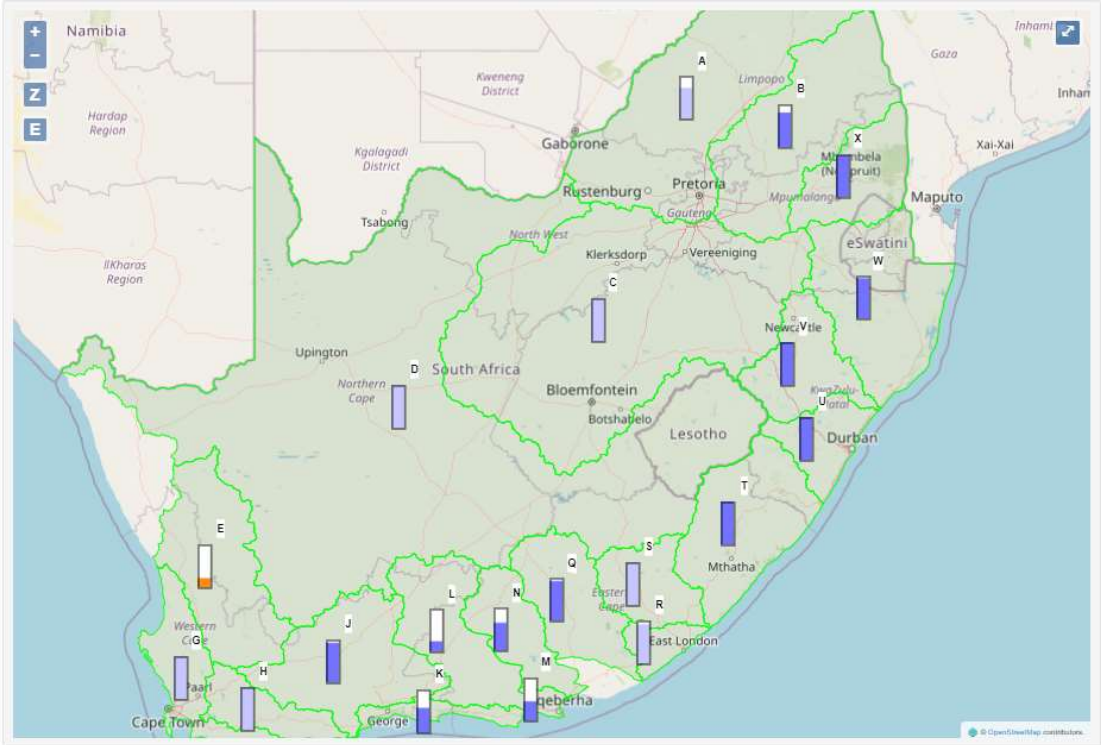
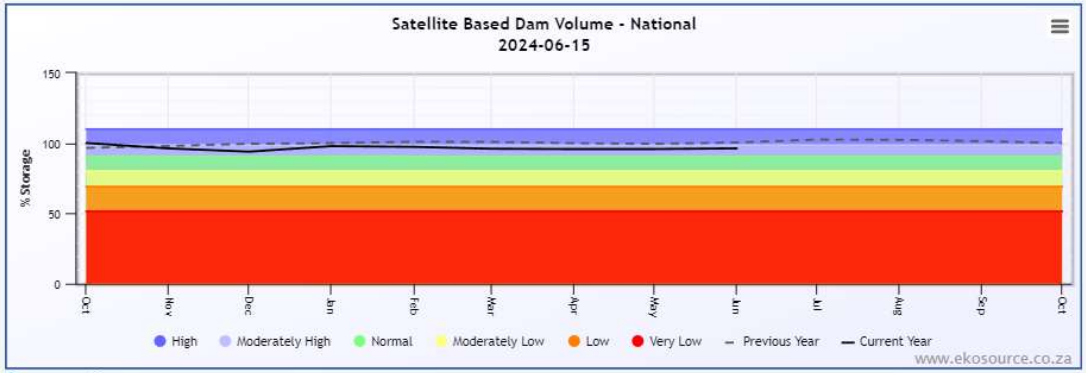


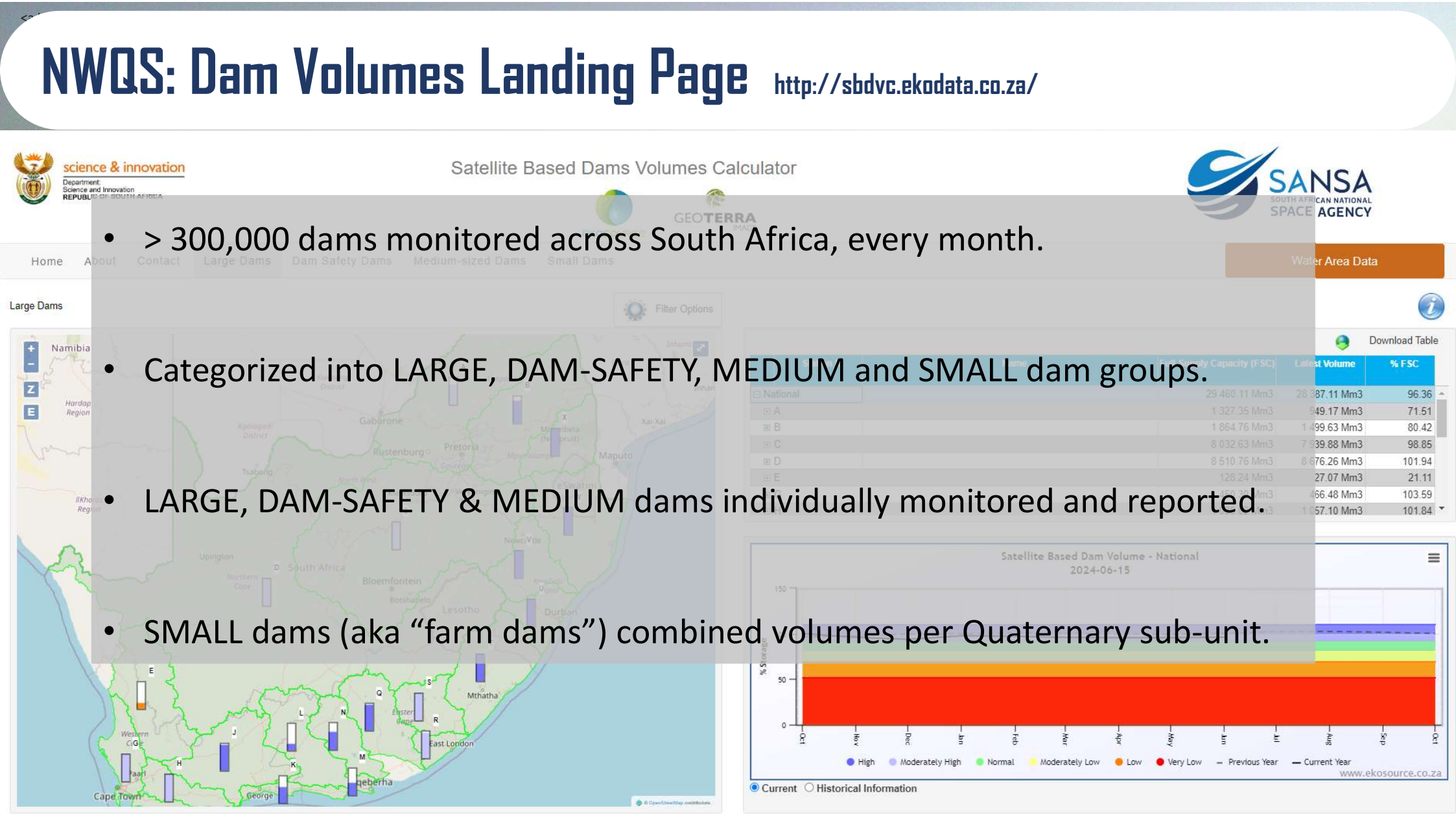
Download Table

Station Id	Name	Full Supply Capacity (FSC)	Latest Volume	% FSC
National		29 460.11 Mm3	28 387.11 Mm3	96.36
A		1 327.35 Mm3	949.17 Mm3	71.51
B		1 864.76 Mm3	1 499.63 Mm3	80.42
C		8 032.63 Mm3	7 939.88 Mm3	98.85
D		8 510.76 Mm3	8 676.26 Mm3	101.94
E		128.24 Mm3	27.07 Mm3	21.11
G		450.30 Mm3	466.48 Mm3	103.59
H		1 038.02 Mm3	1 057.10 Mm3	101.84



Current | Historical Information

NWQS: Dam Volumes Landing Page http://sbdvc.ekodata.co.za/



- > 300,000 dams monitored across South Africa, every month.
- Categorized into LARGE, DAM-SAFETY, MEDIUM and SMALL dam groups.
- LARGE, DAM-SAFETY & MEDIUM dams individually monitored and reported.
- SMALL dams (aka “farm dams”) combined volumes per Quaternary sub-unit.

NWQS: Dam Volumes WMA level reporting

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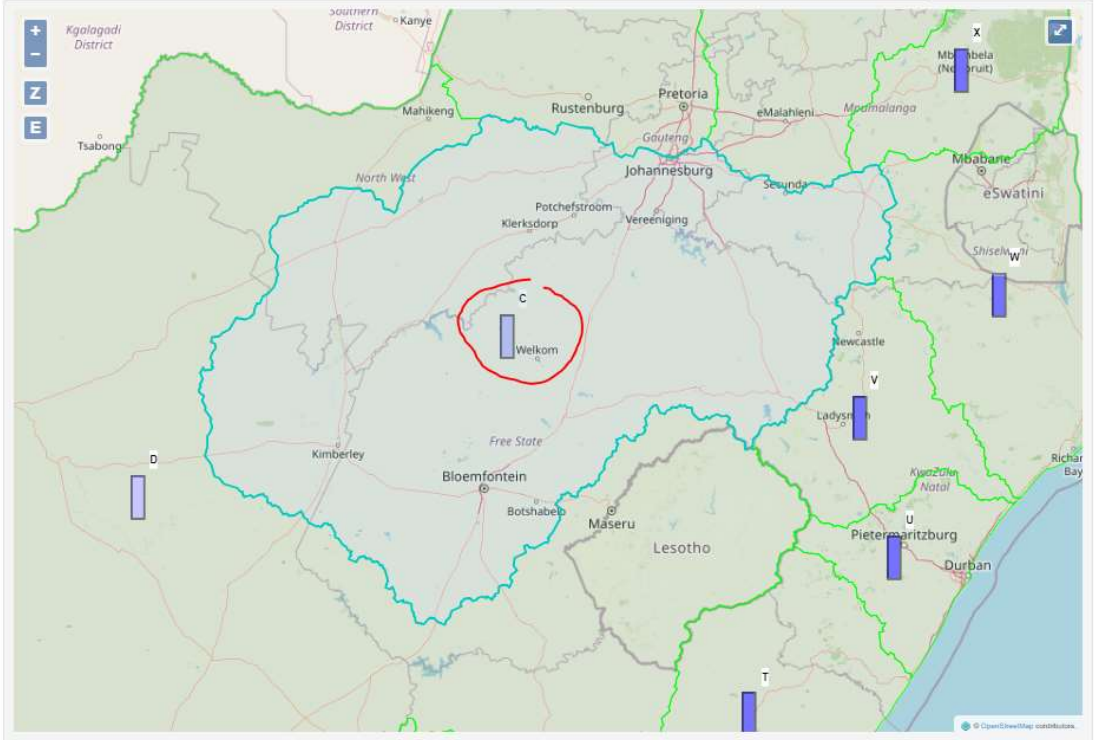

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G		450.30 Mm3	466.48 Mm3	103.59
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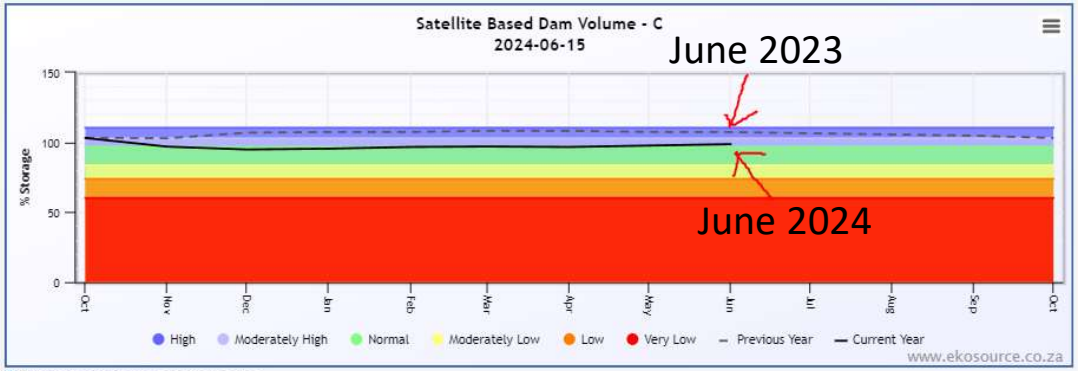
Water Management Area "C"



Current | Historical Information

NWQS: Dam Volumes - Individual Dams

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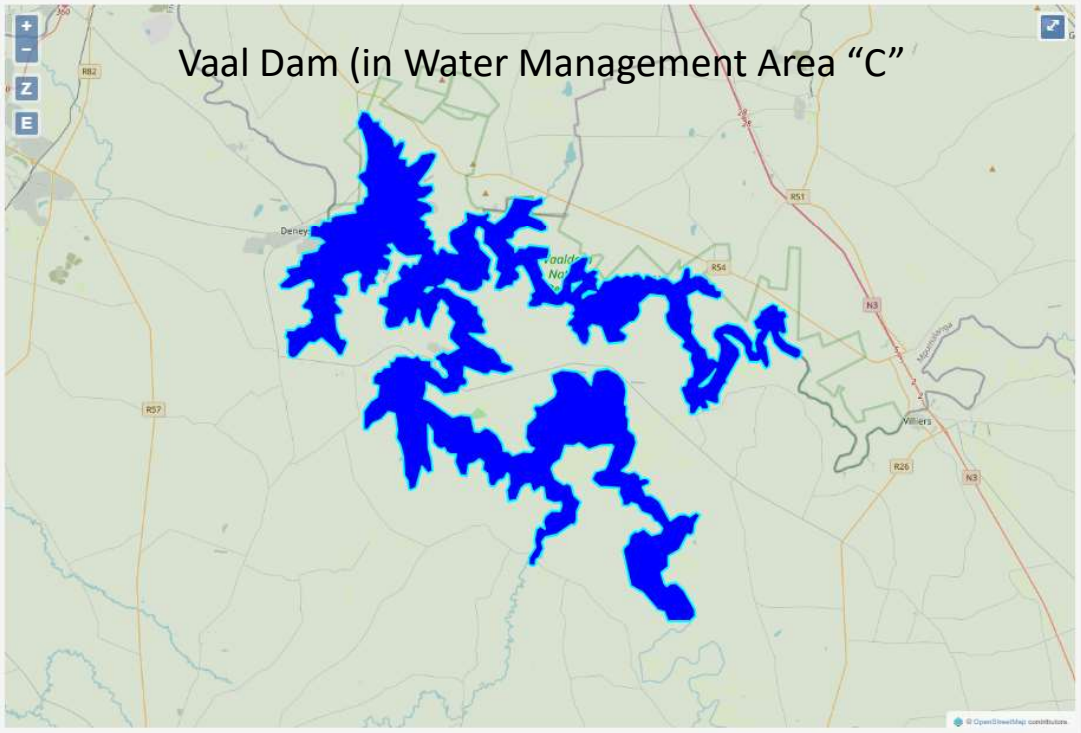
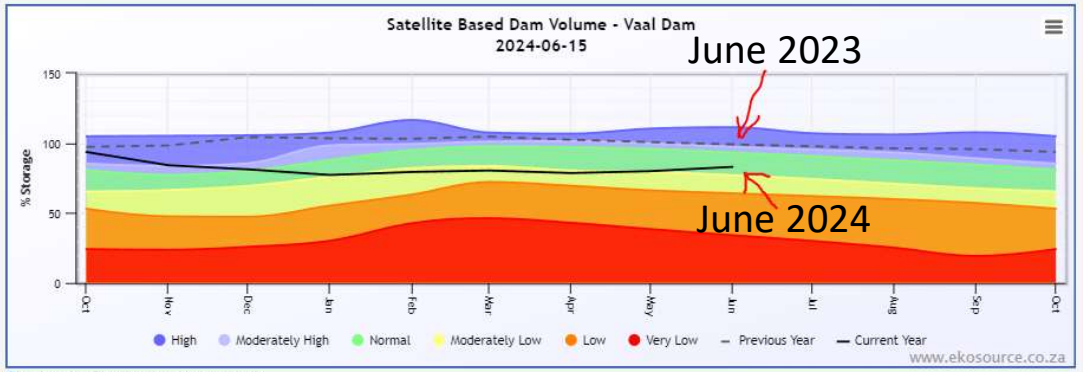


Quantitative volume metrics

Download Table

Station Id	Name	Full Supply Capacity (FSC)	Latest Volume	% FSC
B		1 864.76 Mm3	1 499.63 Mm3	80.42
C		8 032.63 Mm3	7 939.88 Mm3	98.85
C1R001	VAAL DAM	2 603.45 Mm3	2 162.49 Mm3	83.06
C1R002	GROOTDRAAI DAM	349.53 Mm3	341.31 Mm3	97.65
C2R001	BOSKOP DAM	21.03 Mm3	15.92 Mm3	75.70
C2R002	JOHAN NESER DAM	5.67 Mm3	3.15 Mm3	55.46
C2R003	KLERKSKAAL DAM	7.92 Mm3	3.11 Mm3	39.20
C2R004	POTCHEFSTROOM DAM	2.03 Mm3	1.28 Mm3	62.98



Current | Historical Information

NWQS: Dam Volumes - Individual Dams History

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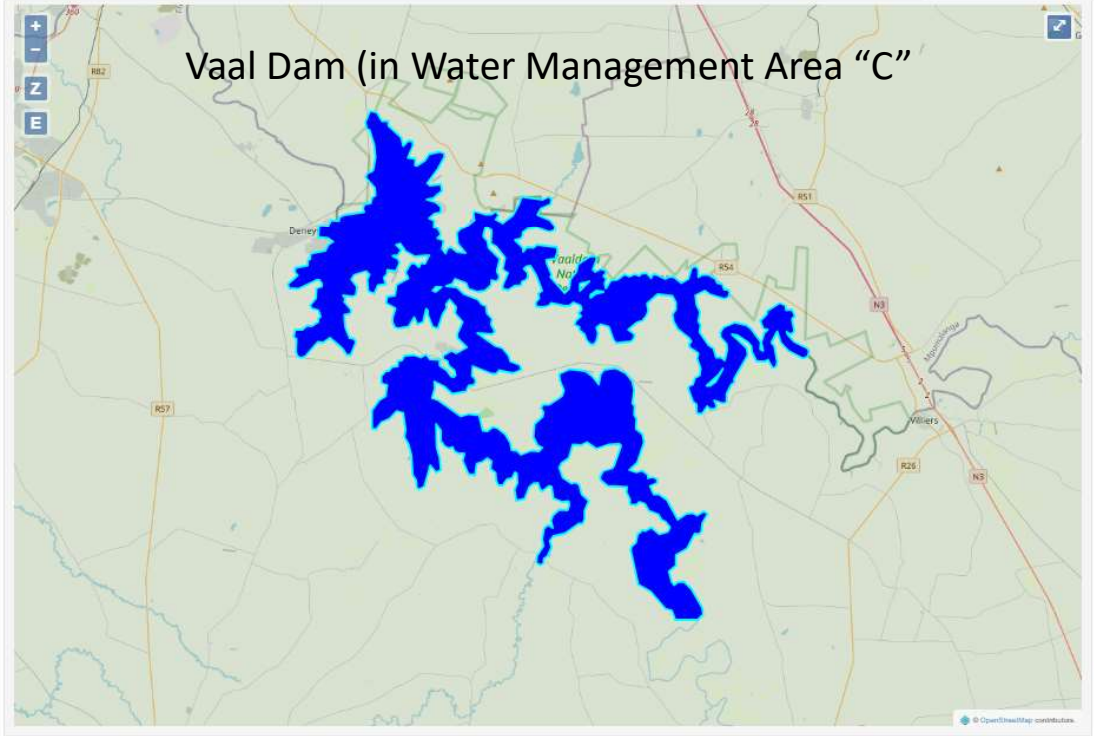

Quantitative volume metrics

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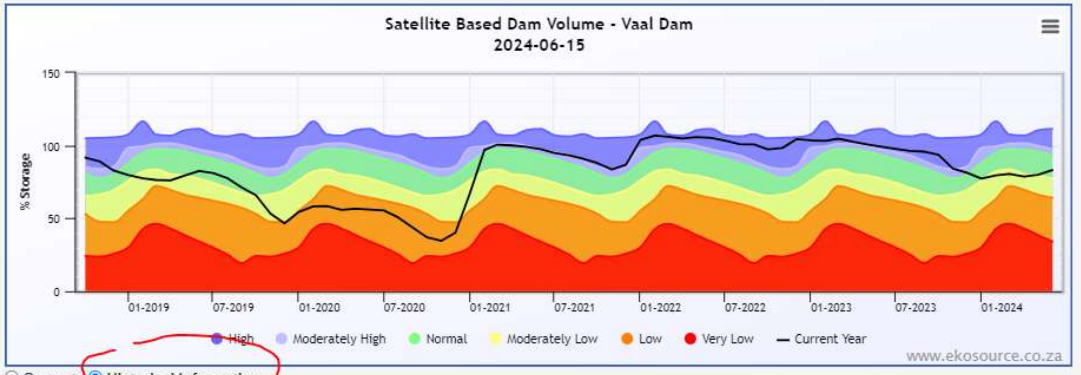

Current Historical Information

2016 – 2024 time-series data available

NWQS: Dam Volumes - Individual Dams History

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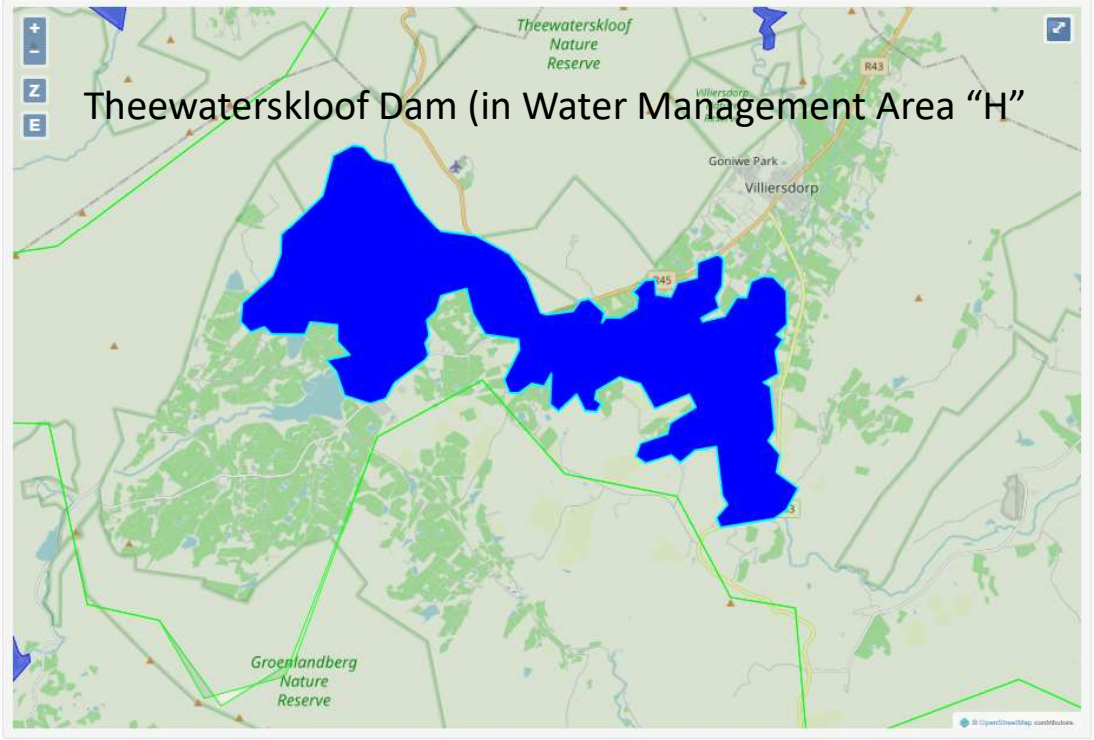
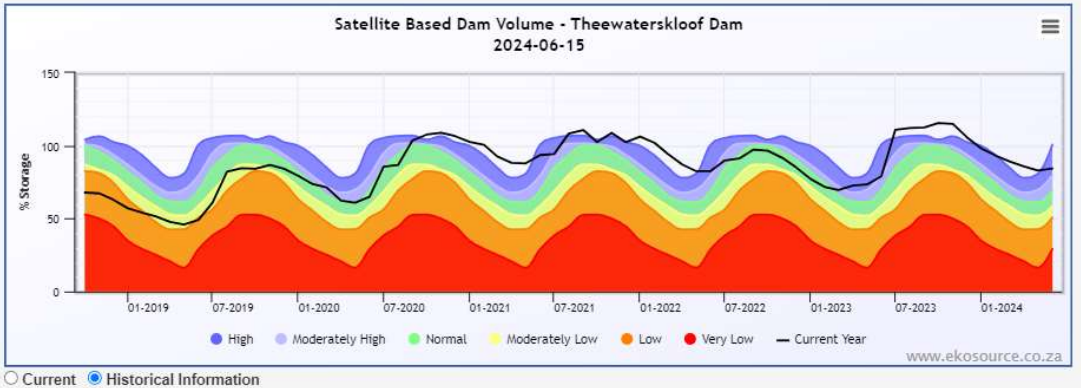


Theewaterskloof Dam (in Water Management Area "H"

Quantitative volume metrics

Download Table

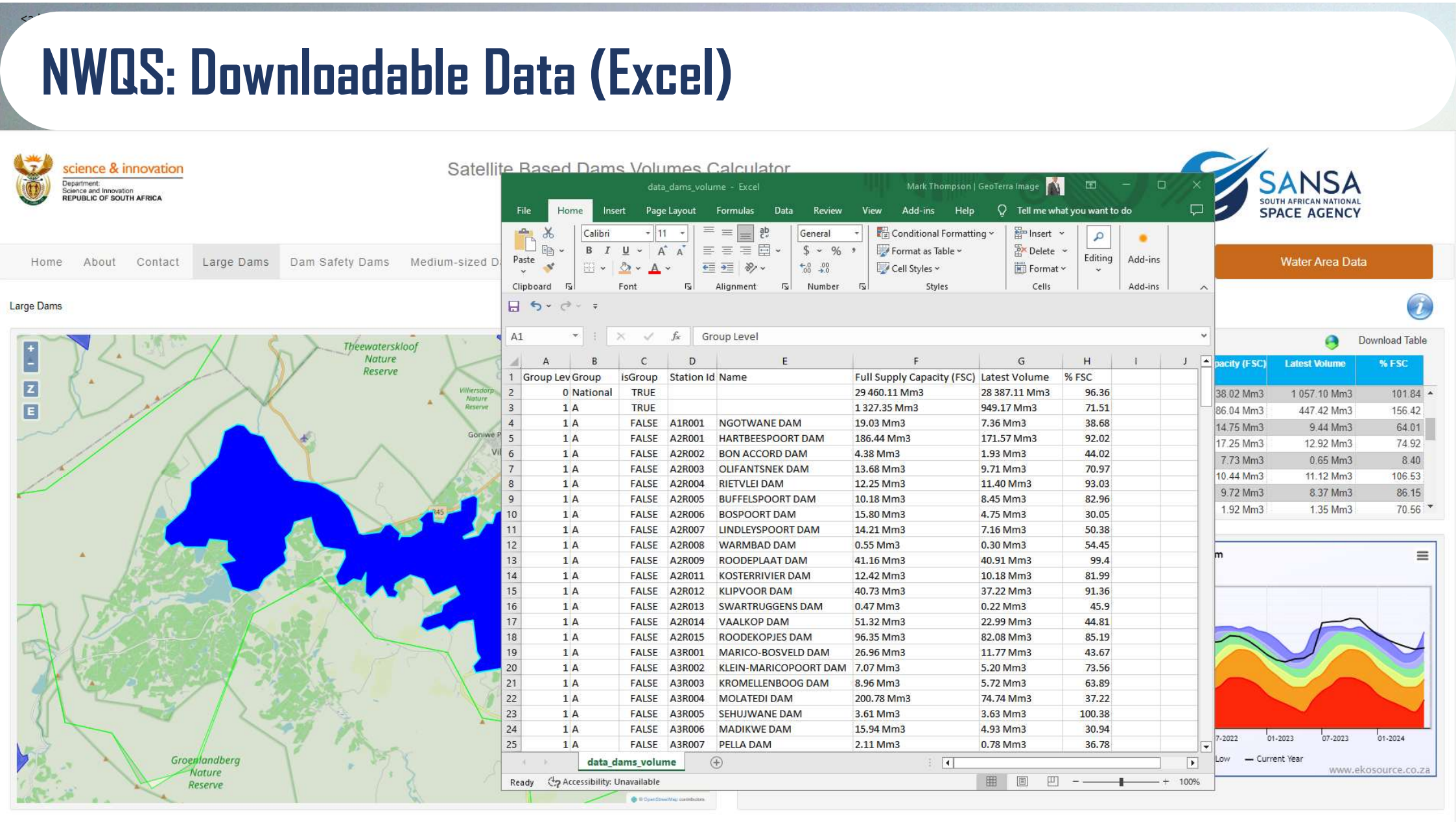
Station Id	Name	Full Supply Capacity (FSC)	Latest Volume	% FSC
H4R003	KLIPBERG DAM	1.94 Mm3	1.09 Mm3	56.14
H4R004	KWAGGASKLOOF DAM	169.41 Mm3	129.63 Mm3	76.52
H6R001	THEEWATERSKLOOF DAM	479.26 Mm3	404.16 Mm3	84.33
H6R002	ELANDSKLOOF DAM	10.99 Mm3	4.25 Mm3	38.68
H7R001	BUFFELJAGS DAM	4.54 Mm3	3.22 Mm3	70.94
H8R001	DUIWENHOKS DAM	6.18 Mm3	3.60 Mm3	58.30
H9R001	KORENTEPOORT DAM	8.09 Mm3	8.41 Mm3	103.92
J		196.87 Mm3	181.27 Mm3	92.07



Current Historical Information

2016 – 2024 time-series data available

NWQS: Downloadable Data (Excel)



	A	B	C	D	E	F	G	H	I	J
1	Group Lev	Group	isGroup	Station Id	Name	Full Supply Capacity (FSC)	Latest Volume	% FSC		
2	0	National	TRUE			29 460.11 Mm3	28 387.11 Mm3	96.36		
3	1	A	TRUE			1 327.35 Mm3	949.17 Mm3	71.51		
4	1	A	FALSE	A1R001	NGOTWANE DAM	19.03 Mm3	7.36 Mm3	38.68		
5	1	A	FALSE	A2R001	HARTBEESPOORT DAM	186.44 Mm3	171.57 Mm3	92.02		
6	1	A	FALSE	A2R002	BON ACCORD DAM	4.38 Mm3	1.93 Mm3	44.02		
7	1	A	FALSE	A2R003	OLIFANTSNEK DAM	13.68 Mm3	9.71 Mm3	70.97		
8	1	A	FALSE	A2R004	RIETVLEI DAM	12.25 Mm3	11.40 Mm3	93.03		
9	1	A	FALSE	A2R005	BUFFELSPOORT DAM	10.18 Mm3	8.45 Mm3	82.96		
10	1	A	FALSE	A2R006	BOSPOORT DAM	15.80 Mm3	4.75 Mm3	30.05		
11	1	A	FALSE	A2R007	LINDLEYSPOORT DAM	14.21 Mm3	7.16 Mm3	50.38		
12	1	A	FALSE	A2R008	WARMBAD DAM	0.55 Mm3	0.30 Mm3	54.45		
13	1	A	FALSE	A2R009	ROODEPLAAT DAM	41.16 Mm3	40.91 Mm3	99.4		
14	1	A	FALSE	A2R011	KOSTERRIVIER DAM	12.42 Mm3	10.18 Mm3	81.99		
15	1	A	FALSE	A2R012	KLIPVOOR DAM	40.73 Mm3	37.22 Mm3	91.36		
16	1	A	FALSE	A2R013	SWARTRUGGENS DAM	0.47 Mm3	0.22 Mm3	45.9		
17	1	A	FALSE	A2R014	VAALKOP DAM	51.32 Mm3	22.99 Mm3	44.81		
18	1	A	FALSE	A2R015	ROODEKOPJES DAM	96.35 Mm3	82.08 Mm3	85.19		
19	1	A	FALSE	A3R001	MARICO-BOSVELD DAM	26.96 Mm3	11.77 Mm3	43.67		
20	1	A	FALSE	A3R002	KLEIN-MARICOPOORT DAM	7.07 Mm3	5.20 Mm3	73.56		
21	1	A	FALSE	A3R003	KROMELLENBOOG DAM	8.96 Mm3	5.72 Mm3	63.89		
22	1	A	FALSE	A3R004	MOLATEDI DAM	200.78 Mm3	74.74 Mm3	37.22		
23	1	A	FALSE	A3R005	SEHUJWANE DAM	3.61 Mm3	3.63 Mm3	100.38		
24	1	A	FALSE	A3R006	MADIKWE DAM	15.94 Mm3	4.93 Mm3	30.94		
25	1	A	FALSE	A3R007	PELLA DAM	2.11 Mm3	0.78 Mm3	36.78		

NWQS: Metadata and User Guides

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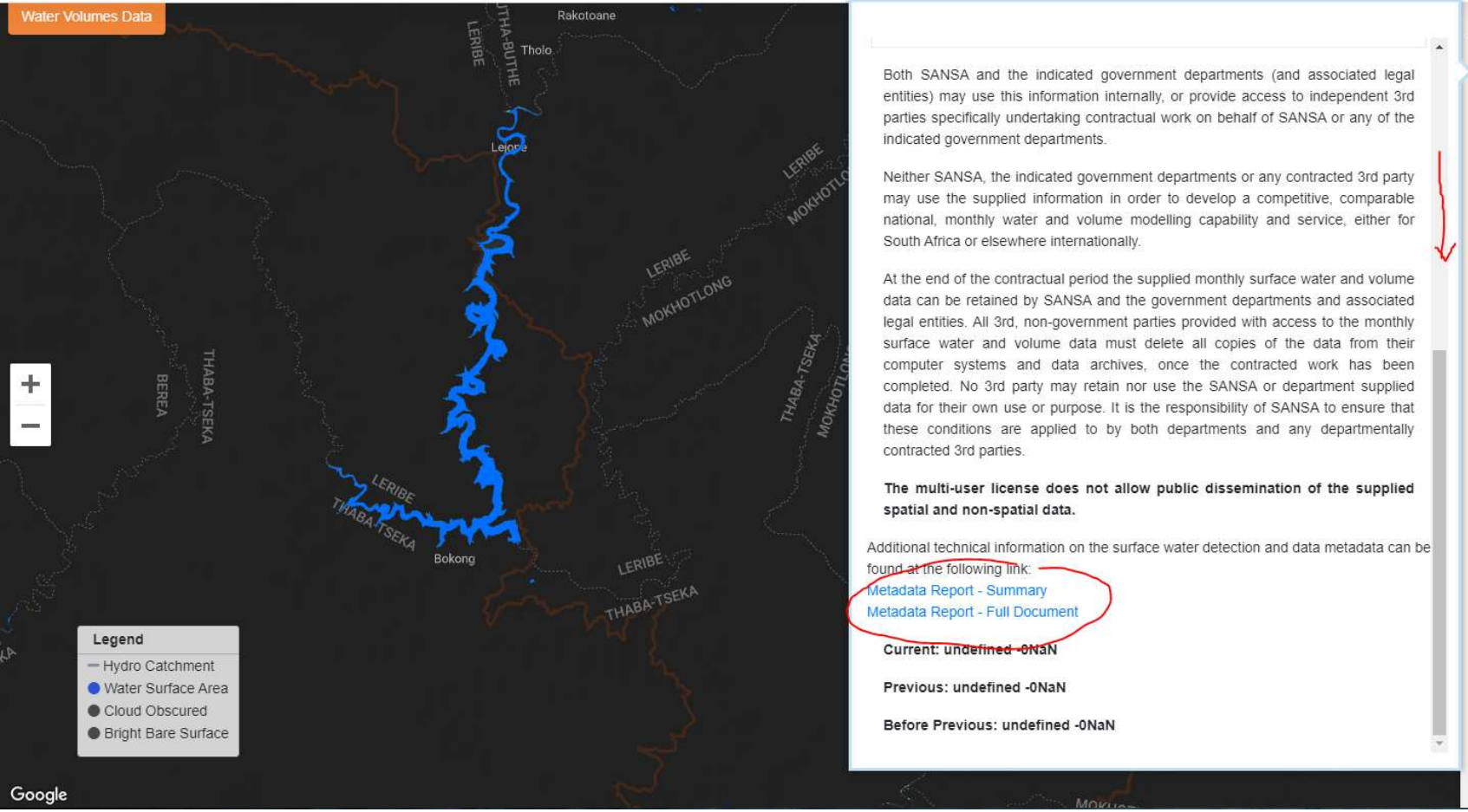

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Neither SANSA, the indicated government departments or any contracted 3rd party may use the supplied information in order to develop a competitive, comparable national, monthly water and volume modelling capability and service, either for South Africa or elsewhere internationally.

At the end of the contractual period the supplied monthly surface water and volume data can be retained by SANSA and the government departments and associated legal entities. All 3rd, non-government parties provided with access to the monthly surface water and volume data must delete all copies of the data from their computer systems and data archives, once the contracted work has been completed. No 3rd party may retain nor use the SANSA or department supplied data for their own use or purpose. It is the responsibility of SANSA to ensure that these conditions are applied to by both departments and any departmentally contracted 3rd parties.

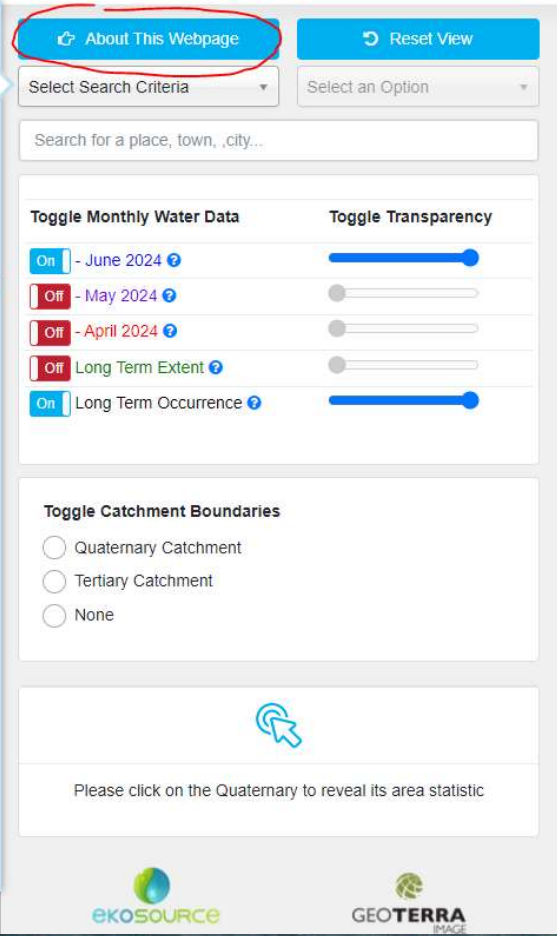
The multi-user license does not allow public dissemination of the supplied spatial and non-spatial data.

Additional technical information on the surface water detection and data metadata can be found at the following link:
Metadata Report - Summary
Metadata Report - Full Document

Current: undefined -0NaN

Previous: undefined -0NaN

Before Previous: undefined -0NaN



NWQS: Registering with SANSA for data access

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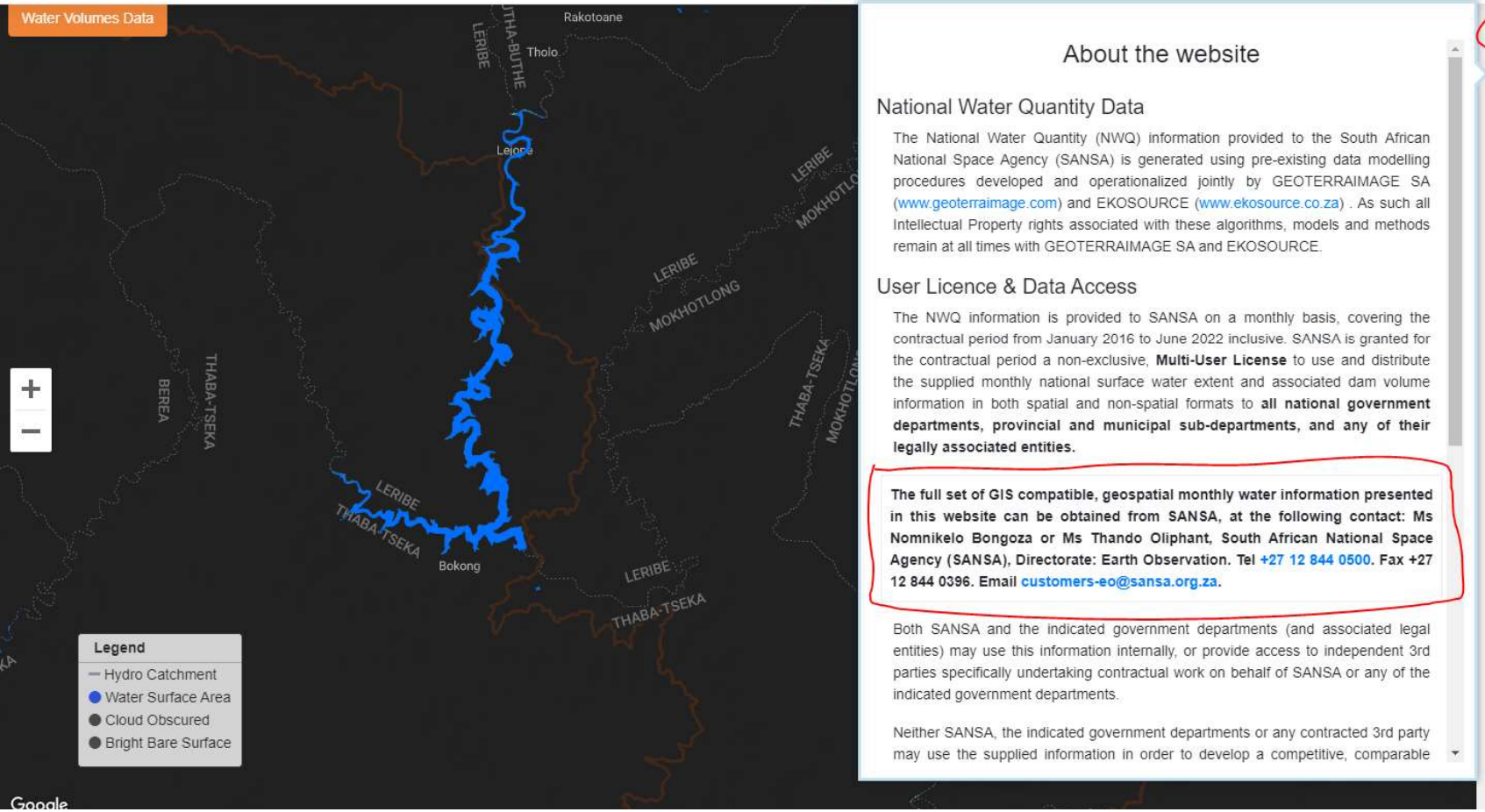

About the website

National Water Quantity Data

The National Water Quantity (NWQ) information provided to the South African National Space Agency (SANSA) is generated using pre-existing data modelling procedures developed and operationalized jointly by GEOTERRAIMAGE SA (www.geoterraimage.com) and EKOSOURCE (www.ekosource.co.za) . As such all Intellectual Property rights associated with these algorithms, models and methods remain at all times with GEOTERRAIMAGE SA and EKOSOURCE.

User Licence & Data Access

The NWQ information is provided to SANSA on a monthly basis, covering the contractual period from January 2016 to June 2022 inclusive. SANSA is granted for the contractual period a non-exclusive, **Multi-User License** to use and distribute the supplied monthly national surface water extent and associated dam volume information in both spatial and non-spatial formats to **all national government departments, provincial and municipal sub-departments, and any of their legally associated entities.**

The full set of GIS compatible, geospatial monthly water information presented in this website can be obtained from SANSA, at the following contact: Ms Nomnikelo Bongoza or Ms Thando Oliphant, South African National Space Agency (SANSA), Directorate: Earth Observation. Tel +27 12 844 0500. Fax +27 12 844 0396. Email customers-eo@sansa.org.za.

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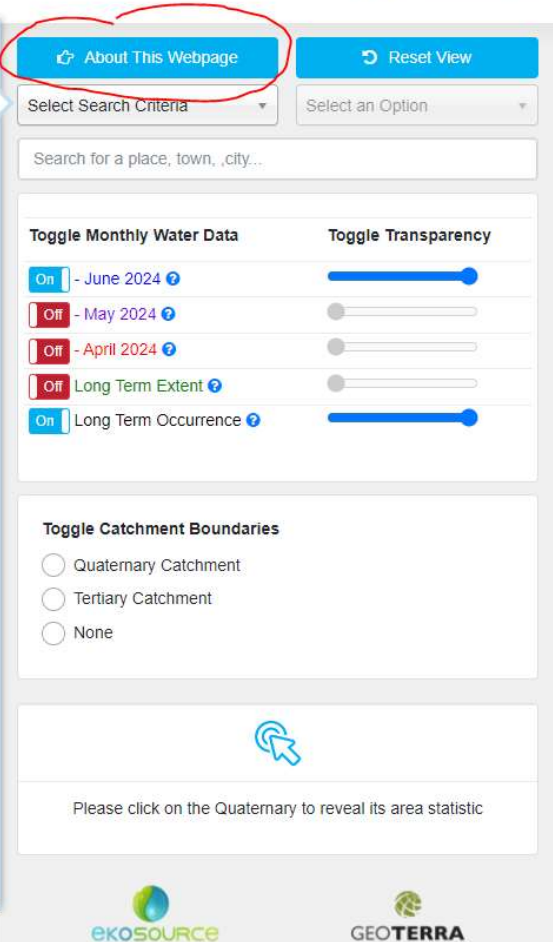

NWQS: It's free, it's open, it needs users to use it...

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Thank you for listening !