



A South African Surface Drainage Network for GIS



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COMPLETED?

No, 8% of the coverage is still unedited (mainly in the central region) while a further 10% is outside the range of our reference data. Twelve quaternary drainage regions have no rivers. Many river naming problems remain unresolved (!Nu or iXnu or Wildebees?). Despite these shortcomings, we have decided to release the coverage for general use: please inform us of any errors you discover.

PEDIGREED

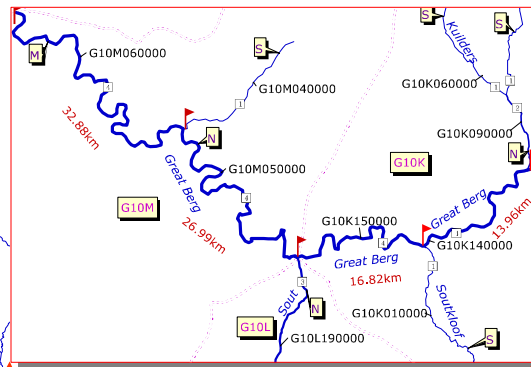
The coverage is based on the 1:500 000 rivers provided by Surveys and Mapping in 1994. GisLAB performed the first fix in 1995, filling gaps, ordering and pruning. Our group has performed spatial adjustments to align the rivers to the Surveys and Mapping 1:50 000 coverage. We have filled in the gaps from ESRI's Digital Chart of the World, the Hydrogeological Map of Namibia and assorted other data.

CODED

The network has USA-style river reach codes:
C 9 2 B 0 2 0 0 0 0
The first four digits are the 1°, 2°, 3° and 4° drainage region. These can be expanded through a look-up table to the 8 digits required by BASINS. We allocate the quaternary code of the region in which most of the river lies. The next two digits are a sequence code from 01 to 99 for the reaches within a quaternary drainage region. The last four digits allow for the addition of more rivers later. At the 1:500 000 scale, the first six digits uniquely identify a reach.

ANALYSED

The coverage consists of 10 160 line segments made up of 996 630 vertices, and conforms to the Cape Datum.



ORDERED

The entire network is ordered using the Strahler method with Lamphear and Lewis's algorithm.

NAMED

Sixty percent of the rivers have names: 5% of these have aliases (e.g. old names or alternative spellings). About 1% are spelt incorrectly.

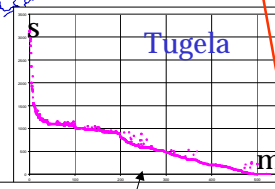
ALIGNED

Seventy-four percent of the rivers are within our tolerance ($\pm 50m$ of the 1:50 000 river coverage). Sixteen percent are in areas with no reference data, 8% have errors in their endpoints and 2% do not comply with the reference data at all.

EXTRUDED

Five-thousand-and-sixty-two tables of every possible source-to-mouth sequence, for example:

End Seq.	Sorter	Order	Reachcode	Name	kmCumul.
S 1	A00003433	1	A23A07000	Piensaars	46.02
N 2	A00003707	2	A23A20000	Piensaars	50.69
N 3	A00003708	2	A23B07000	Piensaars	53.51
N 4	A00003840	2	A23C02000	Piensaars	91.58
N 5	A00003841	2	A23C02000	Piensaars	145.73
N 6	A00004244	3	A23J03000	Piensaars	152.10
N 7	A00004373	3	A23J04000	Moretele	178.05
N 8	A00004697	4	A23J05000	Moretele	182.73
N 9	A00004759	4	A23J06000	Piensaars	195.61
N 10	A00004940	4	A23L03000	Piensaars	214.81
N 11	A00004941	4	A23L04000	Piensaars	229.06
N 12	A00050001	5	A24B03000	Crocodile	253.17
N 13	A00050509	5	A24C03000	Crocodile	270.22
N 14	A00051116	5	A24C04000	Crocodile	297.26
N 15	A00060209	5	A24H17000	Crocodile	308.23
N 16	A00060300	5	A24H18000	Crocodile	312.95
N 17	A00060311	5	A24J07000	Crocodile	362.42
N 18	A00060804	5	A24J08000	Crocodile	376.86
N 19	A00061316	5	A24J09000	Crocodile	407.60
N 20	A00014837	5	A41D03000	Limpopo	468.72
N 21	A00016140	5	A41D04000	Limpopo	477.97
N 22	A00016141	5	A41E01000	Limpopo	523.23
N 23	A00016285	5	A41E02000	Limpopo	559.31
N 24	A00016429	5	A41E03000	Limpopo	656.96
N 25	A00016430	5	A50B02000	Limpopo	693.14
N 26	A00016431	5	A50B03000	Limpopo	721.57
N 27	A00016432	5	A50J05000	Limpopo	739.34
N 28	A00016433	5	A50J06000	Limpopo	757.92
N 29	A00016794	5	A63C03000	Limpopo	811.07
N 30	A00016795	5	A63C04000	Limpopo	848.52
N 31	A00016796	5	A63E23000	Limpopo	857.58
N 32	A00016797	5	A63E24000	Limpopo	879.46
N 33	A00017258	5	A63E25000	Limpopo	892.51
N 34	A00017259	5	A63E26000	Limpopo	921.86
N 35	A00017260	5	A63E27000	Limpopo	921.86
N 36	A00018556	5	A71L25000	Limpopo	942.50
N 37	A00020335	5	A71L26000	Limpopo	945.83
N 38	A00020336	5	A71L27000	Limpopo	946.36
N 39	A00020337	5	A71L28000	Limpopo	960.27
N 40	A00020338	5	A71L29000	Limpopo	966.38
N 41	A00020339	5	A71L30000	Limpopo	977.44
N 42	A00020340	5	A71L31000	Limpopo	989.78
N 43	A00020341	5	A71L32000	Limpopo	992.40
N 44	A00020342	5	A71K05000	Limpopo	1012.17
N 45	A00020368	5	A71K06000	Limpopo	1017.11
N 46	A00020369	5	A80J08000	Limpopo	1046.47
N 47	A00020370	5	A80J03000	Limpopo	1058.62
N 48	A00020413	5	A80J04000	Limpopo	1073.94
N 49	A00020414	5	A80J05000	Limpopo	1089.19
N 50	A00020415	5	A92B03000	Limpopo	1132.44
N 51	A00020947	5	A91K09000	Limpopo	1140.60
N 52	A00022062	5	A91K10000	Limpopo	1158.84
N 53	A00022063	5	Y30A15000	Limpopo	1172.44
N 54	A00022064	5	Y30A16000	Limpopo	1213.26
N 55	A00022112	5	Y30A17000	Limpopo	1248.99
N 56	A00022113	5	Y30D07000	Limpopo	1248.99
N 57	A00022150	5	Y30D08000	Limpopo	1331.53
N 58	A00022151	5	Y30D09000	Limpopo	1389.67
N 59	A00022152	5	Y30D10000	Limpopo	1426.31
N 60	A00022153	5	Y30E23000	Limpopo	1527.22
N 61	A00022163	5	Y30E24000	Limpopo	1585.84
N 62	A00022223	5	Y30E25000	Limpopo	1593.18
N 63	A00022224	5	Y30E26000	Limpopo	1616.68
N 64	A00022239	5	Y30E27000	Limpopo	1621.39
N 65	A00022245	5	Y30E28000	Limpopo	1669.28
N 66	A00022264	5	Y30E29000	Limpopo	1676.24
N 67	A00022265	5	Y30E30000	Limpopo	1679.02
N 68	A00022266	5	Y30E31000	Limpopo	1687.36



APPLIED

- Profiles against digital elevation models.
- Checking of monitoring point locations.
- Water quality reporting.

FRAZZLED

The nerves of Naomi Roberson, Juanita Moolman, Elna Vermaak, Magda Smidt, Kama Chetty and Axel Diefenbach, without whose hours of mouse-breaking toil this coverage would never have happened.

It's clearly a budget. It's got a lot of numbers in it...

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PUBLISHED

http://www.dwaf.gov.za/iwqs/gis_data/river/rivs500k.html