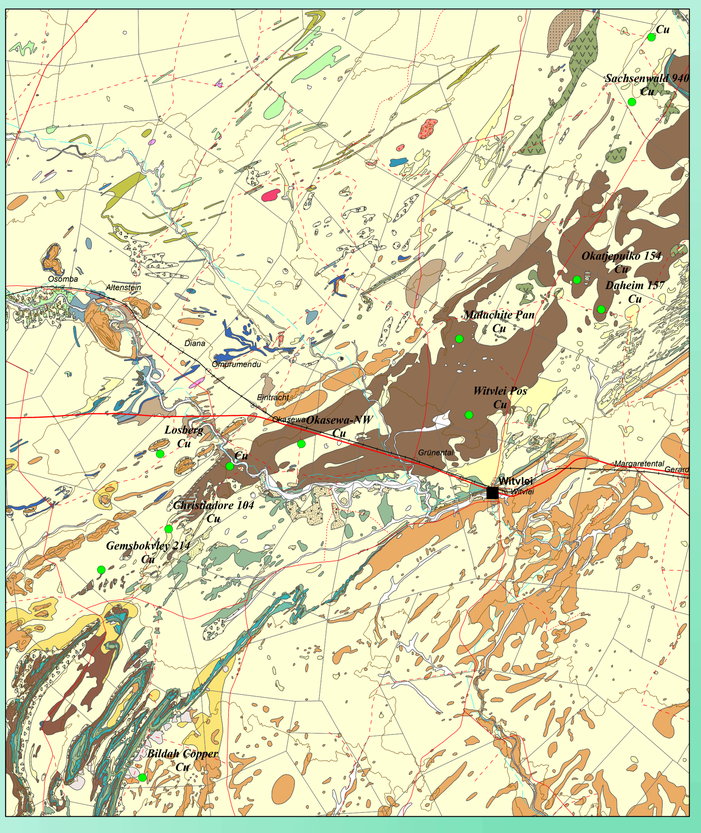
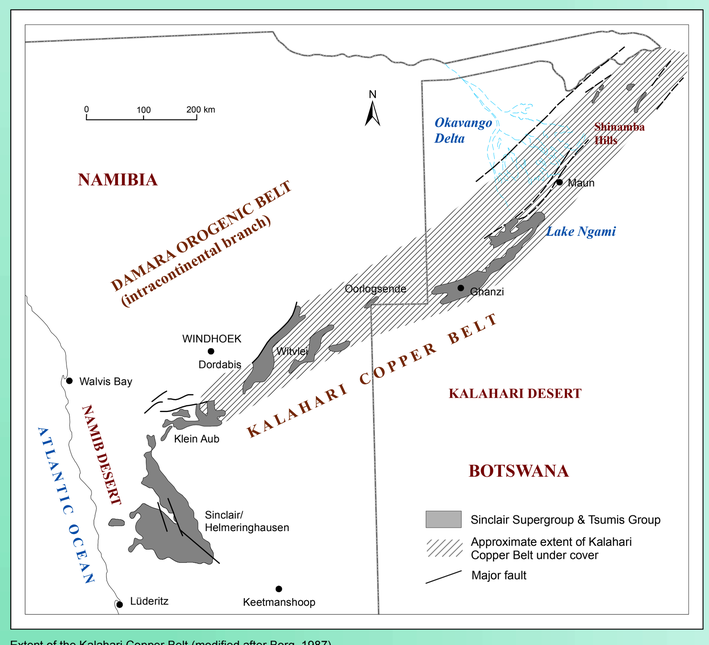
The "Kalahari Copper Belt", Central Namibia

(compiled by U. Schreiber and V. Petzel)



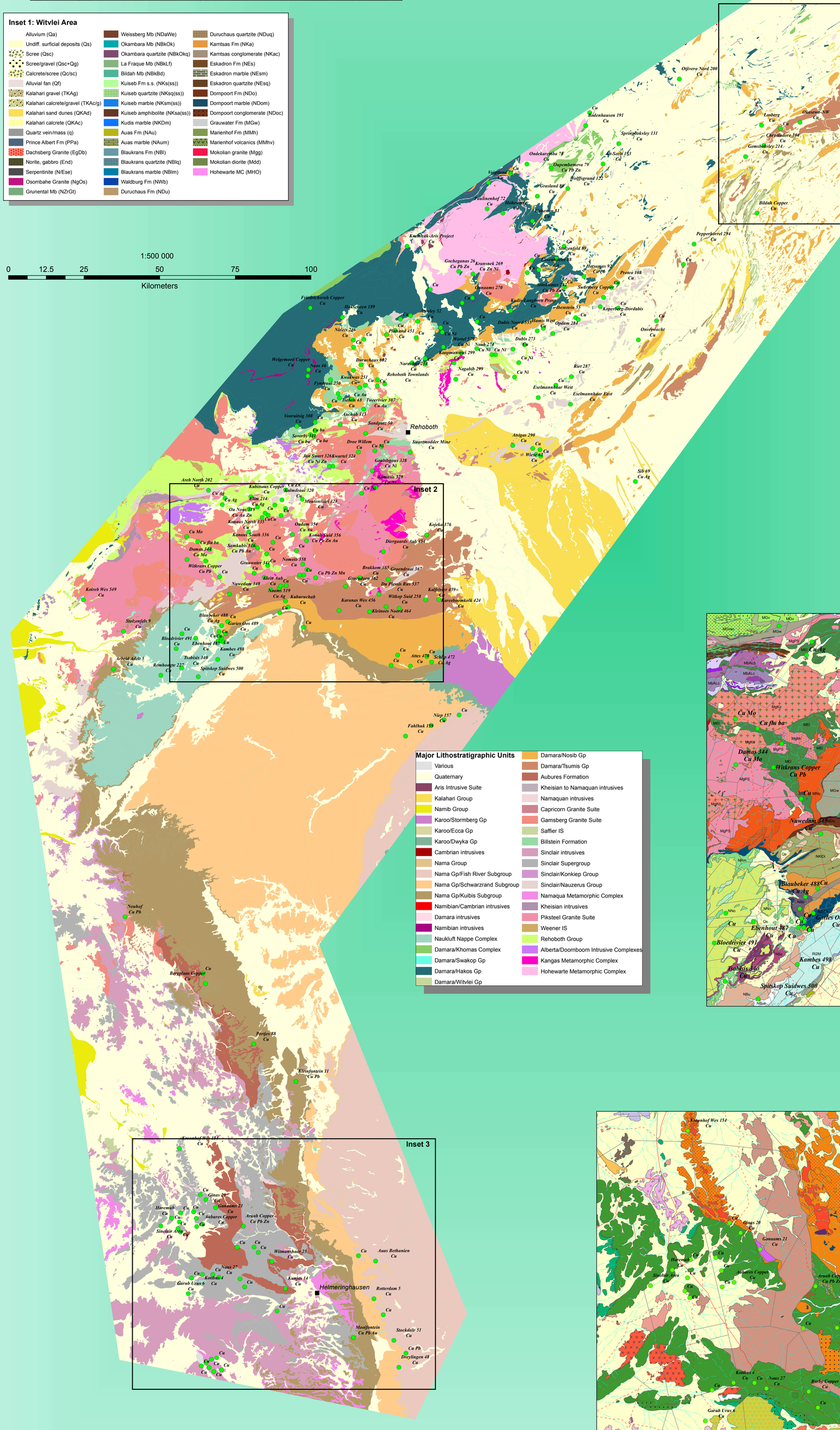
The 1.4 to 1.0 Ma Sinclair Supergroup forms a volcano-sedimentary arc with associated plutonic rocks along the northwestern edge of the Kalahari Craton, which extends from the Helmeringhausen-Awasib area to the Gamsberg and northern Gobabis regions and beyond into Botswana. The numerous copper-bearing outcrops along this belt have attracted the attention of the earliest prospectors since the middle of the 19th century (Sinclair Mine) and led to the name "Kalahari Copper Belt". Many of the occurrences were opened up and exploited on a minor scale, but - with the exception of the Klein Aub Mine, which was operated successfully for more than 20 years - proved too small to be economic. In the Witvlei (Inset 1) and Klein Aub (Inset 2) areas, copper occurs in the metasedimentary rocks of the Tsumis Group of late-Sinclair or early-Damara age, while in the Sinclair area (Inset 3) copper mineralisation is hosted within the volcano-sedimentary Konkiep Group of the Sinclair Supergroup. North of the Klein Aub area copper is also associated with the older Rehoboth Group as well as intrusives of Palaeo- to Mesoroterozoic age (Inset 2).



Extent of the Kalahari Copper Belt (modified after Borg, 1987)

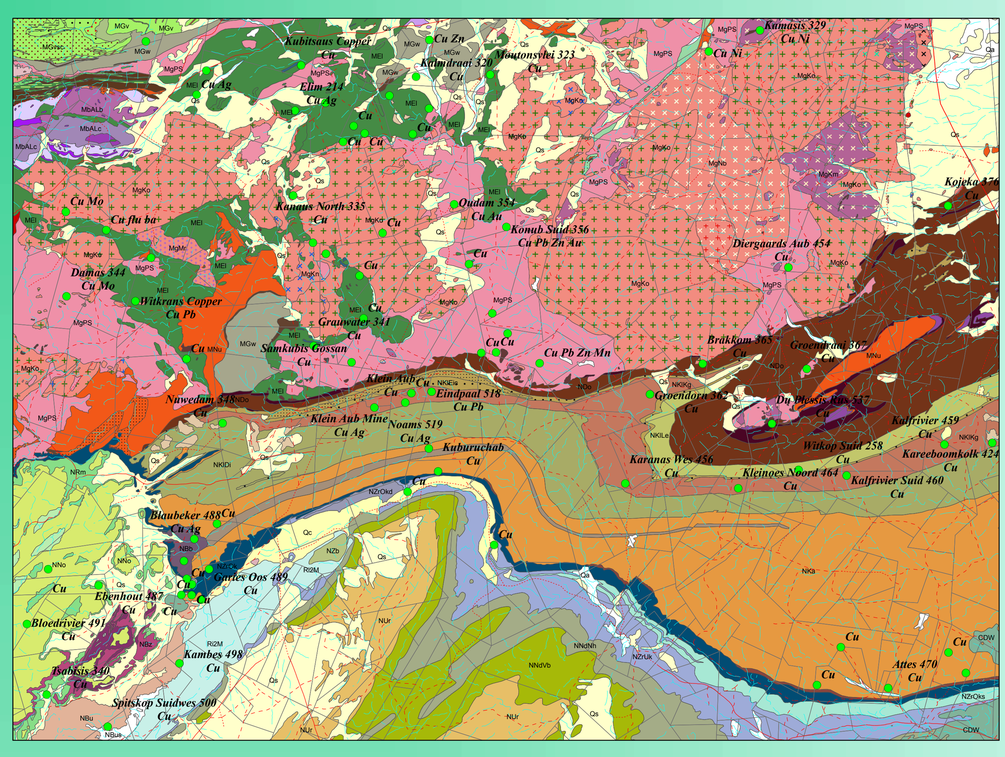
Inset 1: Witvlei Area

Alluvium (Qa)	Weissberg Mb (NDaWe)	Duruchaus quartzite (NDuq)
Undiff. surficial deposits (Qs)	Okambara Mb (NBkOk)	Kamtsas Fm (NKa)
Scree (Qsc)	Okambara quartzite (NBkOkq)	Kamtsas conglomerate (NKac)
Scree/gravel (Qsc+Qg)	La Fraque Mb (NBkLf)	Eskadron Fm (NEs)
Calcrete/scree (Qc/sc)	Bildah Mb (NBkBd)	Eskadron marble (NEsm)
Alluvial fan (Qf)	Kuiseb Fm s.s. (NKs(ss))	Eskadron quartzite (NEsq)
Kalahari gravel (TKAg)	Kuiseb quartzite (NKsq(ss))	Dornpoort Fm (NDo)
Kalahari calcrete/gravel (TKAc/g)	Kuiseb marble (NKsm(ss))	Dornpoort marble (NDom)
Kalahari sand dunes (QKAd)	Kuiseb amphibolite (NKsa(ss))	Dornpoort conglomerate (NDoc)
Kalahari calcrete (QKAc)	Kudis marble (NKDm)	Grauwater Fm (MGw)
Quartz vein/mass (q)	Auas Fm (NAu)	Marienhof Fm (MMh)
Prince Albert Fm (PPa)	Auas marble (NAum)	Marienhof volcanics (MMhv)
Dachsberg Granite (EgDb)	Blaukrans Fm (NBl)	Mokolian granite (Mgg)
Norite, gabbro (End)	Blaukrans quartzite (NBlq)	Mokolian diorite (Mdd)
Serpentinite (N/Ese)	Blaukrans marble (NBlm)	Hohewarte MC (MHO)
Osombahe Granite (NgOs)	Waldburg Fm (NWb)	
Grunental Mb (NZrGt)	Duruchaus Fm (NDu)	



Major Lithostratigraphic Units

Various	Damara/Nosib Gp
Quaternary	Damara/Tsumis Gp
Aris Intrusive Suite	Aubures Formation
Kalahari Group	Kheisian to Namaquan intrusives
Namib Group	Namaquan intrusives
Karoo/Stormberg Gp	Capricorn Granite Suite
Karoo/Ecca Gp	Gamsberg Granite Suite
Karoo/Dwyka Gp	Saffier IS
Cambrian intrusives	Billstein Formation
Nama Group	Sinclair intrusives
Nama Gp/Fish River Subgroup	Sinclair Supergroup
Nama Gp/Schwarzrand Subgroup	Sinclair/Konkiep Group
Nama Gp/Kuibis Subgroup	Sinclair/Nauzerus Group
Namibian/Cambrian intrusives	Namaqua Metamorphic Complex
Damara intrusives	Kheisian intrusives
Namibian intrusives	Piksteel Granite Suite
Naukluft Nappe Complex	Weener IS
Damara/Khomas Complex	Rehoboth Group
Damara/Swakop Gp	Alberta/Doornboom Intrusive Complexes
Damara/Hakos Gp	Kangas Metamorphic Complex
Damara/Witvlei Gp	Hohewarte Metamorphic Complex



Inset 2: Klein Aub Area

Alluvium (Qa)	Kamtsas conglomerate (NKac)	Swartskaap Granite (MgSk)
Undiff. surficial sediments (Qs)	Dikdoorn Mb (NKIDi)	Kabiras Granite (MgKb)
Calcrete (Qc)	Dikdoorn conglomerate (NKIDic)	Fine-grained/aplitic Gamsberg Granite (MgGBgf)
Weissrand Fm (TWr)	Kagas Mb (NKIKg)	Piksteel Granodiorite Suite (MgPS)
Dwyka Gp (CDW)	Eindpaal Mb (NKIEi)	Narabis Granodiorite (MgNb)
Urusis Fm (NUr)	Eindpaal quartzite (NKIEiq)	MgNb intruded by MgGB
Vingerbreek Mb (NNdVb)	Eindpaal conglomerate (NKIEic)	Swartkrans Granodiorite (MgSw)
Niederhagen Mb (NNdNh)	Leeuberg Mb (NKILe)	Kamasis Gneiss (MgKm)
Urikos Mb (NZrUk)	Leeuberg conglomerate (NKILec)	Mount Barry Granodiorite (MgMb)
Omkyk Mb (NZrOk)	Dornpoort Fm (NDo)	Doornboom IC (MbDB)
Schlip facies (NZrOks)	Dornpoort marble (NDom)	Alberta serpentinite (MbALs)
Driedoornvlakte facies (NZrOkd)	Dornpoort conglomerate (NDoc)	Alberta IC, upper zone ((MbALu)
Kanies Mb (NDaKa)	Dornpoort amphibolite (NDoa)	Alberta IC, central zone (MbALc)
Buschmannsklippe Fm (NBk)	Naris Mb (NDoNr)	Alberta IC, basal zone (MbALb)
Blaubeker Fm (NBb)	Porphyry, Mokolian (Mpo)	Alberta IC, marginal zone (MbALm)
Blaubeker schist (NBbs)	Pegmatite, Mokolian (Mpe)	Weener Diorite (MdWE)
Zebra River Fm (NZb)	Syenite, Mokolian (Msy)	Marienhof Fm (MMh)
Tsabisis Fm (NTs)	Amphibolite, Mokolian (Mam)	Elim Fm (MEl)
Blasskranz Fm (NBz)	Grauwater Fm (MGw)	Elim conglomerate (MElc)
Klipbokrivier Fm (NKp)	Grauwater conglomerate (MGwc)	Elim marble (MElm)
Remhoogte Fm (NRm)	Nuckopf Fm (MNu)	Elim schist (MEls)
Remhoogte breccia (NRmbr)	Nuckopf quartzite (MNuq)	Elim amphibolite (MEla)
Bullspoort Fm (NBu)	Billstein Fm (MBi)	Gaub Valley Fm (MGv)
Noab Fm (NNo)	Billstein schist (MBis)	Gaub Valley volcanogenic conglomerate (MGvvc)
Rietoog Nappe quartzite (Ri1Q)	Billstein quartzite (MBiq)	Gaub Valley polymict small-pebble conglomerate (MGvsc)
Rietoog Nappe marble (Ri2M)	Koichas Granite (MgKc	Gaub Valley Mn-rich quartz-sericite schist (MGvs_Mn)
Rietoog Nappe schist (Ri3S)	Tierkolkies Granite (MgTs)	Gaub Valley quartzite (MGvq)
Samara schist (NSms)	Morgenroth Granodiorite (MgMr)	Gaub Valley chlorite schist (MGvcs)
Samara marble (NSmm)	Kobos Granite (MgKo)	Gaub Valley monomict volcanogenic conglomerate (MGvcc)
Kamtsas Fm (NKa)	Konub Granite (MgKn)	

Inset 3: Sinclair Area

Alluvium (Qa)	Zaris Fm (NZr)	Okarus Granite (MgOk)	Saffier Syenite Suite (MsSF)
Clay/calcrete pan (Qp)	Urikos Mb (NZrUk)	Rooikam Granite (MgRk)	Tiras Gneiss (MgTi)
Undiff. surficial deposits (Qs)	Omkyk Mb (NZrOk)	Kumbis Gabbro (MbKb)	Tierkloof Diorite (MdTi)
Sossus Fm (QSs)	Aubures Fm (NAb)	Barby conglomerate (MBac)	Tierkloof volcanics (MdTiv)
Breckhorn Fm (EBh)	Quartz porphyry (Mqp)	Barby Fm (MBa)	Tierkloof volcanics, sheared (MdTiv_s)
Breckhorn carbonate (EBhm)	Quartz porphyry (Mqp1)	Barby quartzite (MBaq)	Tierkloof Diorite, sheared (MdTi_s)
Stockdale Fm (ESt)	Gabbro (Mbb)	Barby quartz porphyry (MBaqp)	Magnettafelberg Serpentinite (MuMt)
Wasserfall Mb (EStWf)	Guperas quartz porphyry (MGpqp)	Kunjas Fm (MKj)	Namaqua MC (MNQ)
Inachab Mb (EStIn)	Guperas Fm (MGp)	Kunjas conglomerate (MKjc)	Gorrasis Gp (MGO)
Haseweb Mb (EStHw)	Guperas basalt (MGpb)	Haremub Granite (MgHb)	Garub amphibolite (MGBa)
Kabib Mb (EStKb)	Amygdaloidal Guperas basalt (MGpba)	Kotzerus Granite (MgKz)	Garub aluminous gneiss (MGBal)
Schwarzrand Subgp (NSR)	Guperas conglomerate (MGpc)	Nagatis quartz porphyry (MNgqp)	Garub granofels (MGBgf)
Kreyrivier Mb (ENoKy)	Nubib Granite (MgNu)	Nagatis sediments (MNgs)	Shear zone
Nudaus Fm (NNd)	Felsitic dyke (Mfe)	Nagatis felsic volcanics (MNgv)	Mylonite
Dabis Fm (NDa)	Tumuab Granite (MgTu)	Houmoed Granite (MgHo)	

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