

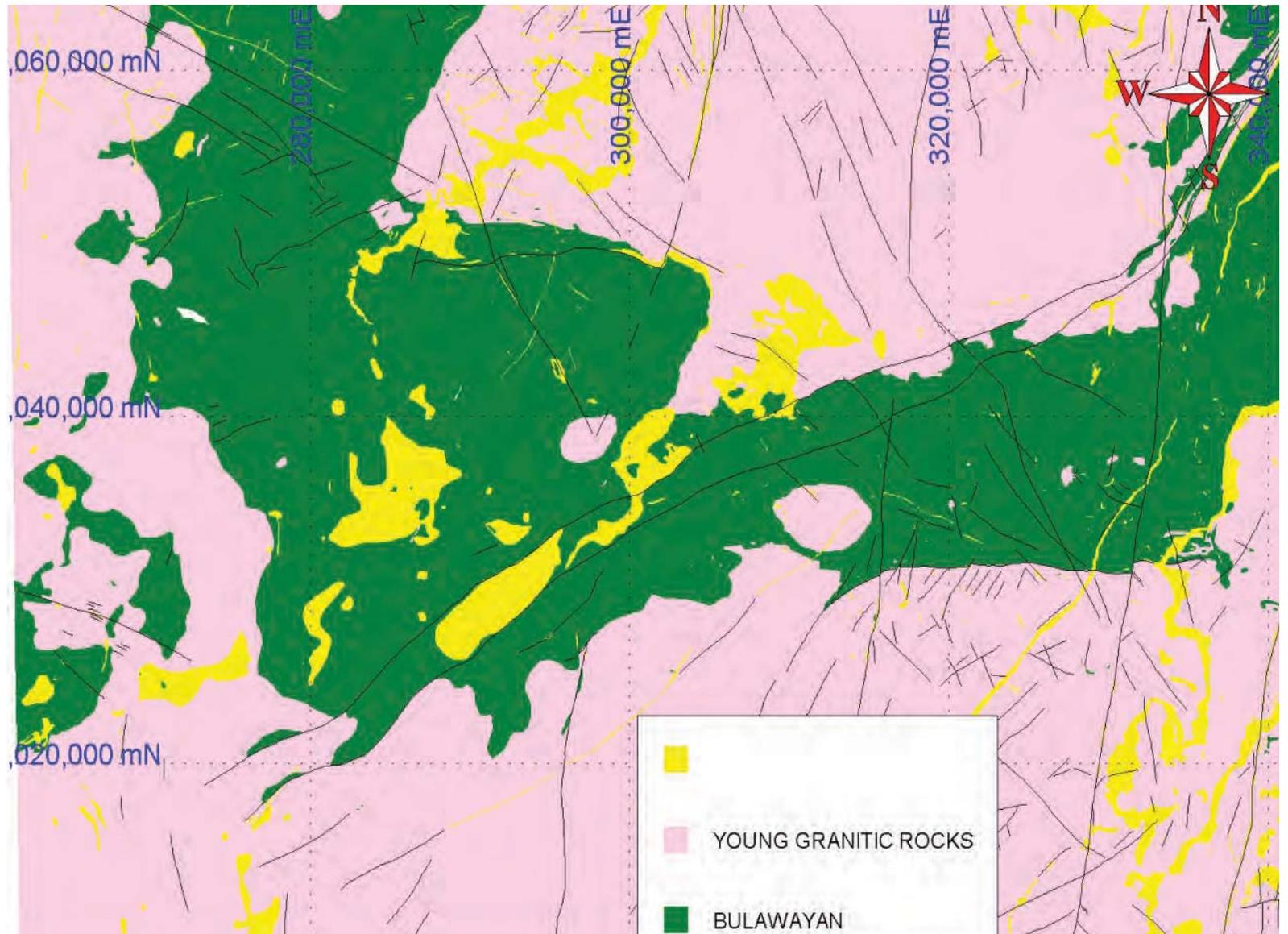
THANK YOU

Tenyears

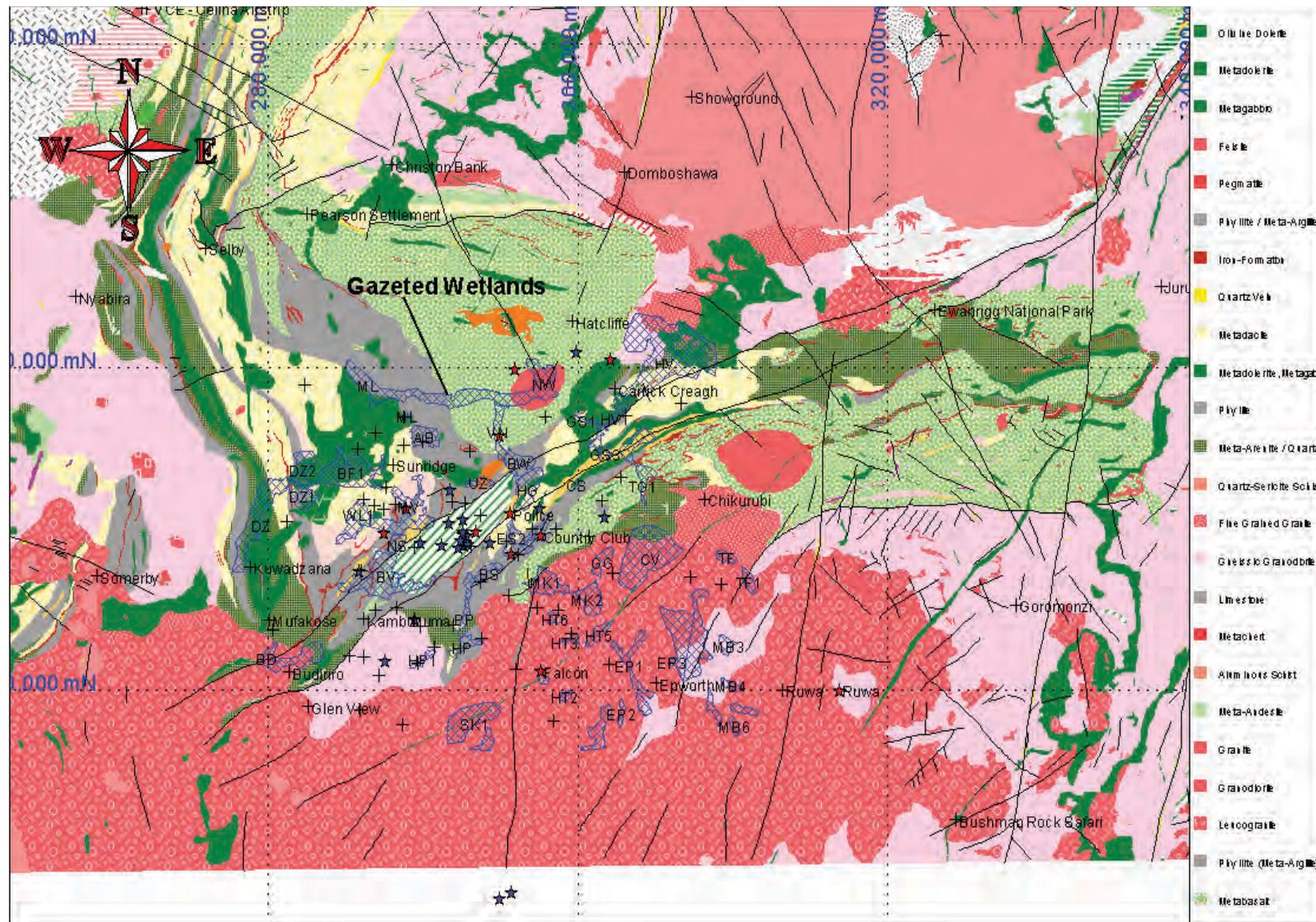
CONCLUSION

- Open Source Software are freely available to achieve GIS related work
- Bulletin Geologic Maps of Zimbabwe have been vectorized with scientifically attributed map databases
- These are essential for first pass resource quantification when integrated with other data e.g. geophysical data

HARARE SIMPLIFIED GEOLOGICAL MAP EMPHAIZES UNCONFINED AQUIFERS



HARARE GEOLOGY WETLANDS

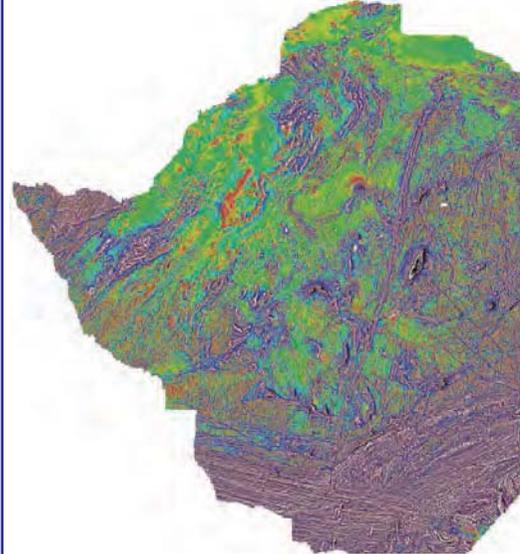
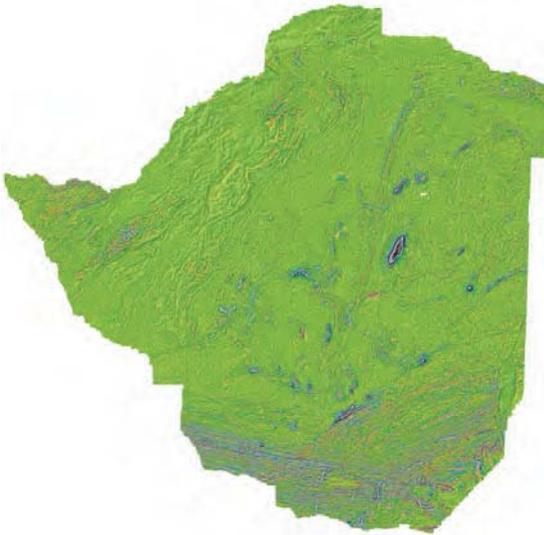
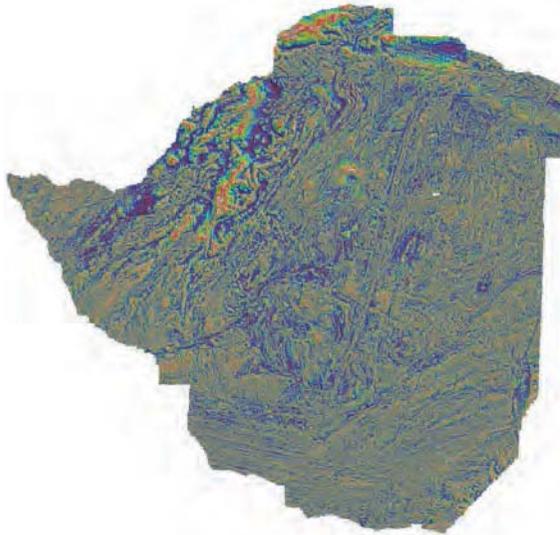
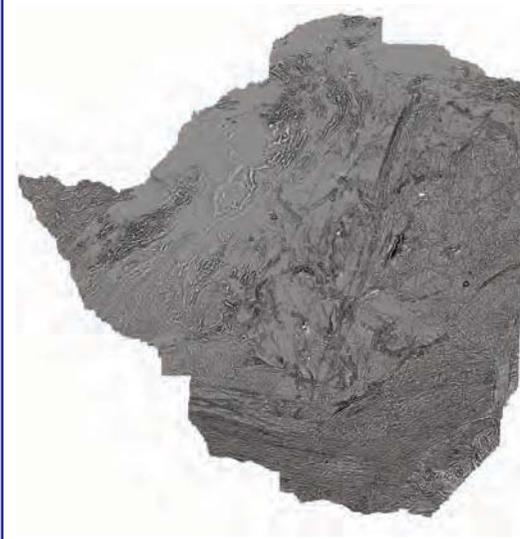
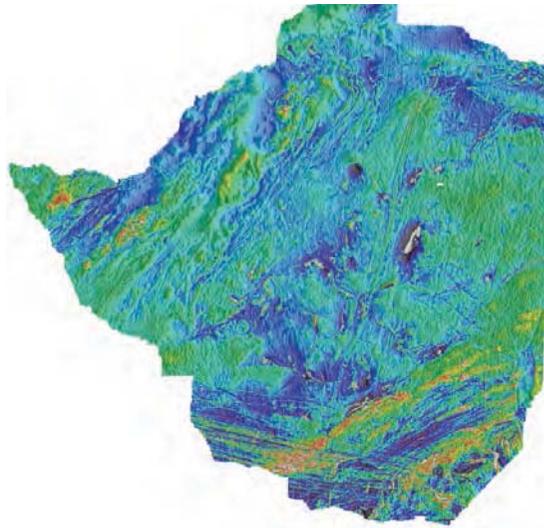
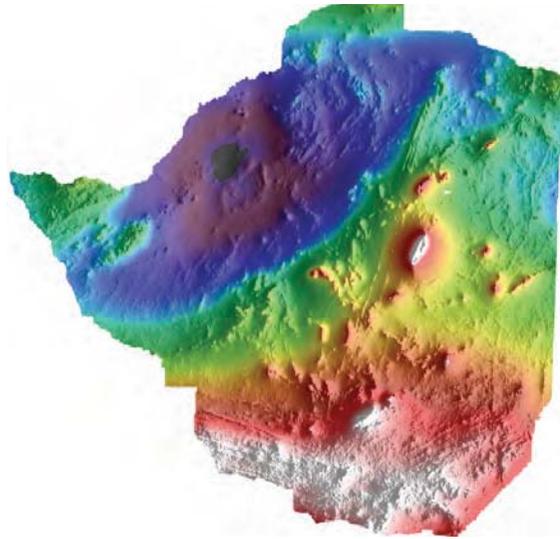


- Part of the Vectorized Geologic Bulletin Maps including the Mosaic Great Dyke Geologic Bulletin Maps

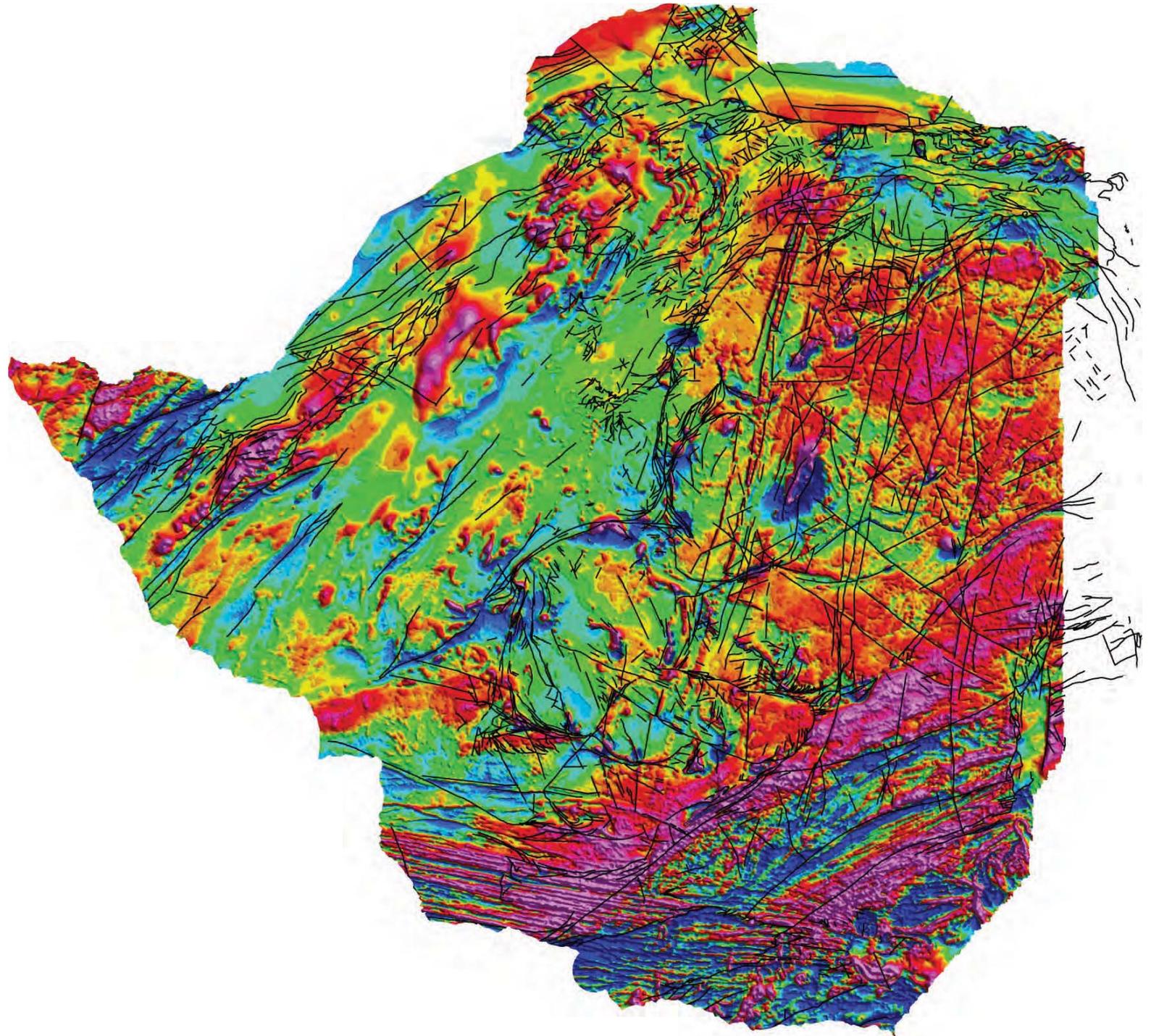
- Bottom is the zoom in on Bindura Bulletin showing attribute table



AEROMAGNETIC ATLAS MAPS



**AEROMAGNETIC
MAP OF
ZIMBABWE
OVERLAYING BY
STRUCTURES
FROM THE
TECTONIC MAP**

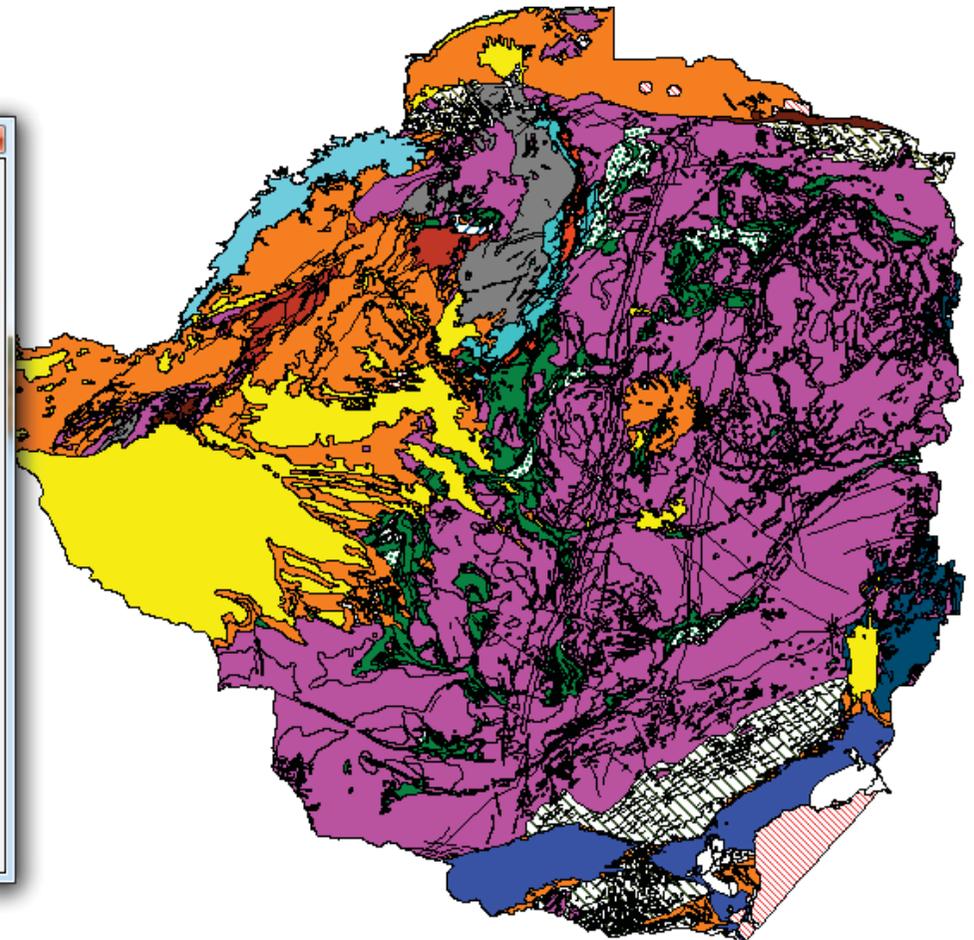


ATTRIBUTE TABLE

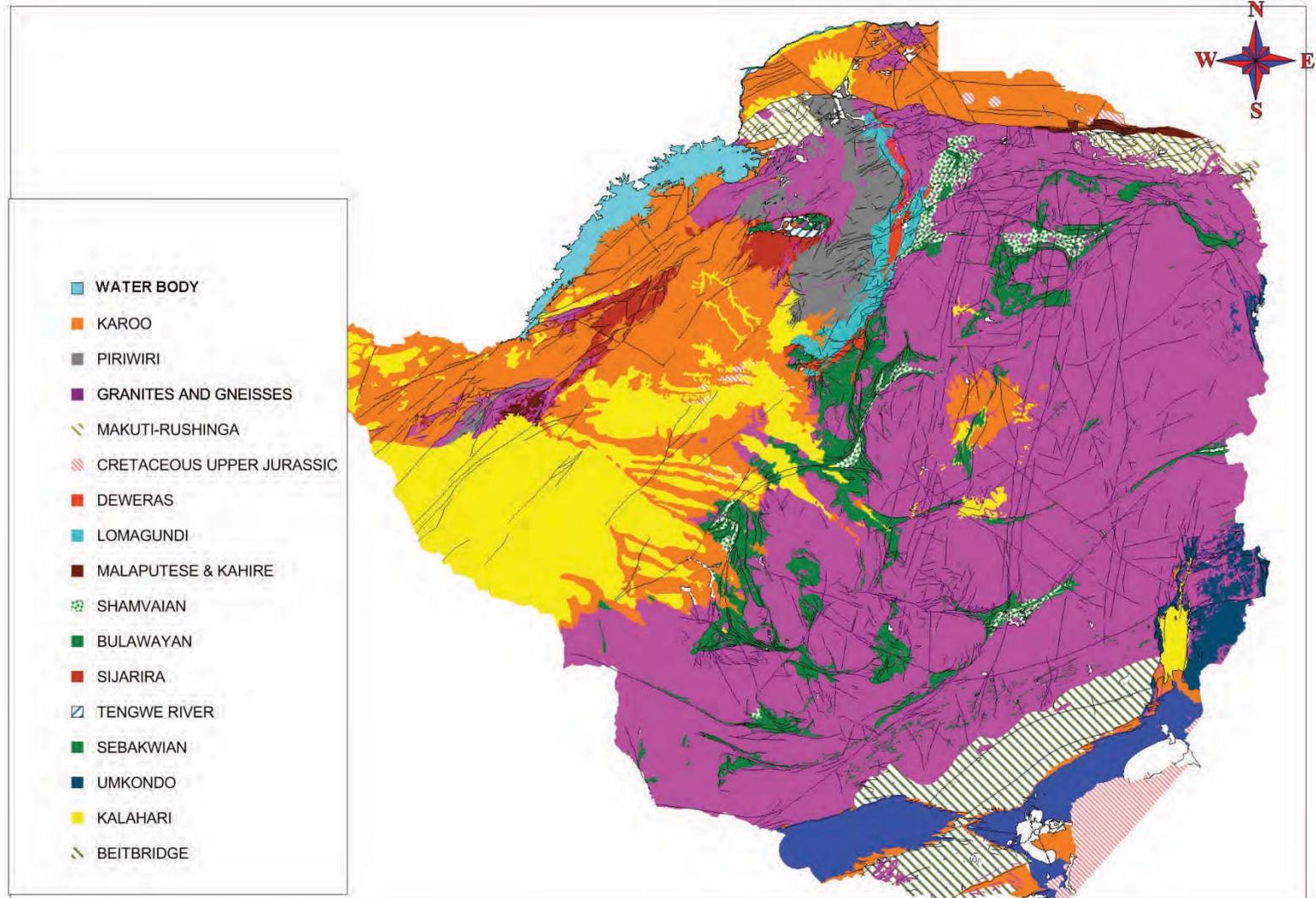
Info Tool

Area:	7,551,137,319.2548
Perimeter:	1,406,505.4919444
Geolutm_:	49
Geolutm_id:	130
Lithcode:	w
Lithname:	Phyllites and minor quartzites
Shortname:	Phyllit+min quartzit
Descrip:	Phyllites and minor quartzites
System_or_:	PIRWIRI
Internatio:	MID PRECAMBRIAN
Rock_type:	
Economic_m:	TIN;TUNGSTEN;COPPER;GOLD;MICA;BERYL;TANTALL
Sym:	532
Sym2:	45

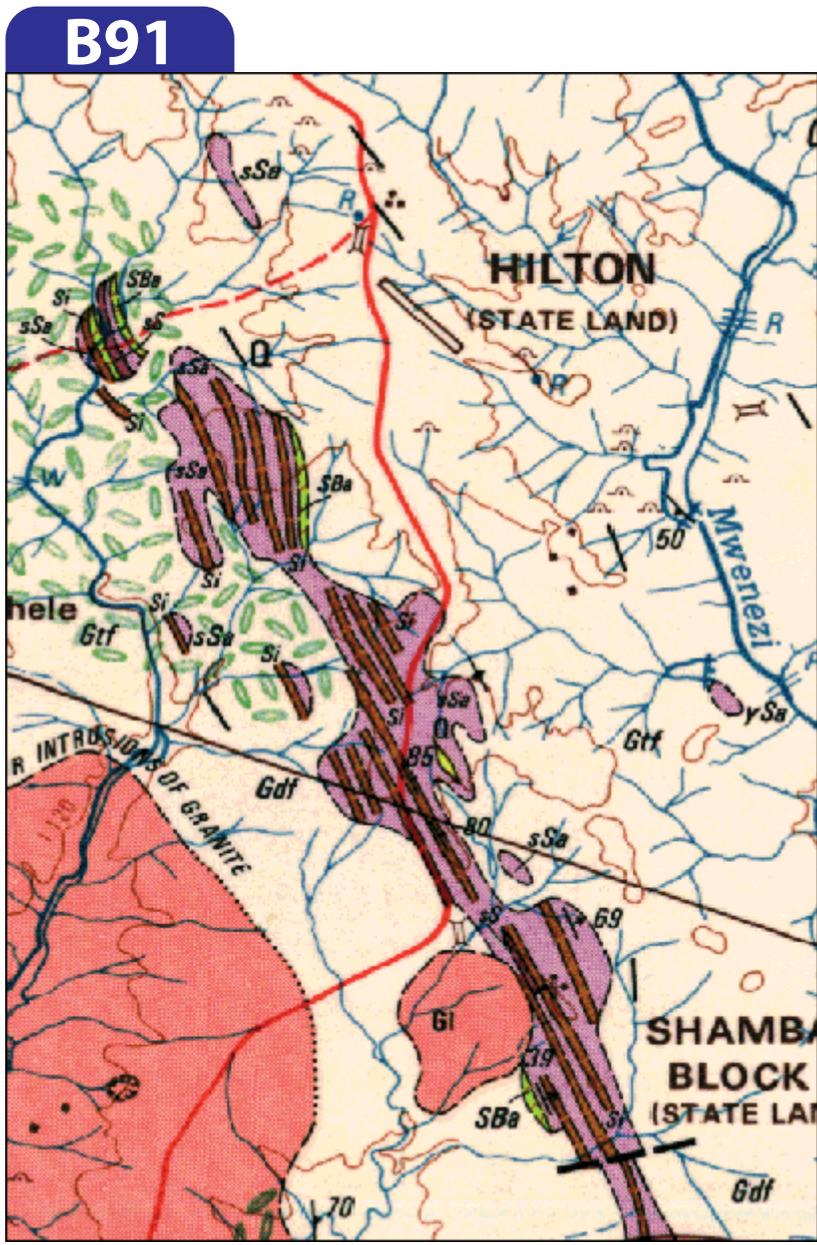
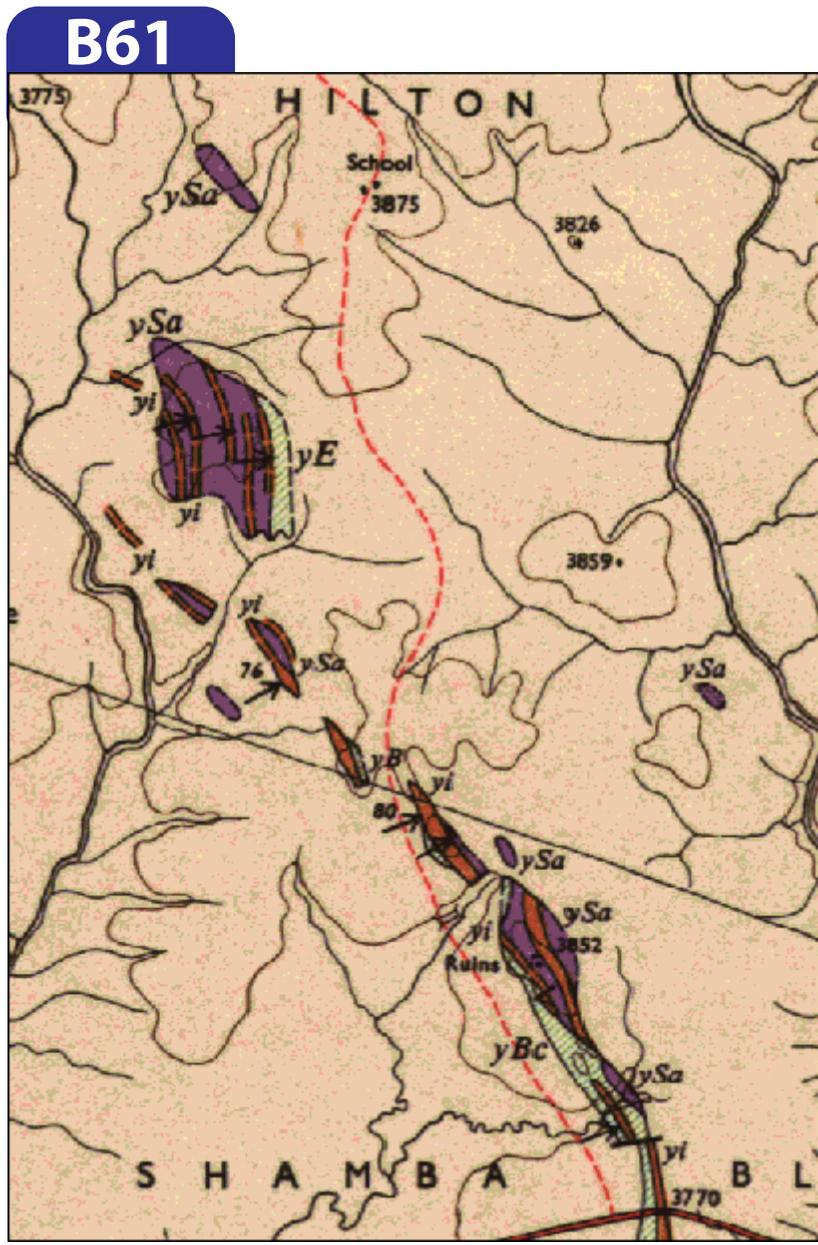
<< >> List geolpo



AQUIFER MAP ZIMBABWE

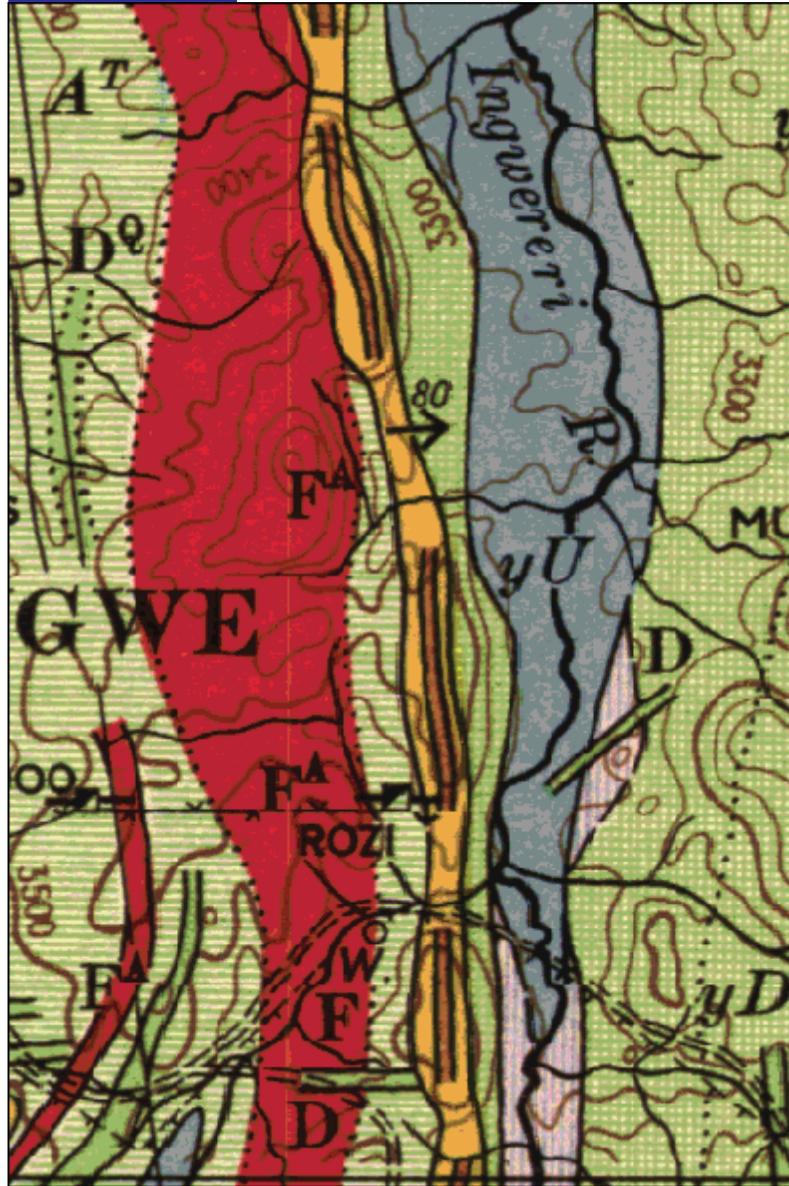


Incompatibility
between
overlapping
geological maps

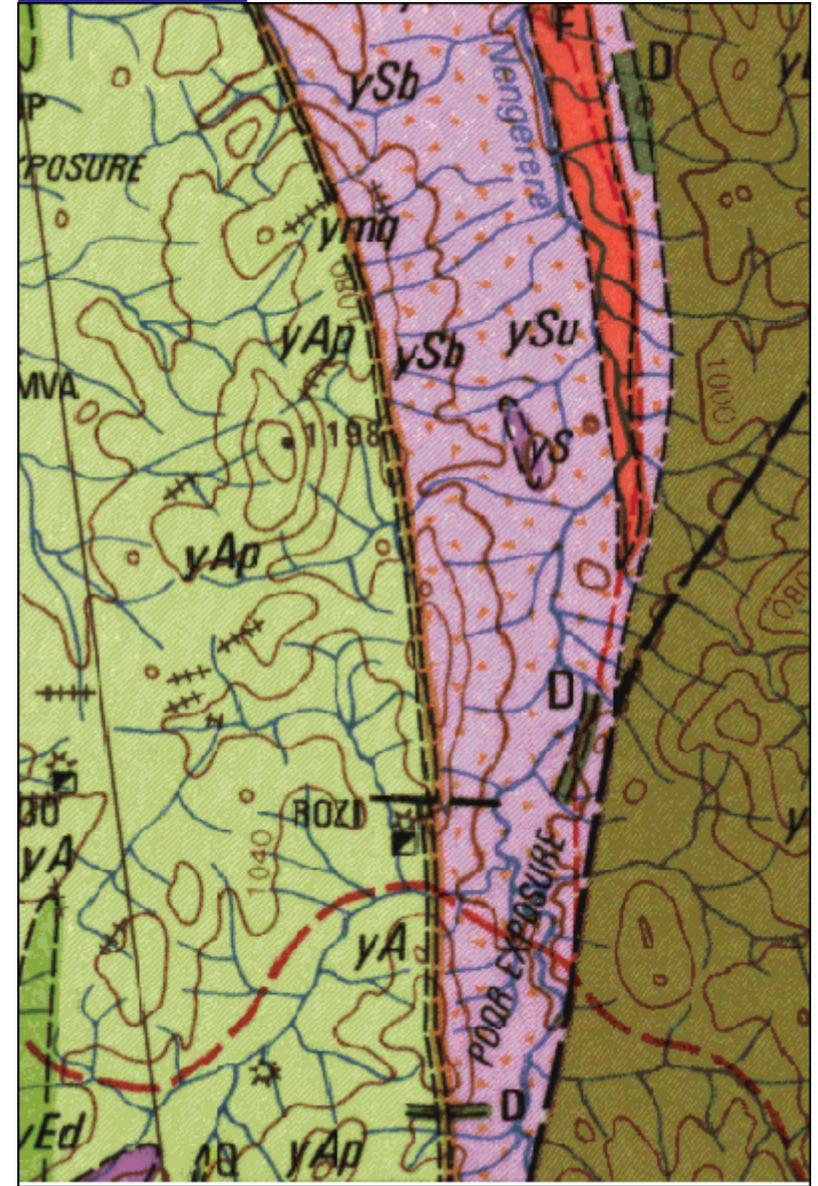


Incompatibility
between
overlapping
geological maps

B43



B83



WHY OPEN SOURCE?

- Cut down on budget
- No licensing fees
- Excellent tools for research and development
- Opportunity for technology exploration
- Enables development of highly customized applications based on client's needs
- Development priorities are driven by end user needs
- Works on all major platforms

Note: All proprietary GIS software vendors are using Open Source GIS components in their products

SOFTWARE REQUIREMENTS



VECTORIZATION OF GEOLOGIC MAPS

- It is important to bring geologic mapping and geologic map publications into digital age so that societally relevant information on resources and land use can be readily available
- Adaptation of the geologic mapping and geologic map publication to the possibilities presented by digital technology, including the publication of digital and scientifically attributed map databases
- Optimum Web accessibility and delivery of geologic map data

PUBLIC POLICY ASPECTS

Geology Maps and their subsequent derivative products have immense economic and societal value, particularly if the maps are modern and internet accessible.

They support our ability to

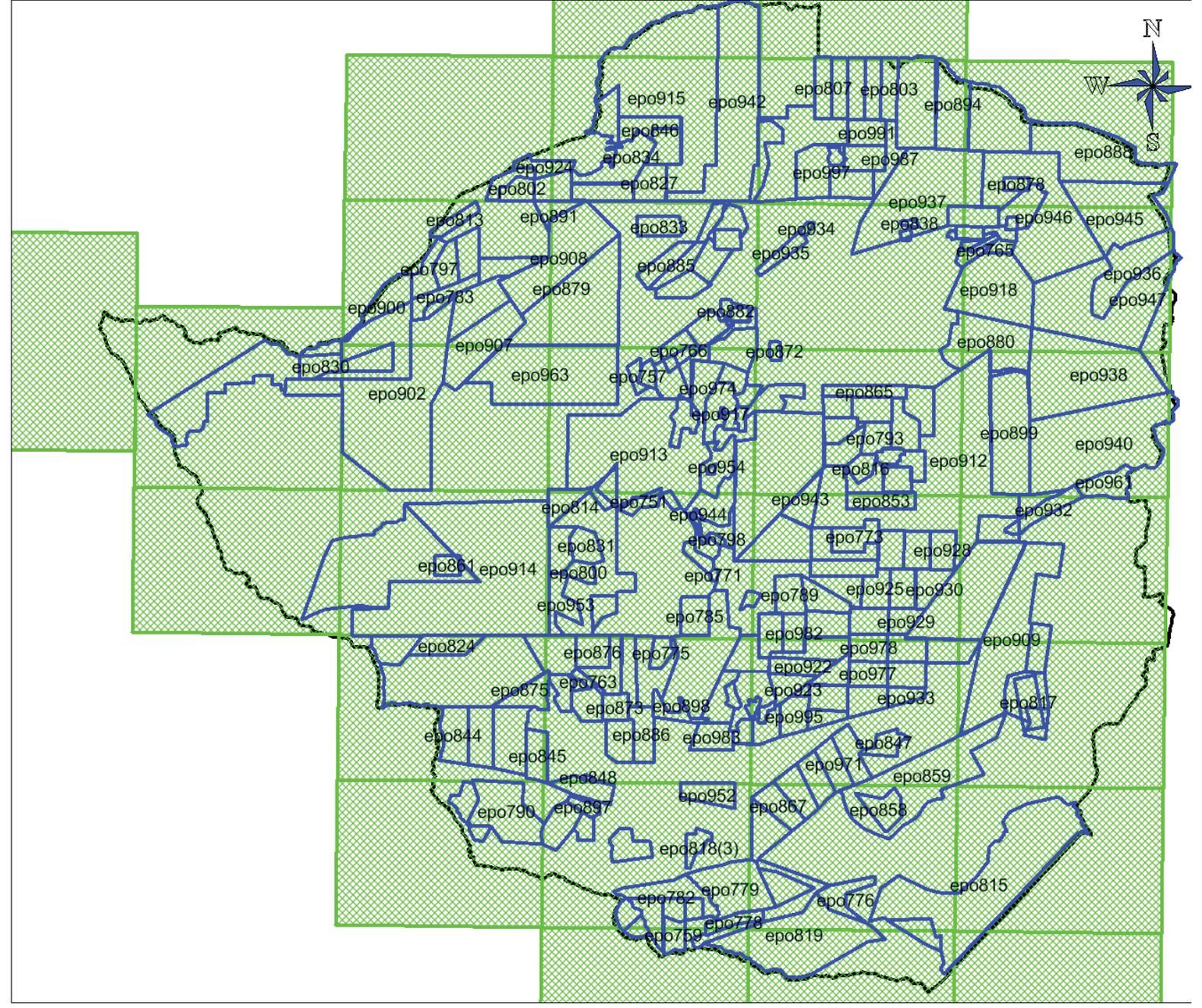
- i) locate and develop mineral and water resources
- ii) assess and protect groundwater quality
- iii) safely site solid and hazardous waste disposal sites
- iv) construct, restore, maintain, and protect sensitive ecosystems
- v) build the nation's infrastructure of highways, railroads, pipelines, dams
- vi) make more informed land-use and planning decisions to meet societal needs

Geologic maps have proven to be essential elements for informing the policy decisions of states

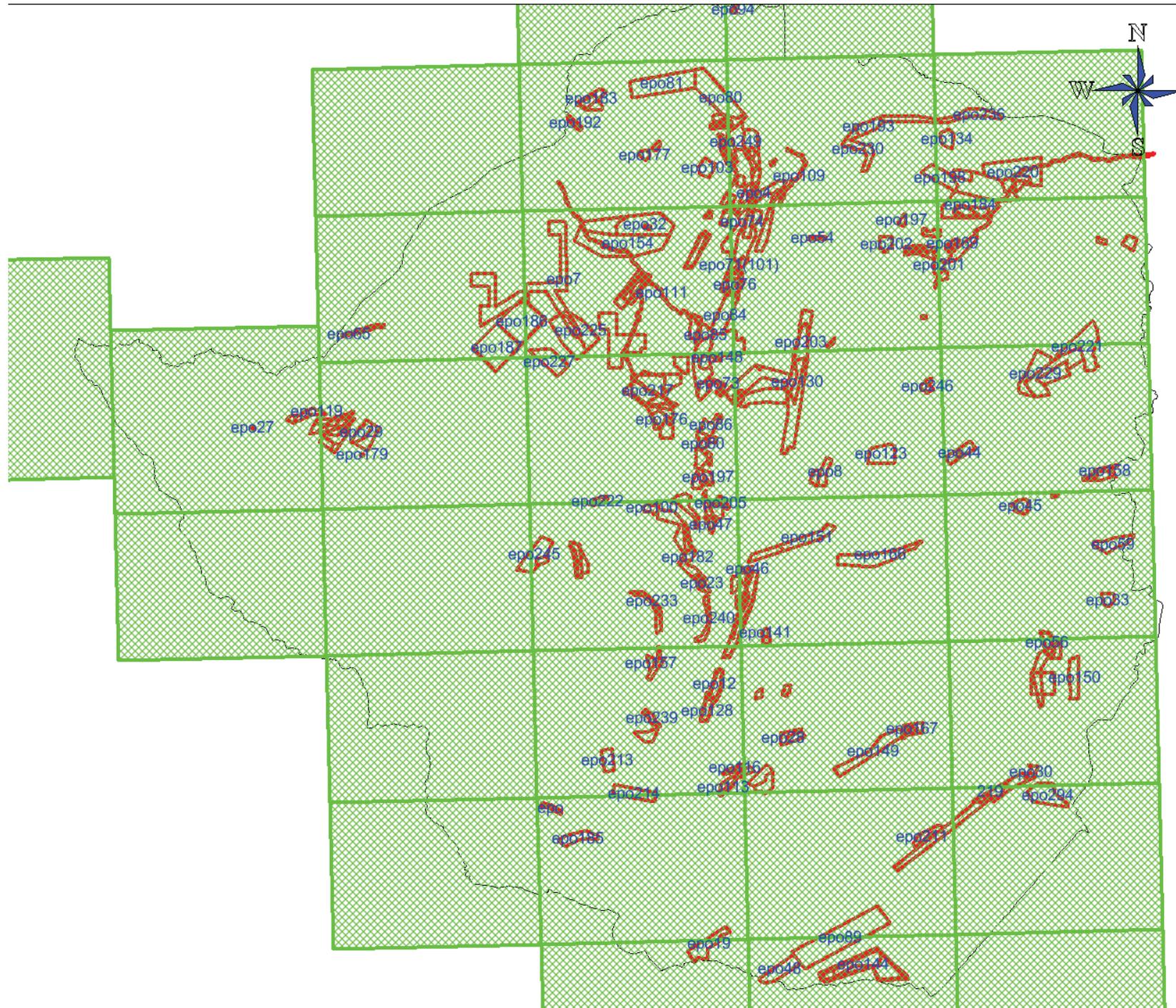
- **Epo750 to EPO 999**

- **Overlain on 1:250 000 topo map sheets**

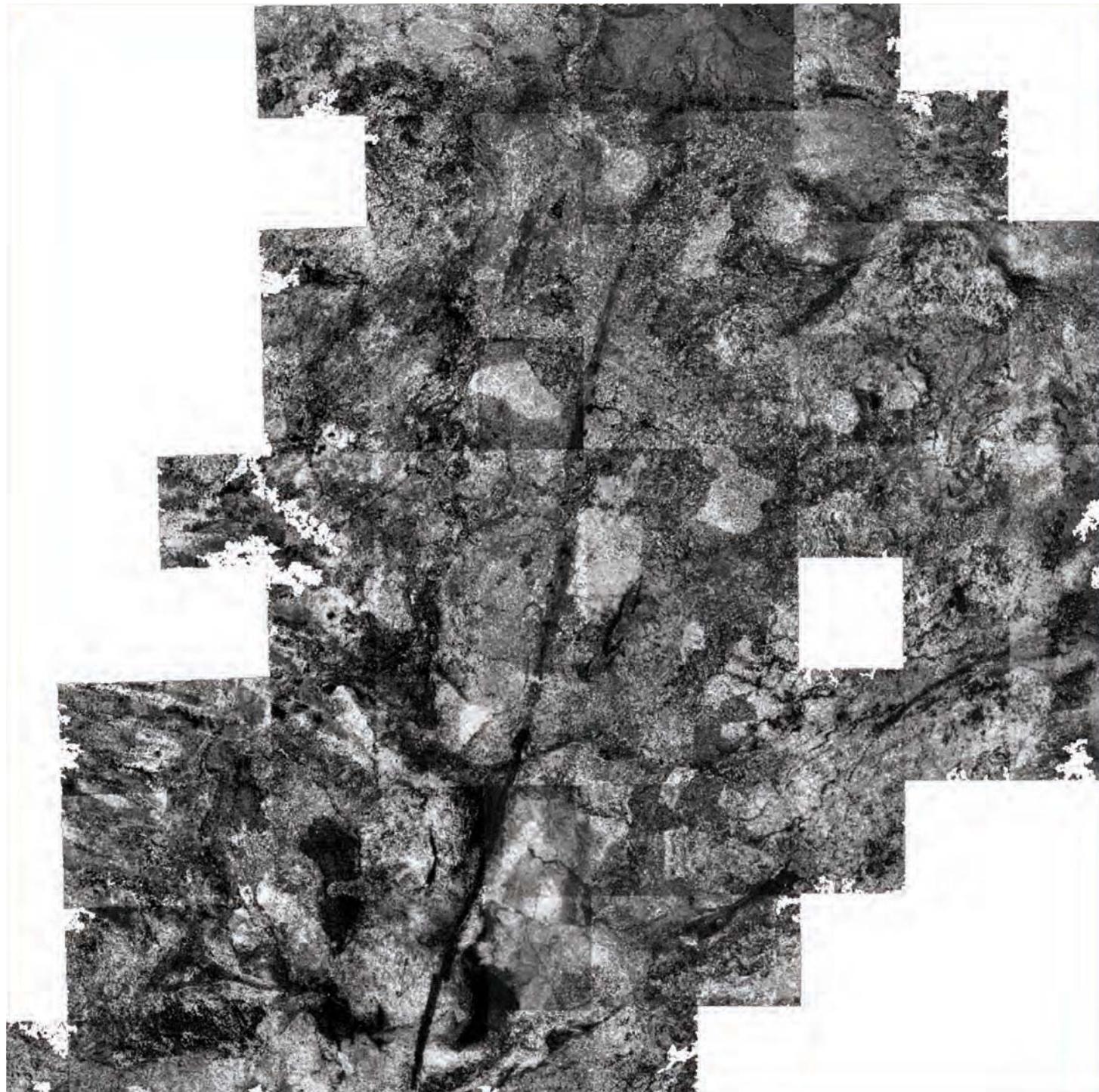
- **Hardcopy reports are available with Ministry**



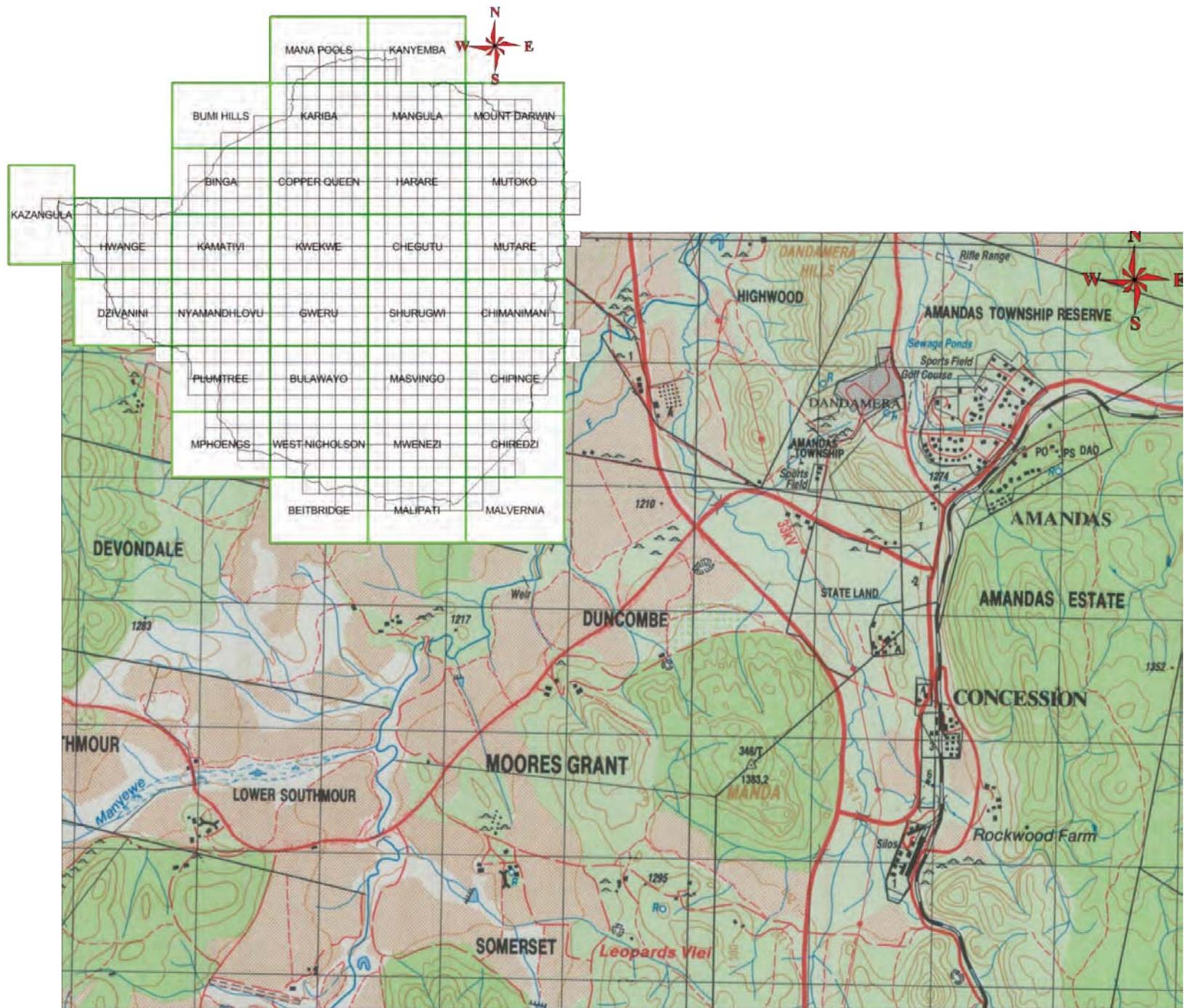
- **Epo1 to EPO 250**
- **Overlain on 1:250 000 topo map sheets**
- **Allows search of previous exploration data**



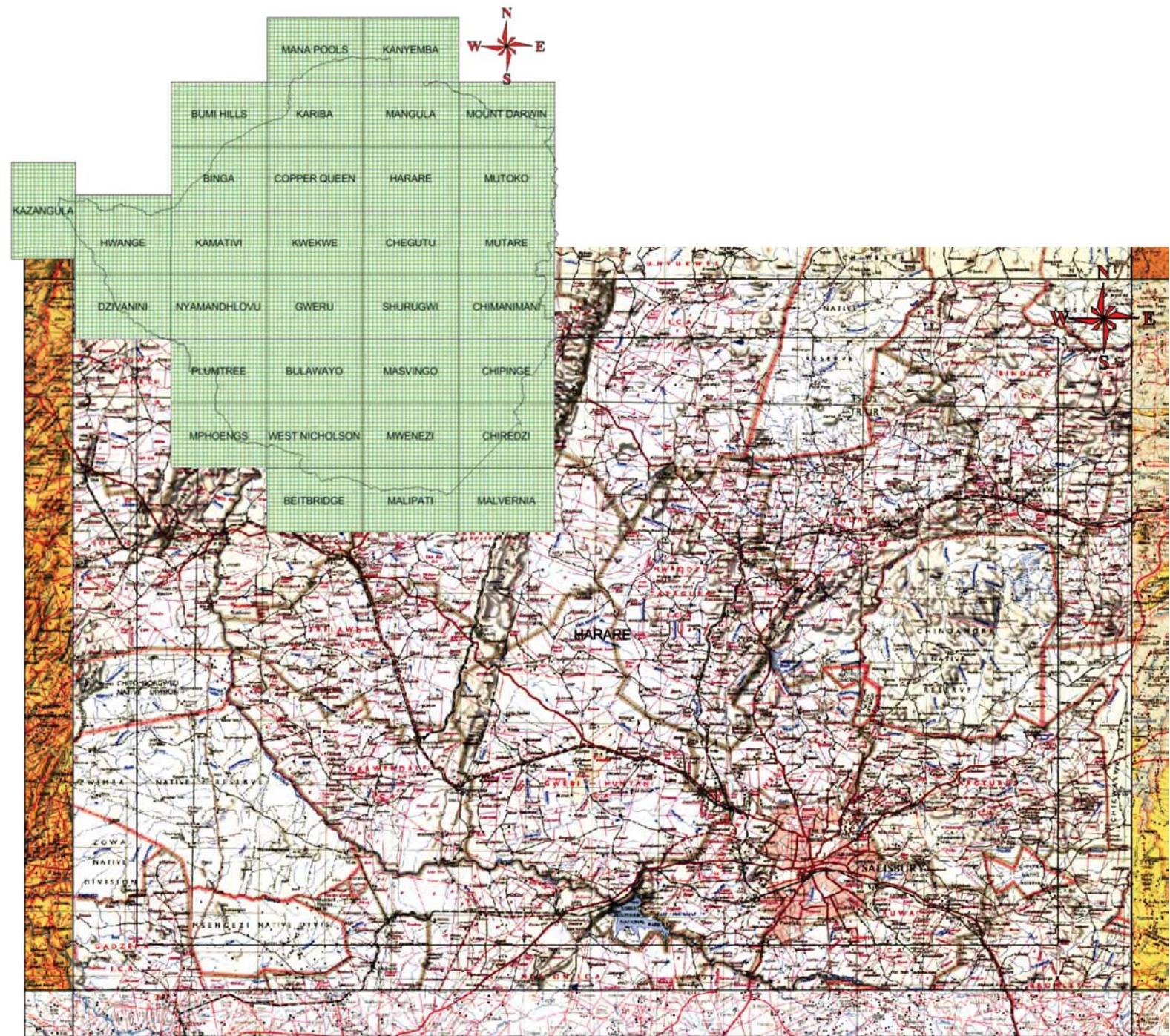
SPOT DATA MOZAIC



1:50000 Topo Sheets



1:250000 Topo Sheets



- Gazetted EPO Maps, from EPO 1
- Geochemistry (regional) by BGS – Rushinga and Nyamapanda

NOTE: This geo-scientific data should address issues related to mineral exploration/exploitation, surface and underground water quantification



**ZIMBABWE
DATA
ARCHIVE**

- Topographic Maps 1:250 000 /1:50 000
SPOT panchromatic data
- Landsat Images (downloadable from
USGS)
- Geological Maps 1: 100 000 over part of
Zimbabwe
- Aeromagnetic data at 1km line spacing
covering most of Zimbabwe
- Aeromagnetic and INPUT
electromagnetics at 250m line spacing
over parts of Zimbabwe

INTRODUCTION

- There is art to science, they say.
- One of the earliest intersections between the two seemingly separate fields was cartography
- The Geological Maps of Zimbabwe, Geological Bulletin Maps are adorned by incredible accuracy of cartographers and ornate compasses
- However, not manipulatable – Hence GIS



Knowledge

F A C T O R Y

THE RELEVANCE OF GIS TECHNIQUES TO RESOURCES EVALUATION **A PROJECT ON ARCHIVE DATA FROM ZIMBABWE**

TENYEARS GUMEDE