

# **NON-COMPULSORY BRIEFING**

**PASA-T-2024-05**



**SEISMIC ACQUISITION AND PROCESSING,  
AND ACQUISITION AND PROCESSING OF SUPPORTING  
GEOPHYSICAL DATA, ONSHORE SOUTH AFRICA**

**23 February 2024**

# OUTLINE



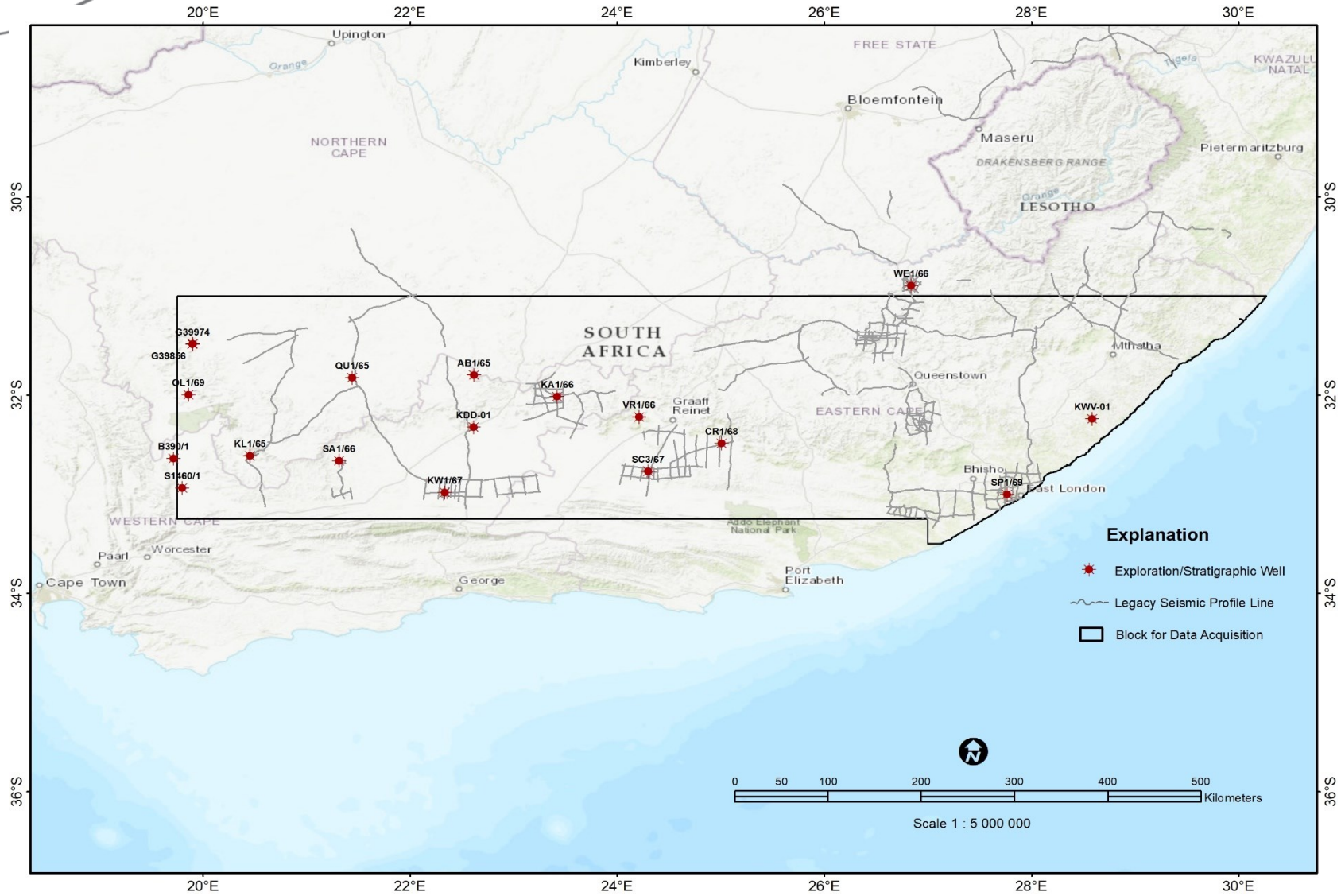
1. WELCOME AND INTRODUCTION
2. BACKGROUND AND SPECIFICATIONS
3. TENDER EVALUATION
4. QUESTIONS AND ANSWERS
5. CLOSURE

# BACKGROUND



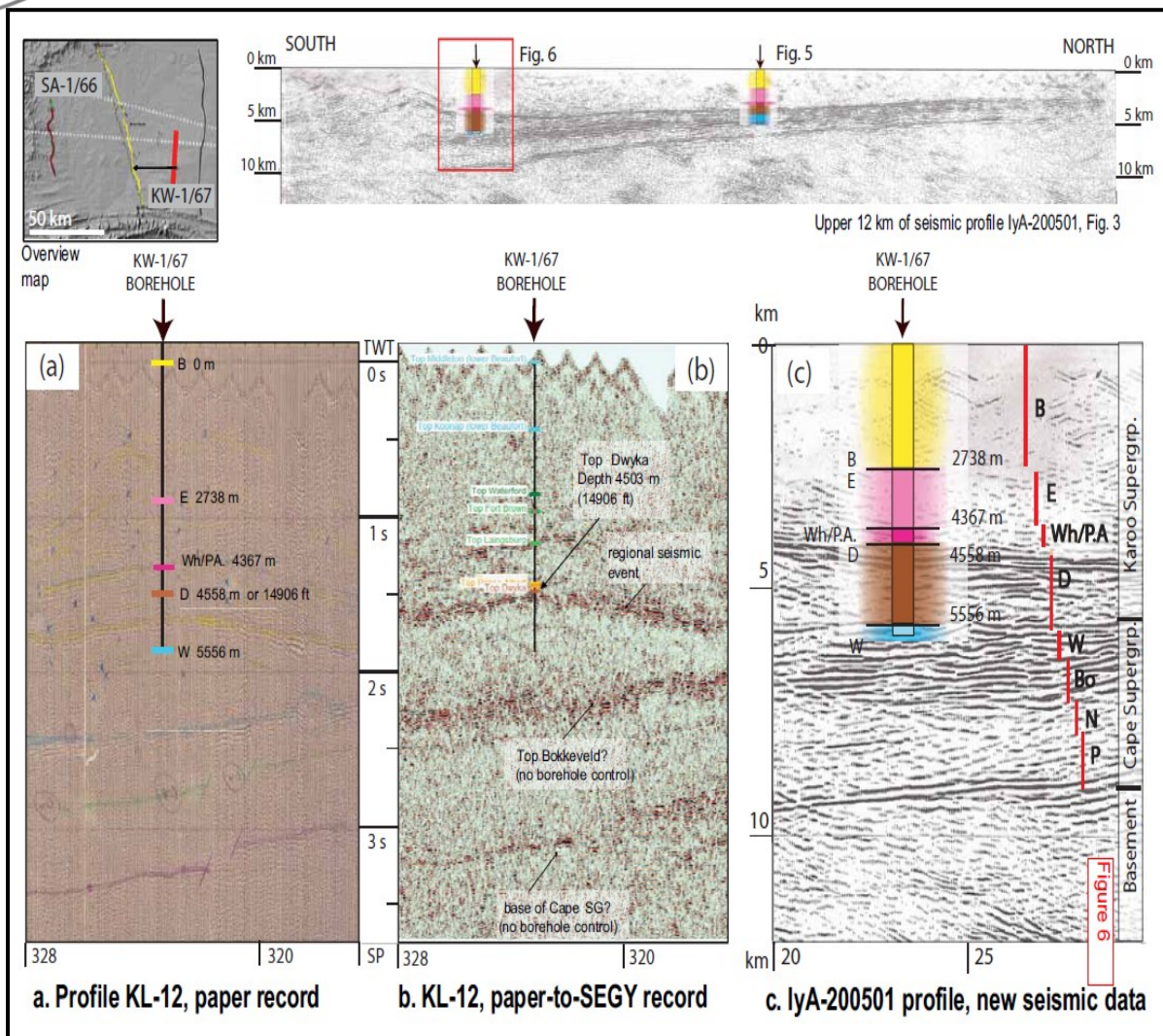
- Advance research commissioned by the DMRE
- Support geo-environmental baseline investigations
- Reduce geological risk and uncertainty
- Enable and stimulate sustainable exploration and production

# OBJECTIVE





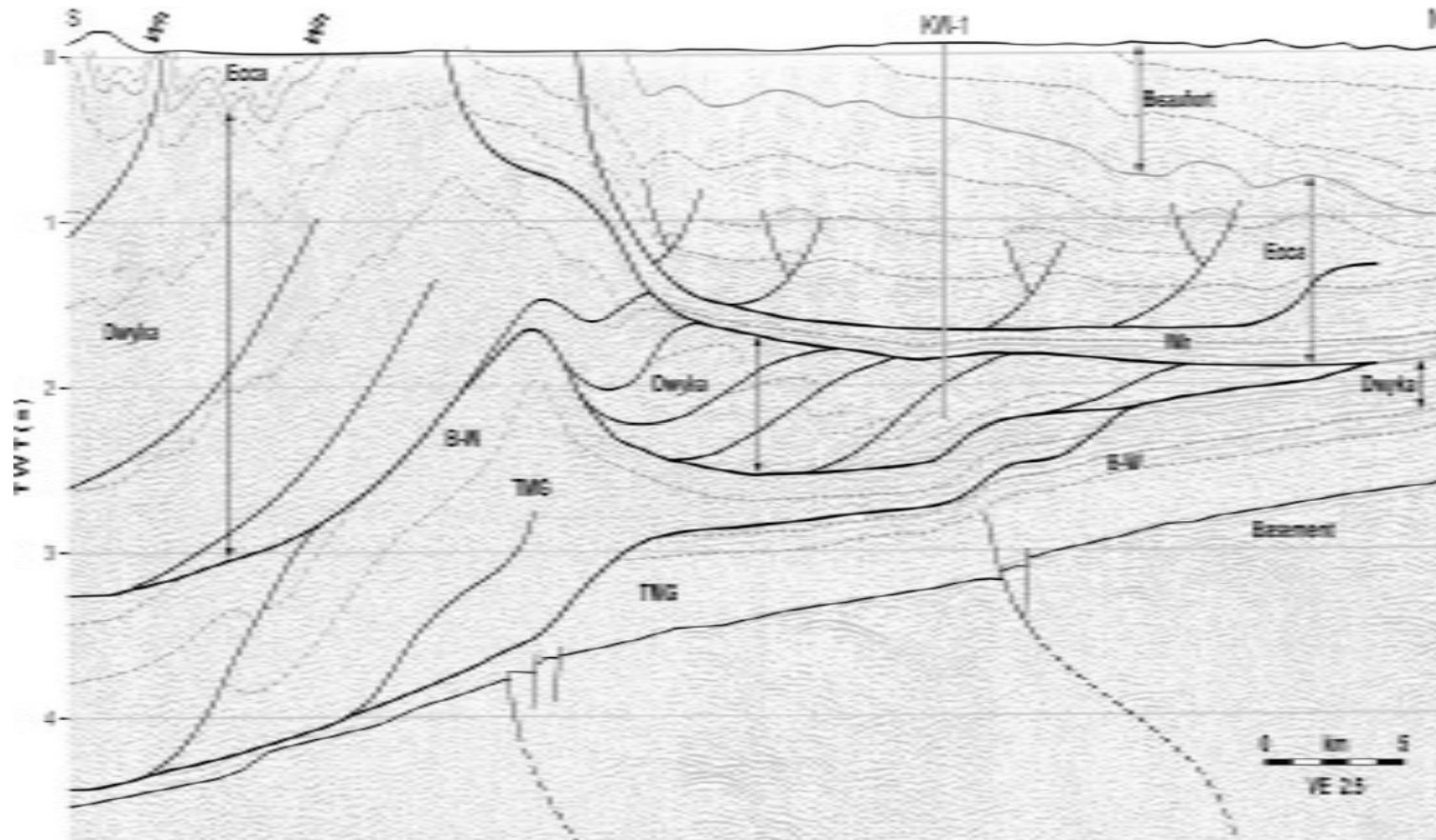
# LEGACY SOEKOR SEISMIC DATA



- Data quality is highly variable
- Low resolution and compromised
- Basic seismic interpretation challenging
- Advanced seismo-stratigraphy techniques not feasible.

Lindeque e al. (2011)

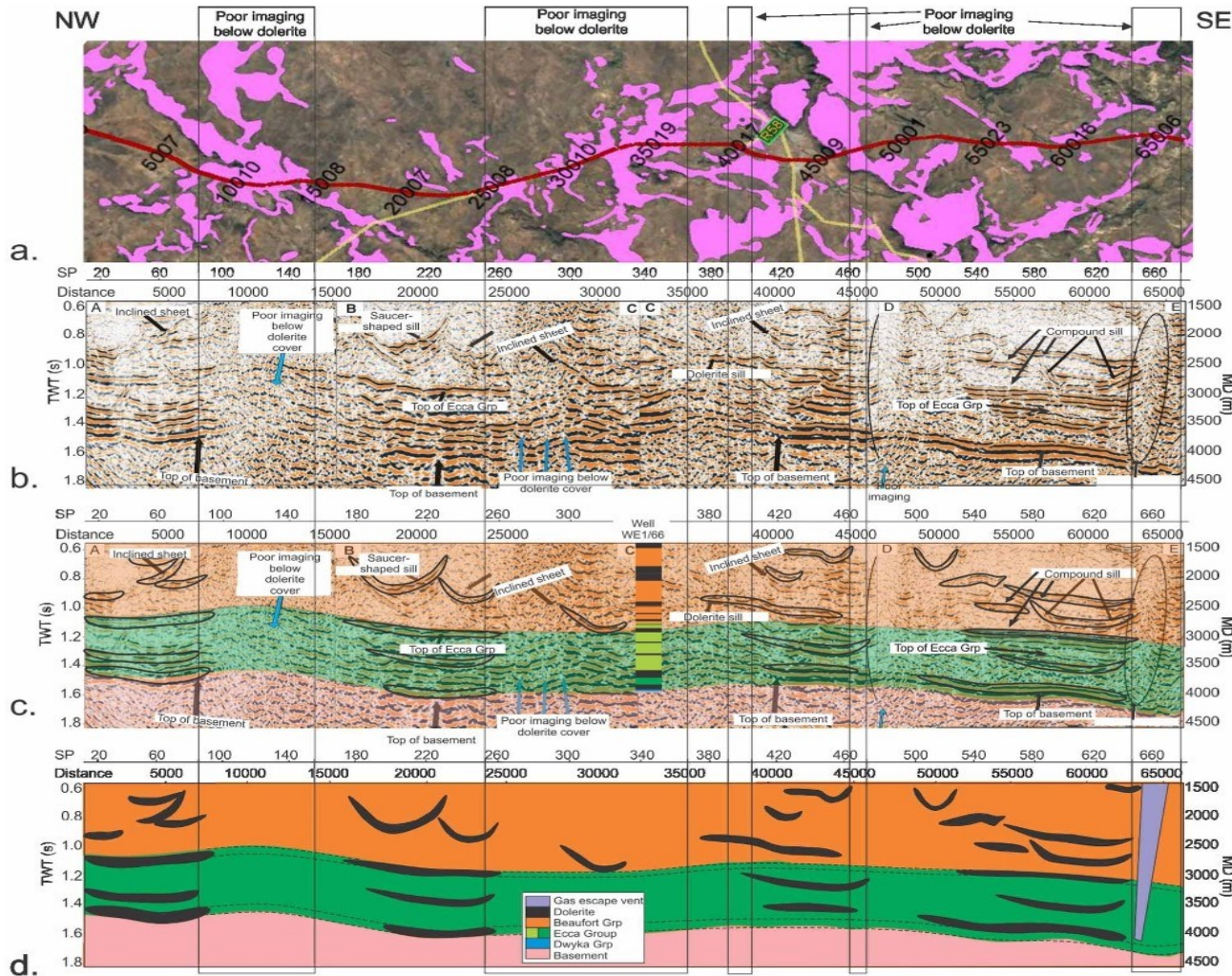
# OTHER LEGACY SEISMIC DATA



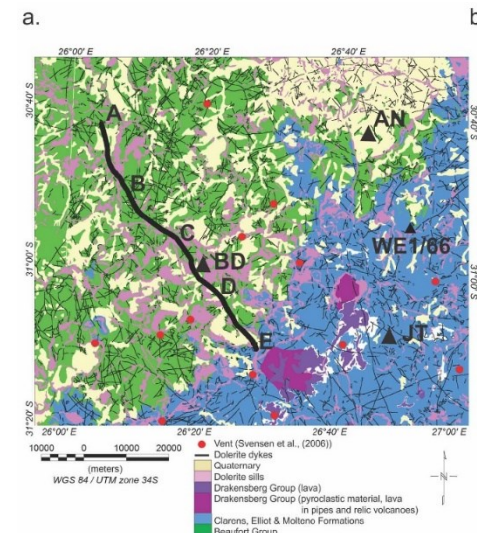
Tankard et al. (2009)



# OTHER REFLECTION SEISMIC



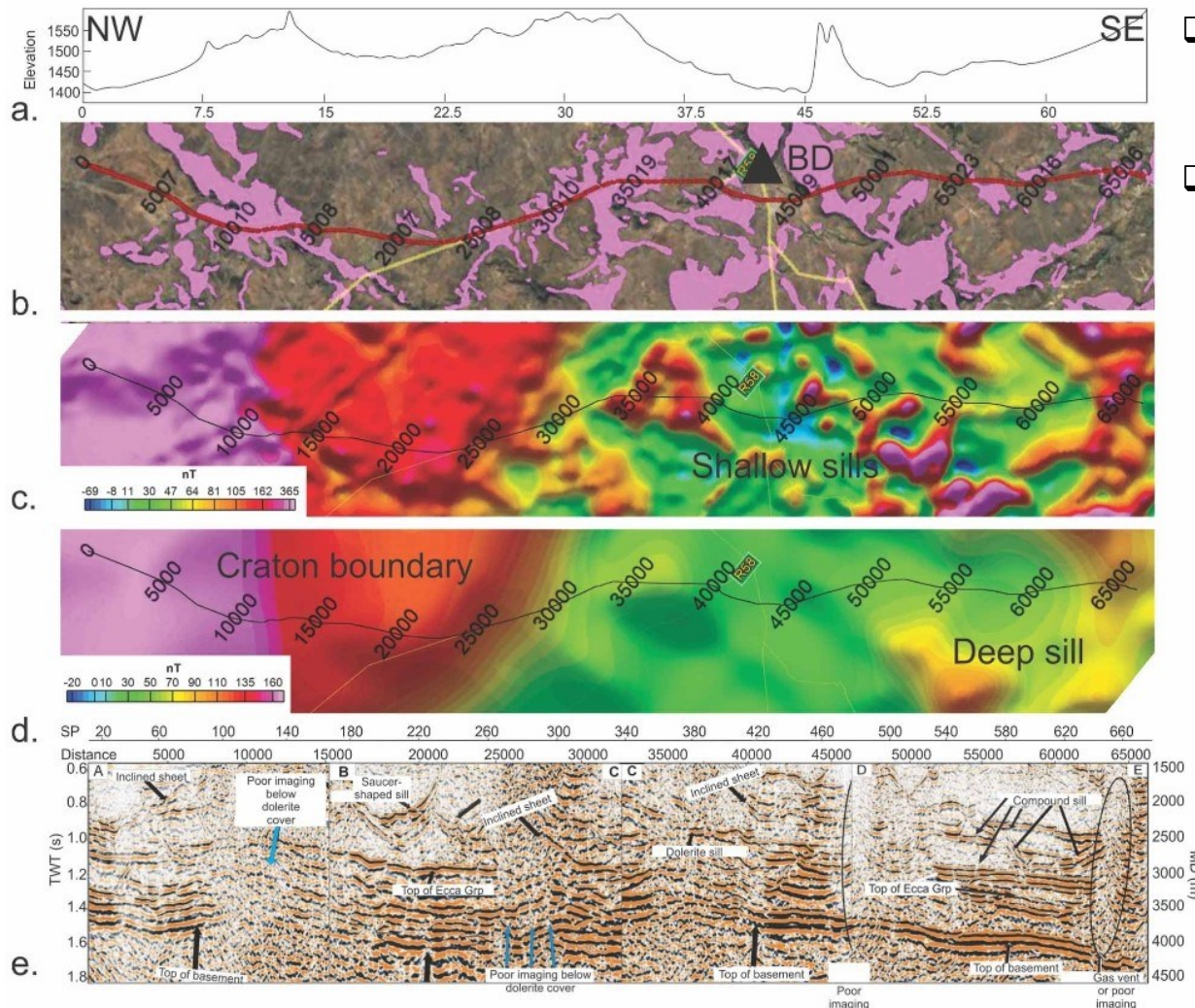
- Designed to the specific geological conditions of the Karoo Basin (topography, dolerite intrusions)
- Use modern techniques involving undershooting and wide-azimuth acquisitions and be supported by high resolution potential field data (airborne magnetic and magnetotelluric).



Scheiber-Enslin et al. (2021)



# INTEGRATED DATASET



□ Supporting geophysical data acquisition over prioritised profile lines.

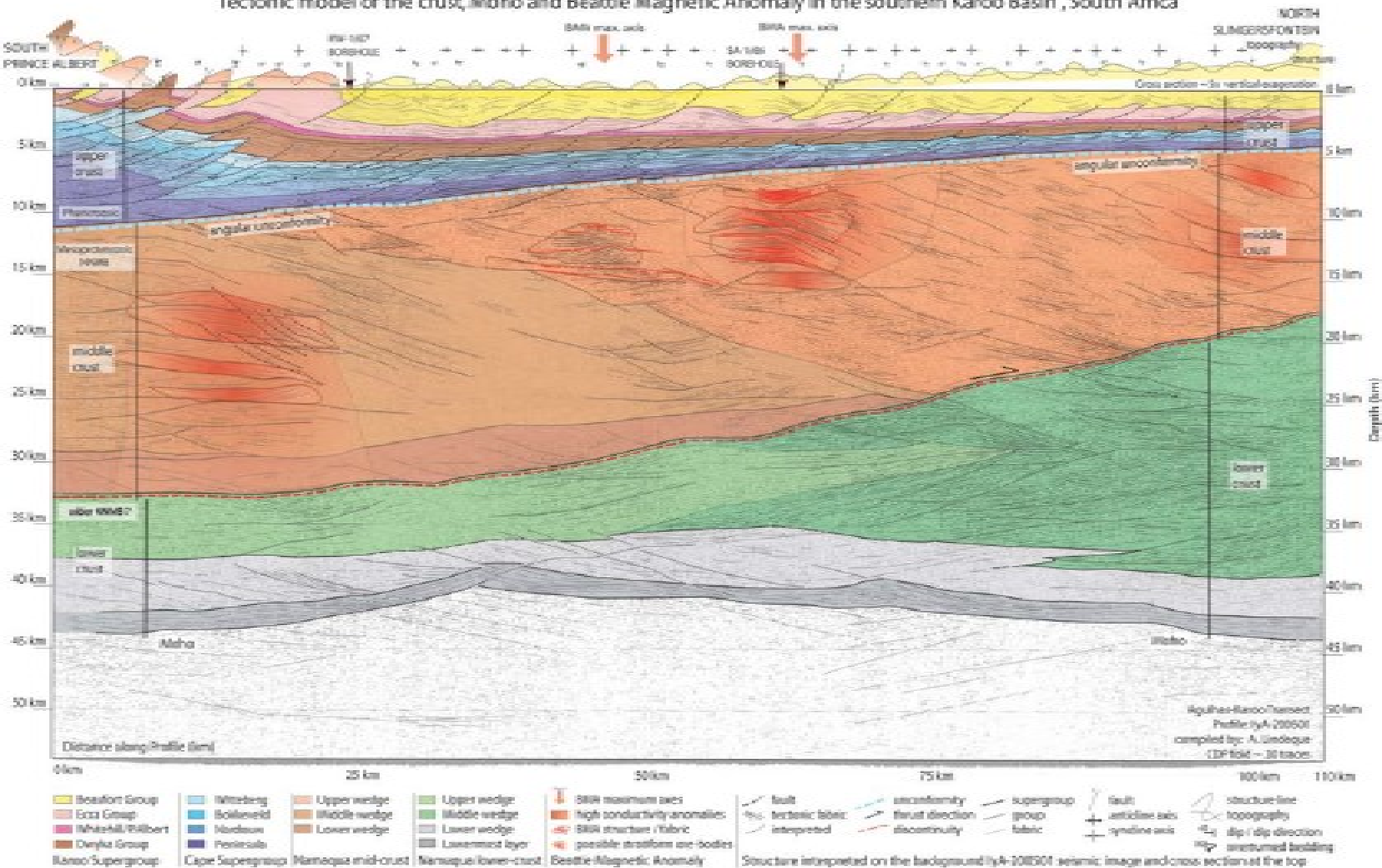
□ Objective is to use the data in conjunction with acquired reflection and refraction seismic data for:

- Structural mapping
- Depth to basement
- Determination of sediment thickness
- Delineation of sediment fairways
- Mapping of intra sedimentary anomalies

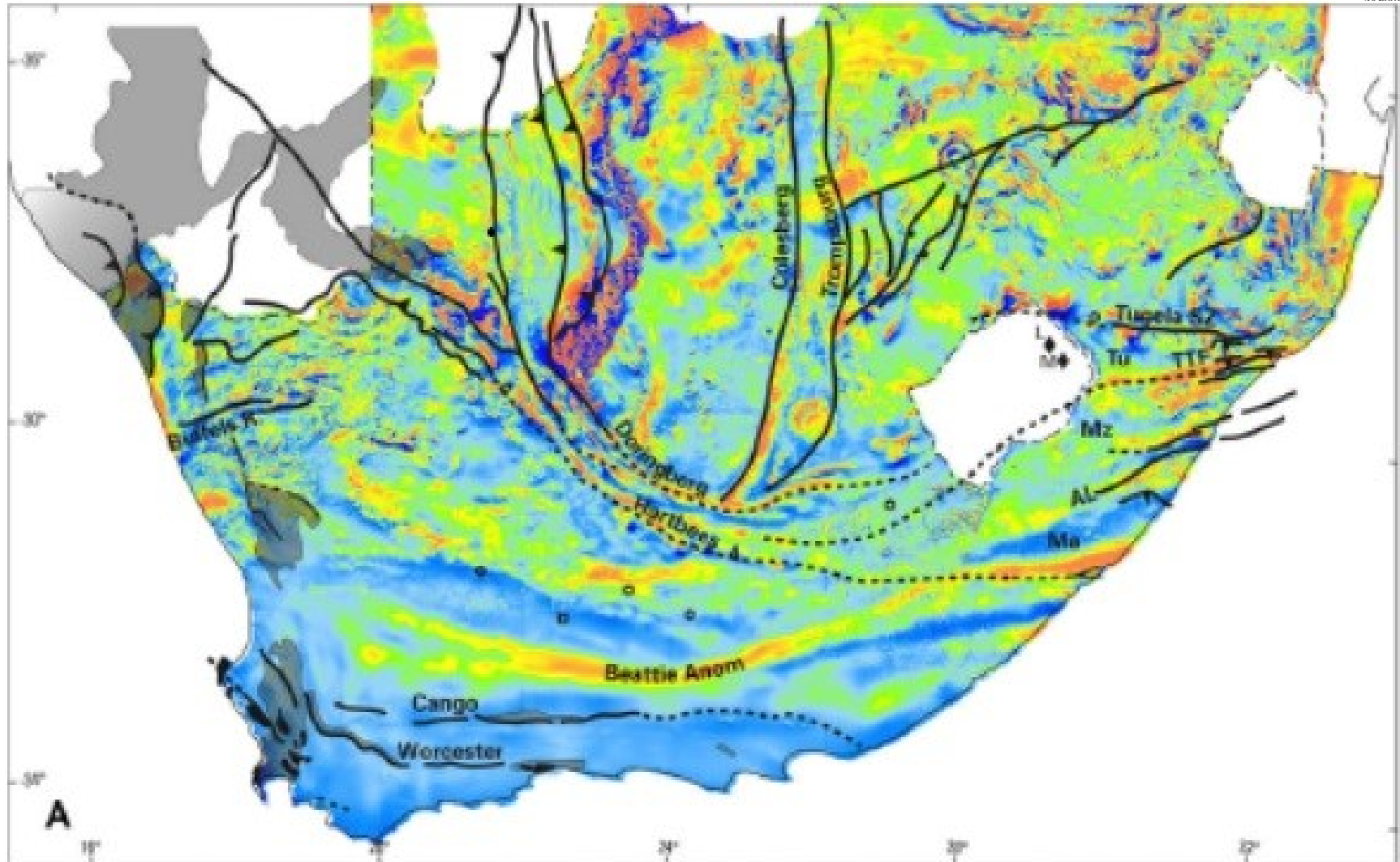
Scheiber-Enslin et al. (2021)



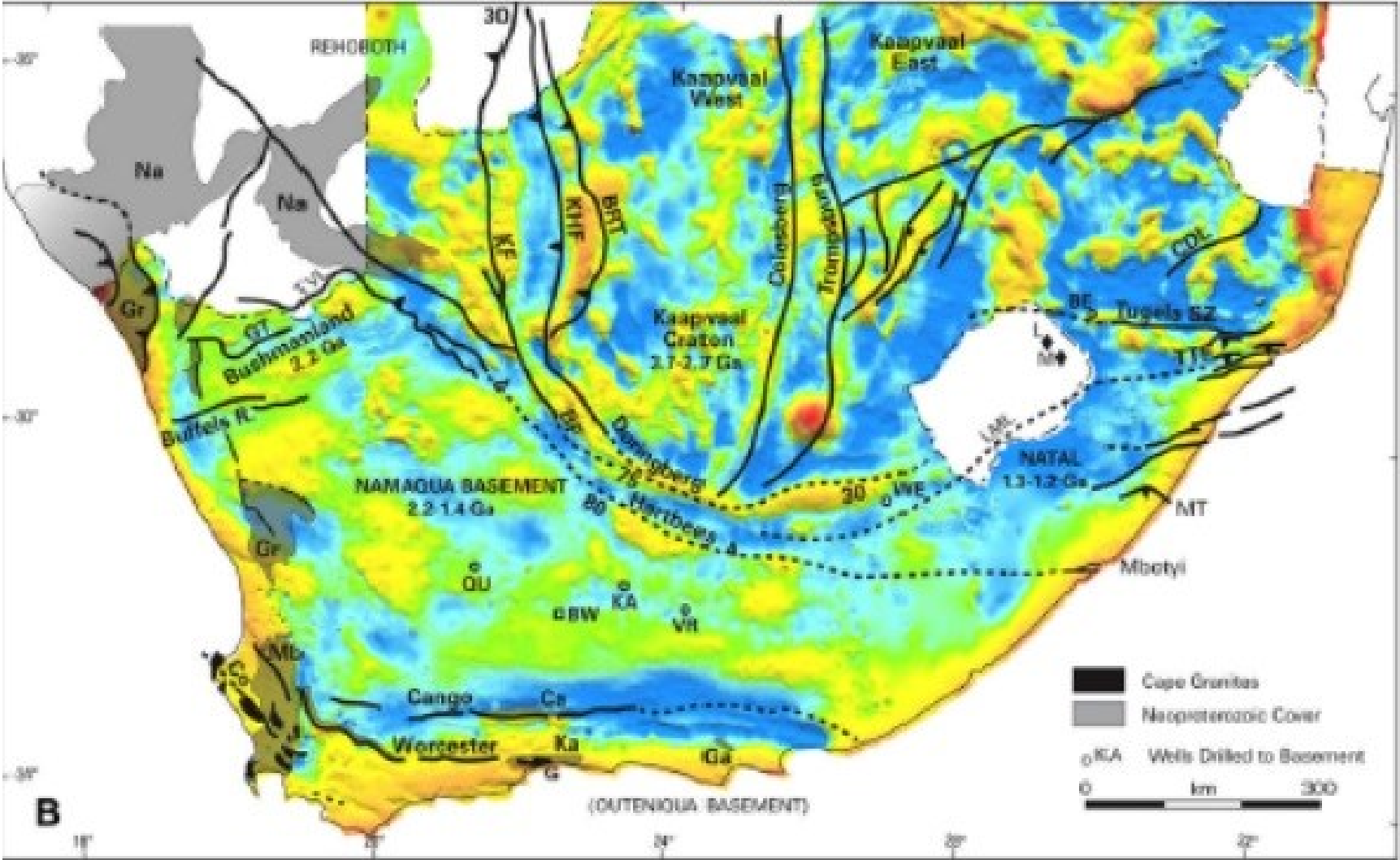
# Tectonic model of the crust, Moho and Beattie Magnetic Anomaly in the southern Karoo Basin, South Africa



# REGIONAL MAGNETIC

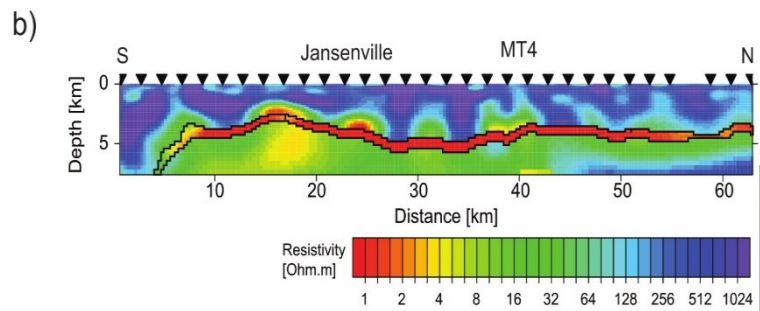
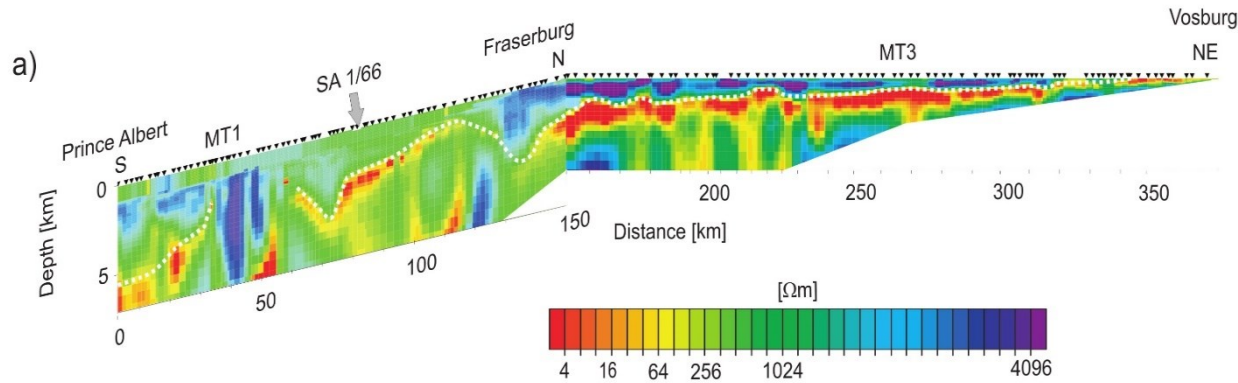


# REGIONAL GRAVITY

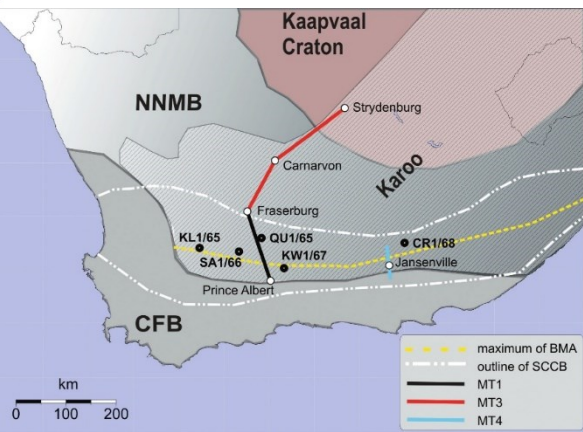




# MAGNETOTELLURIC

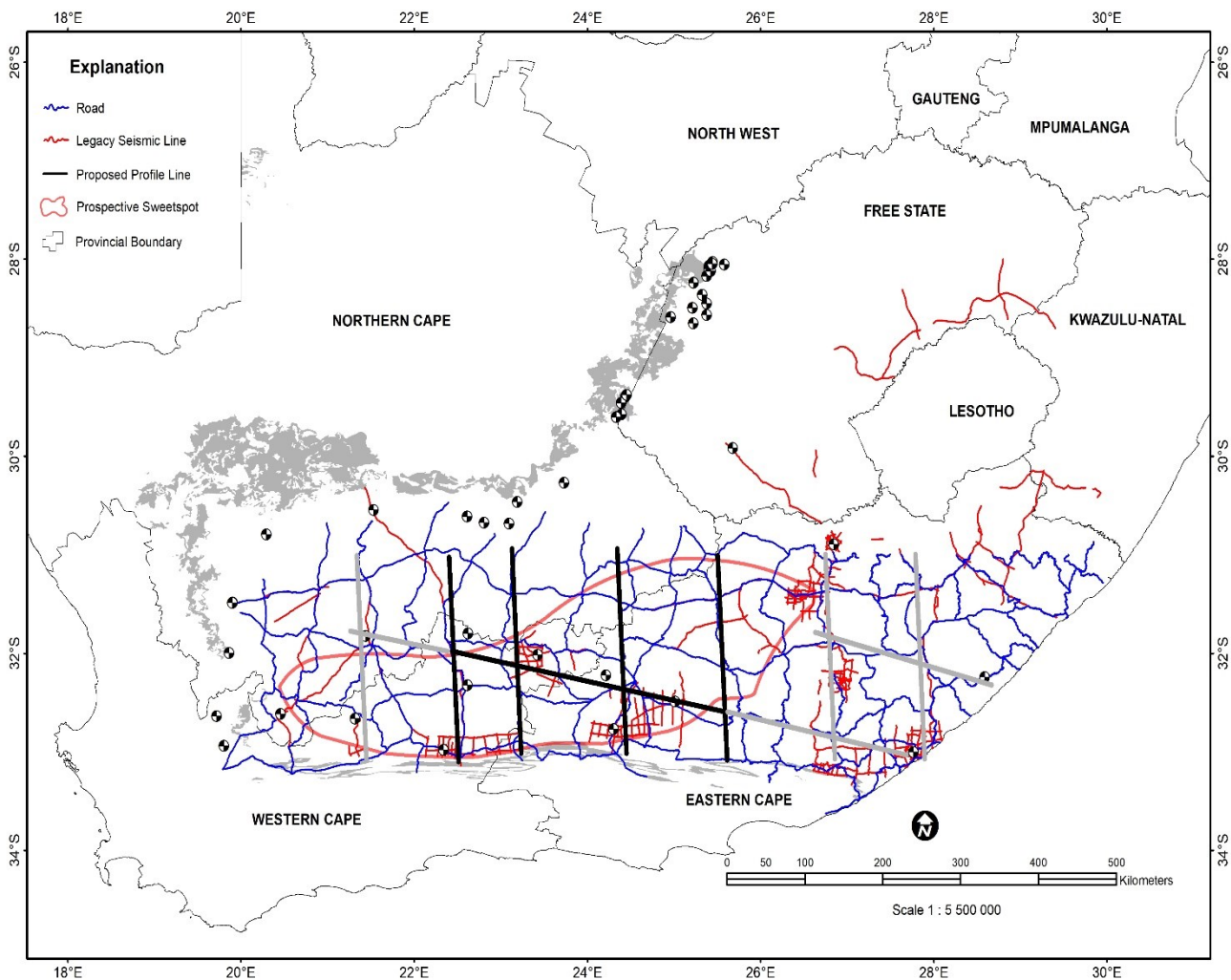


Branch et al. (2007)



- ❑ Lithology associated with large resistivity contrasts such as the Whitehill Fm can be detected by electromagnetic techniques such as the magnetotelluric (MT) method
- ❑ Integrating MT and seismic data can yield an improved interpretation and reduce both exploration and environmental risk

# EXAMPLE SEISMIC SURVEY



- Programme of new high resolution 2D reflection and refraction seismic, Acquisition of ~1000 - 2000km of crooked-line vibroseis survey to provide modern, regional-scale high resolution reflection seismic.

## Aims:

- Assist with petroleum resource evaluation.
- Mapping and understanding the subsurface geology and structural complexity.
- Identification of areas that are too environmentally risky and which should be excluded from shale gas exploration.

# TENDER EVALUATION PROCESS



## PHASE 1 - Administrative Evaluation Criteria

### Initial Screening Process:

- At this phase bidder's response are reviewed to check if bidders have responded according to PASA tender document.

## PHASE 2 - Technical Evaluation

- Bidders will be evaluated according to the technical evaluation criteria listed below.
- The minimum threshold to qualify for final evaluation is **80%**.
- Bidders who meet and/ or exceed the said threshold will be evaluated further on Price and Specific goal.

## PHASE 3 – Price and Specific Goals

- Bidders will be evaluated according to the technical evaluation criteria listed below.
- The minimum threshold to qualify for final evaluation is **80%**.
- Bidders who meet and/ or exceed the said threshold will be evaluated further on Price and Specific goal.



# QUESTIONS AND ANSWERS

# THANK YOU



[www.petroleumagencyrsa.com](http://www.petroleumagencyrsa.com)

#### DISCLAIMER AND PROPRIETARY INFORMATION

Having made all reasonable efforts to ensure the quality of the information contained in this presentation, Petroleum Agency SA shall not be liable for the integrity, accuracy or quality hereof and accepts no liability for the results of any decisions or actions of the recipient arising from the use of this information. This document and the copyright herein is the property of Petroleum Agency SA. No part hereof may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system without the prior written permission of Petroleum Agency SA.