Tarcoola Modelling: Predictive Targeting Outcomes

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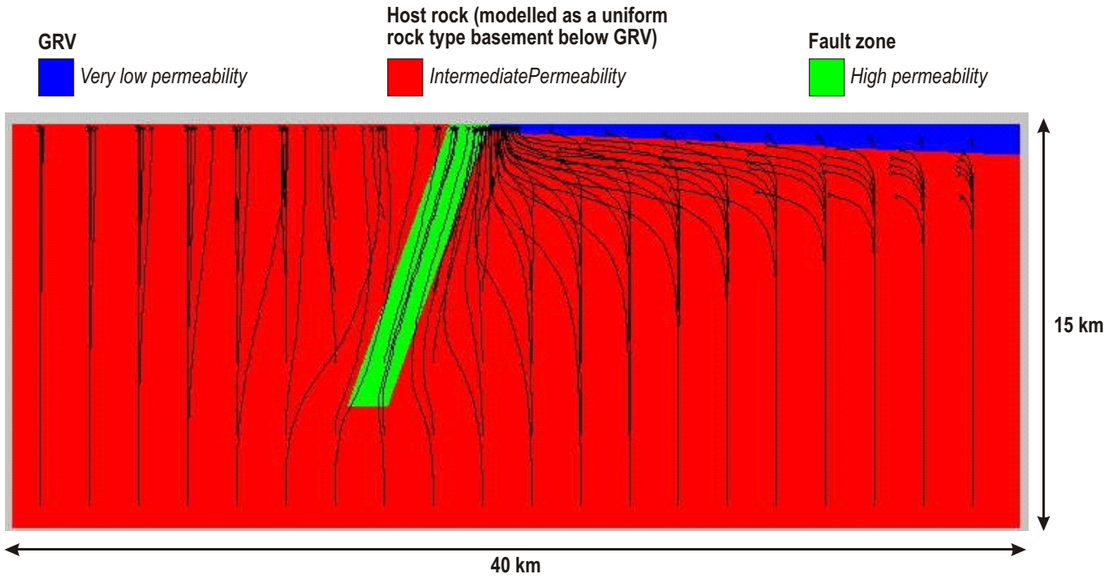


- Results from the regional GRV/Hiltaba thermal-fluid-flow modelling indicate that Tarcoola Fm sediments (in particular the reactive carbonaceous sediments) in close proximity to the base of the GRV would be highly prospective, because the GRV forms a low permeability blanket forcing lateral fluid flow and fluid channelling in the underlying rocks (see Update #2).

- The coincidence of the predicted fluid flow anomaly created by the deep thermal event beneath the impermeable GRV, the local competency contrasts and the more reactive carbonaceous sediments in the Tarcoola Fm, combine to provide an ideal host region. Any significant steep structure or broad damage zone (of gold event age) would further increase this region's prospectivity.

Predictive Targeting Outcomes:

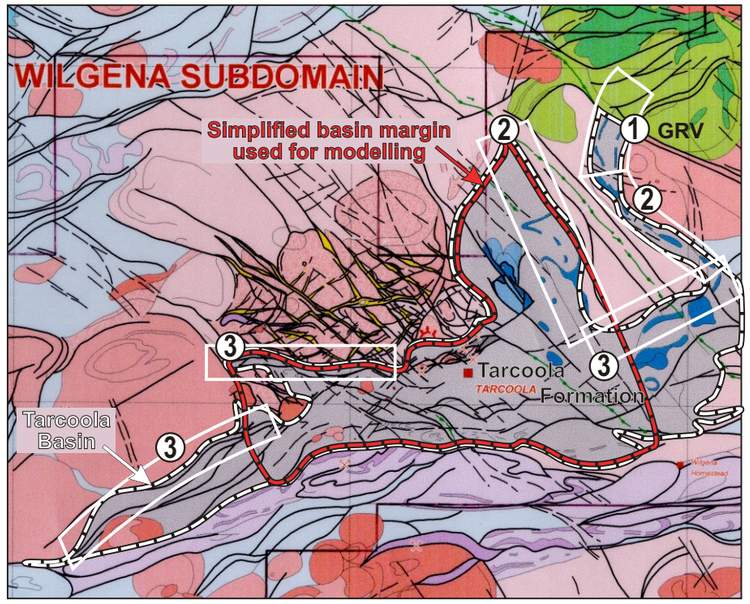
- Coincident numerical modelling anomalies indicate that the Eastern margin and North-Eastern arm of the Tarcoola basin, proximal to the known western extent of the (Gawler Range Volcanics), represents the most significant blue sky exploration target within the known Tarcoola Basin.

- Tarcoola Fm sediments within ~200 vertical metres of the base of the GRV are the most prospective from a regional thermal fluid flow and focussing perspective.

- Carbonaceous shales and sediments are the most prospective geochemical trap for large volume mineralisation with sustained higher grades, although pre Au mafic assemblages would also be a suitable host if fractured and deformed during the Au event.

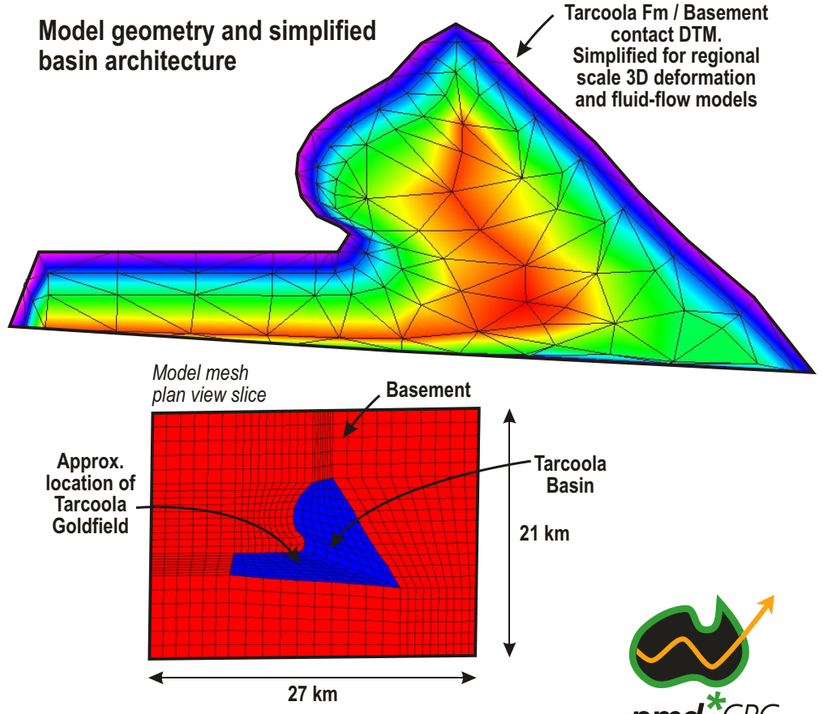
- Competency contrasts such as lithological layering and/or intrusive bodies are likely to enhance damage and dilation, contributing to fluid focussing.

- Significant steep structures in the Tarcoola Fm or basement (particularly at a high angle to the dominant lithological trends) can potentially further focus ore fluids, thus the intersection of these structures with favourable traps within the Tarcoola Fm would also be prospective.



Tarcoola Basin with areas identified by numerical modelling as most prospective highlighted and ranked (map modified after Leigh Rankin, Geointerp, 1997 for Stellar Resources Ltd.)

10 km



The predictive targeting outcomes presented in this report result from numerical modelling/simulation of complex mechanical/fluid-flow/chemical/thermal systems. The modelling process utilises both empirical data and geological interpretations as a basis for model construction and some intrinsic assumptions are required by the process. Every effort has been made to simulate these processes as accurately as possible based on the available geological interpretations and data, however, it must be noted that changes to numerical model inputs following further data acquisition or variations in geological interpretation may result in different modelling outcomes.

More information:

https:/pmd-twiki.arrc.csiro.au/twiki/bin/view/PIRSA/WebHome

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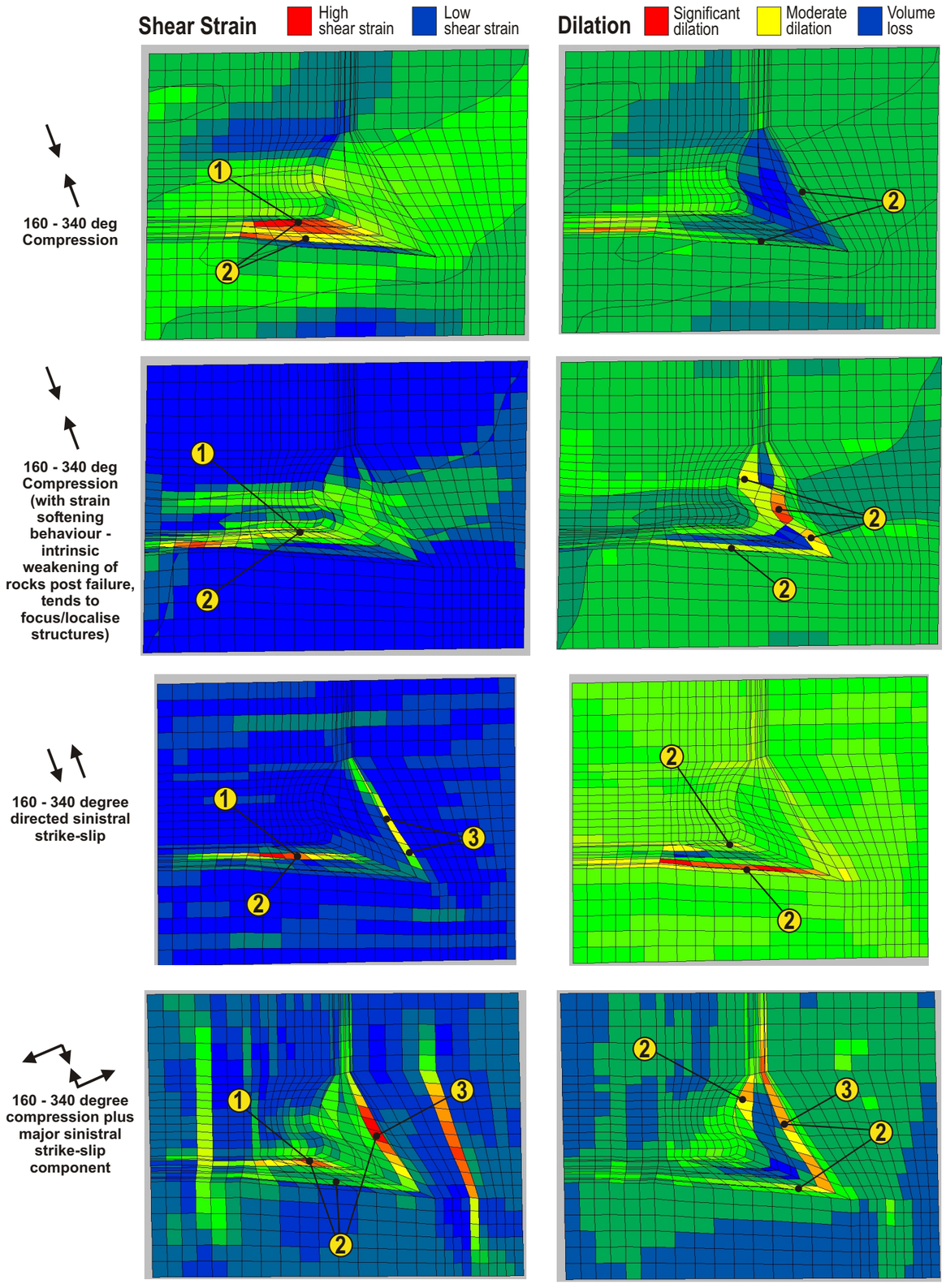
predictive mineral discovery CRC - PIRSA-CGGP Numerical Modelling Project Update #1



Deposit-scale reverse engineering modelling outcomes:

3D numerical simulation of the deposit-scale architecture, chemistry, deformation and fluid-flow highlighted that:

- The most likely far field stress regime responsible for the observed ore host structures was either:
  1) a regional N-S to NW-SE directed compression event followed by ~E-W directed sinistral strike-slip, with Au predominantly associated with the latter deformation, or
  2) a single sinistral strike-slip dominant transpression event, where the compression component of the stress field was in the range of N-S to NW-SE.

- The competency contrasts, created by the Tarcoola Formation's layered sedimentary sequence, provide an important strain partitioning mechanism which allows the mineralising fluids to focus at key structural intersections within weaker, more reactive carbonaceous units, adjacent to competent quartzites.

The horizontal slices through 3D model results (depicted opposite), show the results of applying the stress fields (indicated by the deposit-scale simulations reported at https:/pmd-twiki.arrc.csiro.au/twiki/bin/view/PIRSA/WebHome) to a simplified regional 3D Tarcoola basin architecture highlighting the following:

1. In all simulations, the location of the known Tarcoola goldfield produced strong shear strain and minor dilation anomalies, indicating that the stress field predicted by the deposit-scale modelling is valid at the regional scale.

2. In most models the Tarcoola Fm sediments immediately adjacent to the basal contact with the granitoids are predicted to be the best focus for shear strain and dilation anomalies (which will focus ore fluids). In particular the basin axis at the bottom of the Tarcoola Fm seemed particularly dilatant during basin inversion.

3. The eastern margin of the simulated Tarcoola basin exhibits significant shear strain and dilation anomalies as a result of sinistral strike-slip and transpressional deformation regimes. This is an area that is currently very poorly explored.

- The predicted best lithological/geochemical traps for the ore fluids are the carbonaceous shales/siltstones (Sullivan Shale host to most Tarcoola Blocks mineralisation) and basal Euro Limestone. Host rock sulphidation reactions are required to produce the best grade, thus the larger the host-rock damage zone around the main structure, the greater the permeability, fluid infiltration and potential for mineralisation (both grade & tonnes).

- The least reactive rock type is the Fabian Quartzite. Here, good grades can only be achieved through phase separation, where nuggetty gold would be expected to be hosted predominantly within dilatant veins, with minimal host rock mineralisation. This accounts for the low grade vein hosted nuggety Au within the Fabian Quartzite units.