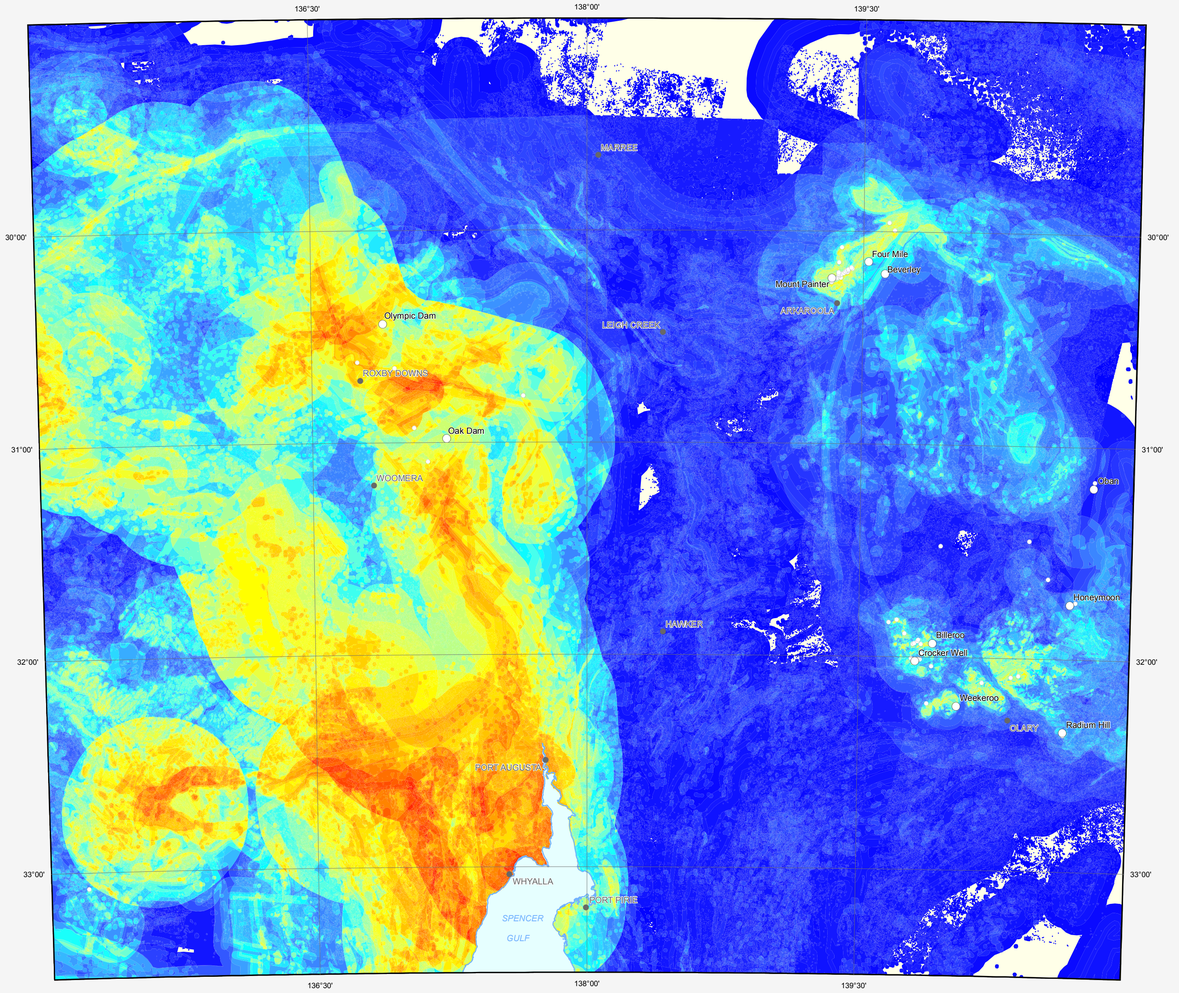
SOUTH AUSTRALIA ENERGY SYSTEMS ASSESSMENT

PRECAMBRIAN UNCONFORMITY-RELATED URANIUM PROSPECTIVITY



Precambrian Unconformity-Related Uranium Prospectivity

Low — High

Potential for uranium deposits based on summation and normalisation of mineral system parameters shown in inserts. See text for more information and references.

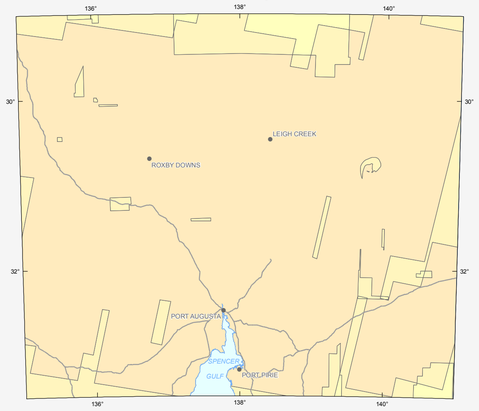
0 100 200 km

Transverse Mercator Projection; Central Meridian 138° E; Geocentric Datum of Australia (GDA94)

Uranium deposit

Uranium occurrence

Reliability



Data coverage displaying geographical data completeness. Note: Data coverage is separate to data confidence.

0 200 km

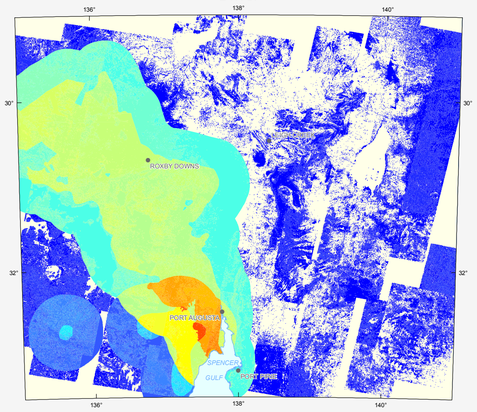
No ASTER or radiometric data used

Either ASTER or radiometric data used

Both ASTER and radiometric data used

Highway

Driver



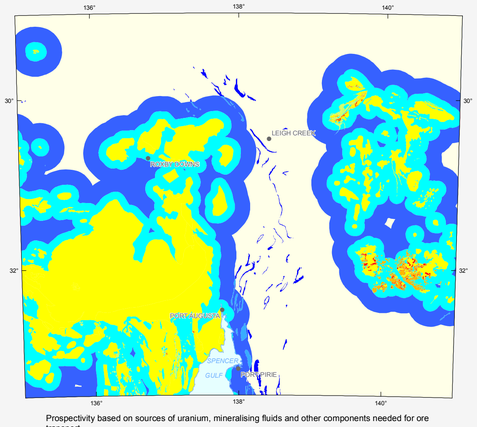
Prospectivity based on energy gradients that will mobilise sufficient quantities of ore-bearing fluids to the site of deposition.

0 200 km

Driver Prospectivity

Low — High

Source



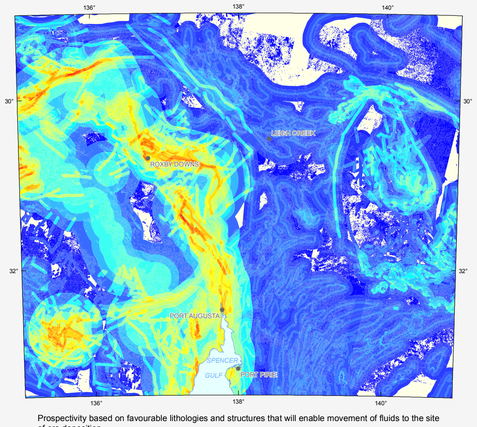
Prospectivity based on sources of uranium, mineralising fluids and other components needed for ore transport.

0 200 km

Source Prospectivity

Low — High

Fluid Pathway/Architecture



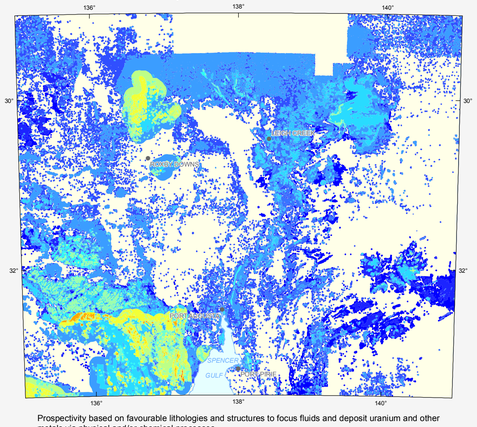
Prospectivity based on favourable lithologies and structures that will enable movement of fluids to the site of ore deposition.

0 200 km

Fluid Pathway/Architecture Prospectivity

Low — High

Depositional Mechanism



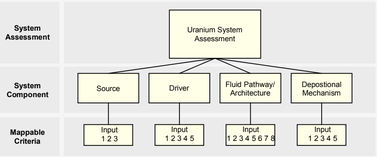
Prospectivity based on favourable lithologies and structures to focus fluids and deposit uranium and other metals via physical and/or chemical processes.

0 200 km

Depositional Mechanism Prospectivity

Low — High

Prospectivity Assessment Workflow



Energy Assessment Prospectivity
The uranium system assessment is a function of four key mineral system components a) source, b) driver, c) fluid pathway/architecture and d) depositional mechanism. Each mineral system component is comprised of a varying number of inputs specific to the targeted mineral system assessment.

Source
Potential for sources of uranium and other metals, mineralising fluids and other components needed for ore transport. The source weighting is calculated by combining the constituent mappable criteria listed below and normalised to the total number of mappable criteria. The input data are:

1) Presence of igneous rocks with U concentration above the 75th percentile (intrusive and volcanic).
2) Presence of sedimentary rocks with above average uranium concentration.
3) Presence of evaporite-bearing or shallow water units that may act as a source of basinal brines.

Driver
Prospectivity based on energy gradients that will mobilise sufficient quantities of ore-bearing fluids to the site of deposition. The driver weighting is calculated by combining the constituent mappable criteria listed below and normalised to the total number of mappable criteria. The input data are:

1) Distribution of the Cariewerloo basin.
2) Distribution of the Corunna Conglomerate.
3) Above average ferric oxide content in ASTER images.
4) Above average AlOH group content in ASTER images.
5) Above average advanced argillic group content in ASTER images.

Fluid Pathway/Architecture
Potential for favourable lithologies and structures that will enable movement of fluids to the site of ore deposition. The fluid pathway/architecture weighting is calculated by combining the constituent mappable criteria listed below and normalised to the total number of mappable criteria. The input data are:

1) Presence of unconformities in sedimentary basins.
2) Presence of unconformities in the solid geology.
3) Presence of Mid-Proterozoic extensional faults which may act as a fluid flow conduits.
4) Presence of Archean extensional faults which may act as a fluid flow conduits.
5) Presence of demagnetised zones in the magnetics providing evidence for oxidised fluid flow.
6) Above average ferric oxide content in ASTER images.
7) Above average AlOH group content in ASTER images.
8) Above average advanced argillic group content in ASTER images.

Depositional Mechanism
Potential for favourable lithologies and structures to focus fluids and deposit uranium and other metals via physical and/or chemical processes. The depositional mechanism weighting is calculated by combining the constituent mappable criteria listed below and normalised to the total number of mappable criteria. The input data are:

1) Above Average U^{IV}/Th indicating regions of uranium enrichment.
2) Presence of carbonaceous rocks that provide redox gradients favourable for deposition.
3) Presence of Fe^{III} -rich rocks that provide redox gradients favourable for deposition.
4) Above average Th concentration in the Th channel of the radiometric map of Australia.

Reliability Index
Data coverage displaying geographical data completeness. Note: Data coverage is separate to data confidence.

MAP LOCALITY

Compiled by T.P. Mernagh, Geoscience Australia
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AUGUST 2011

PLATE 3.4