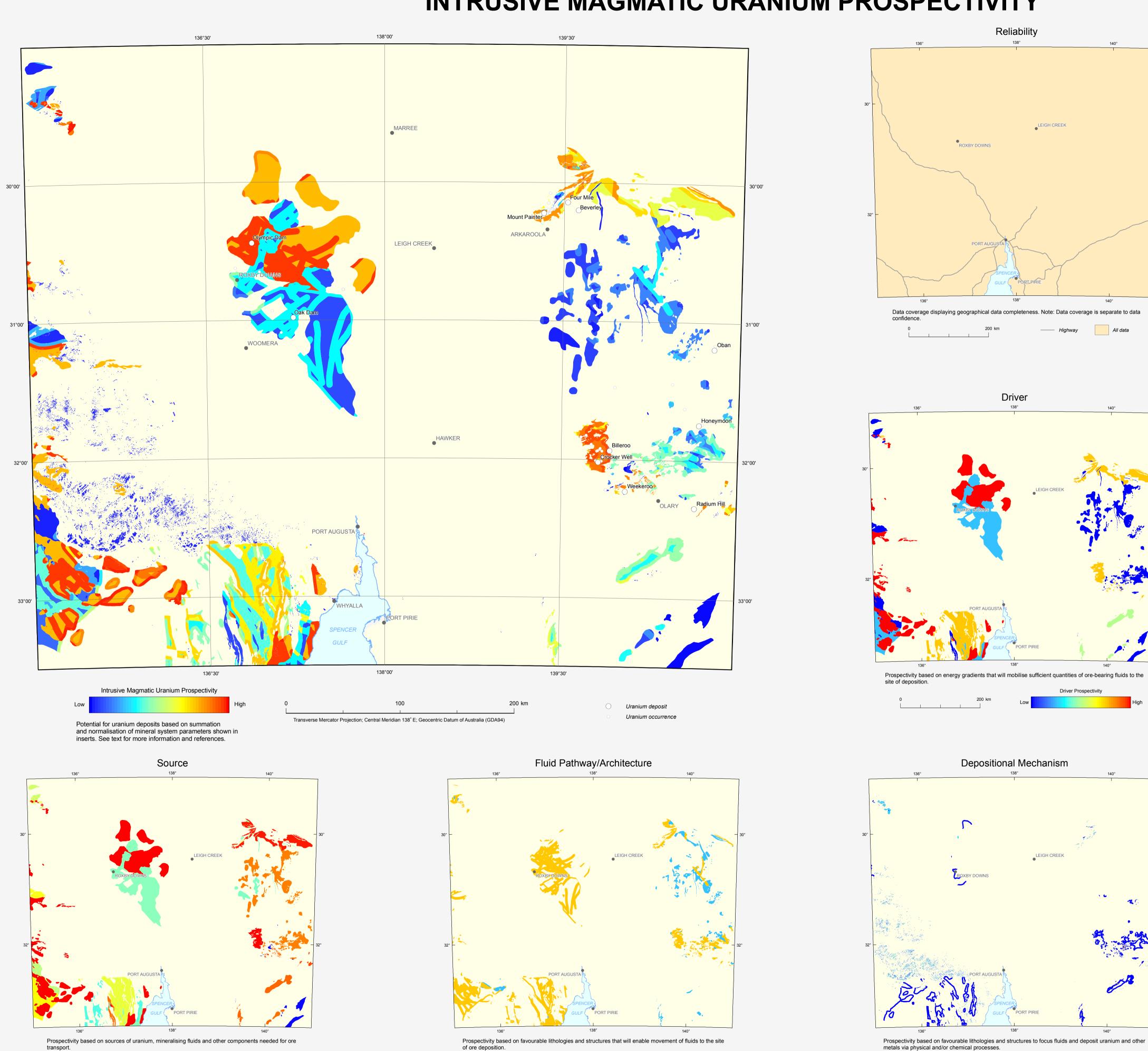
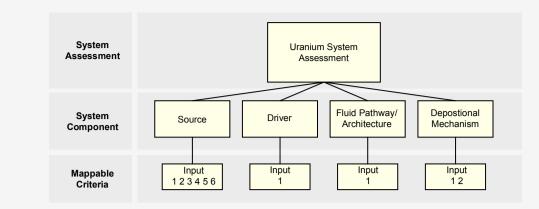
SOUTH AUSTRALIA ENERGY SYSTEMS ASSESSMENT

Fluid Pathway/Architecture Prospectivity

INTRUSIVE MAGMATIC URANIUM PROSPECTIVITY



Prospectivity Assessment Workflow



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:

- Presence of broadly felsic igneous rocks.
 Presence of favourable magma types.
- 3) Presence of uranium-enriched igneous rocks.
- 4) Presence of fractionated igneous rocks.
- 6) Presence of igneous rocks with high uranium solubility.

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) Fluid exsolution and volatile release.

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

1) Fluid flow along permeable structures.

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) Direct evidence of elevated uranium. 2) Chemical depositional sites.

Driver

Driver Prospectivity

Depositional Mechanism Prospectivity

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



Compiled by A. Schofield, Geoscience Australia Data analysis by A. Schofield

Geoprocessing and Cartography by D.P. Connolly
Produced by GIS Services Group, Onshore Energy and Minerals Division, Geoscience Australia.

This map forms part of Geoscience Australia's Onshore Energy Security Program

It is recommended that this map be referred to as: Mernagh T.P., Connolly D.P., 2011. *Intrusive Magmatic Uranium Prospectivity*. In: Huston D.L and van der Wielen S.E. (editor), 2011. South Australia, Energy Assessment. Geoscience Australia, Canberra, GA Record 2011/34. Geocat # 72666. ISBN web 978-1-921954-38-2, ISBN hardcopy 978-1-921954-37-5.

Published by Geoscience Australia, Department of Resources, Energy and Tourism, Canberra, Australia. Issued under the authority of the Minister for Resources, Energy and Tourism

© Commonwealth of Australia (Geoscience Australia) 2011

With the exception of the Commonwealth Coat of Arms and where otherwise noted, all material in this publication is provided under a Creative Commons Attribution 3.0 Australia Licence

Copies of the GA Record containing this map can be downloaded from the Geoscience Australia internet site at: http://www.ga.gov.au or by contacting:

Sales Centre, Geoscience Australia

GPO Box 378 Canberra ACT 2601 Phone (02) 6249 9966, Facsimile (02) 6249 9960 Email: sales@ga.gov.au





SOUTH AUSTRALIA ENERGY SYSTEMS ASSESSMENT INTRUSIVE MAGMATIC **URANIUM PROSPECTIVITY**

AUGUST 2011

PLATE 3.6