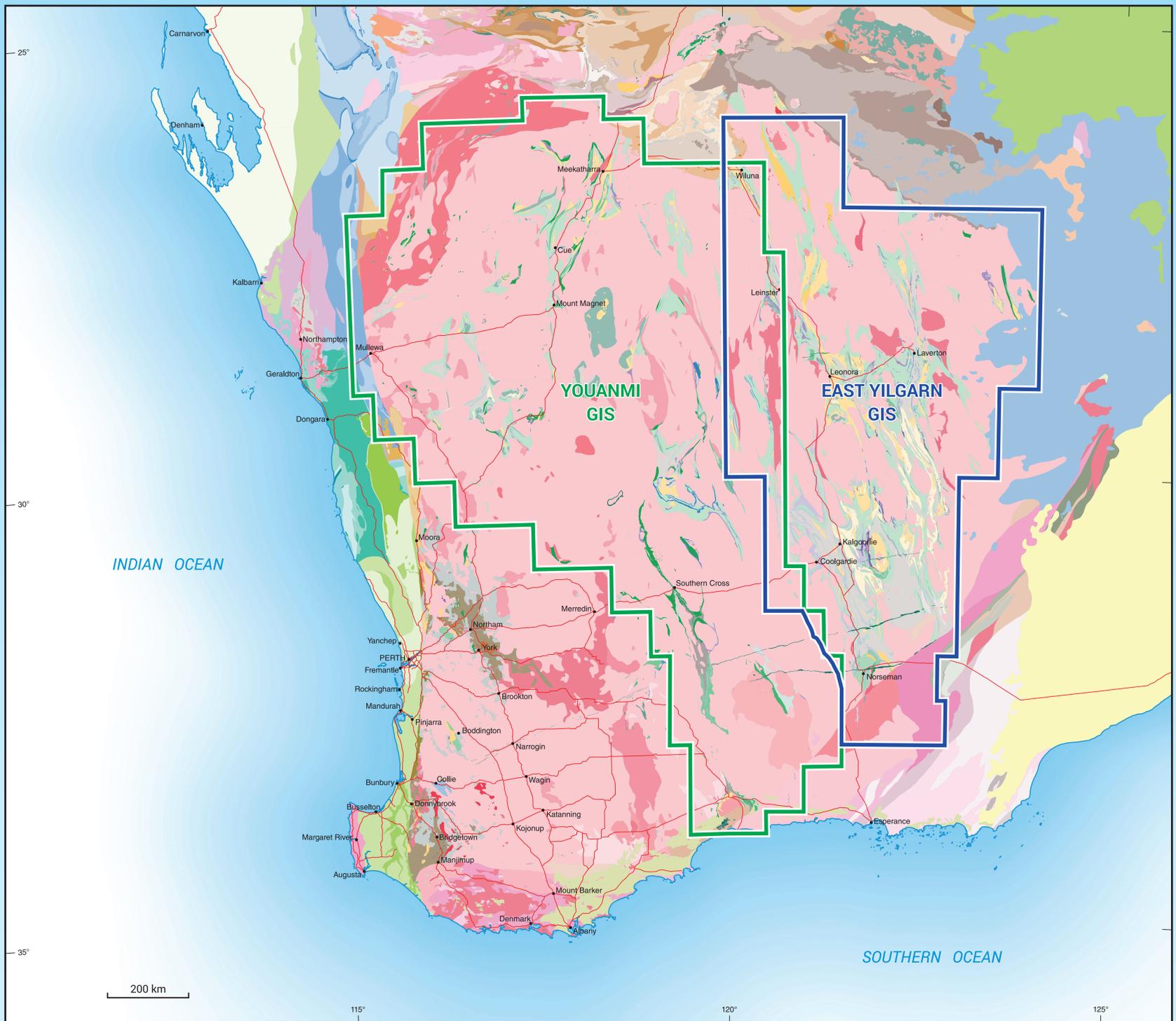


YILGARN CRATON OVERVIEW



East Yilgarn

The Geological Survey of Western Australia (GSWA), through the Exploration Incentive Scheme (EIS), conducted a high-resolution 2D seismic reflection survey along seven traverse lines between Broad Arrow and Kambalda during March-April 2019. A broad-scale, preliminary geological interpretation of the seismic data was released in August 2019. Ongoing programs will collect passive seismic and magnetotelluric (MT) data over the same region. These new data will be combined with the results of detailed structural, metamorphic, geochemical (major, trace and isotope), and geochronological data collection and interpretation, including a reappraisal of existing outcrop and bedrock mapping. A ~three-year priority of the East Yilgarn work program is to combine all of these new data into a significantly better-constrained model for the geological evolution of the Broad Arrow - Kambalda region, including a 3D model of the upper crust.

The 2020 edition of the East Yilgarn GIS package will contain new interpreted bedrock geology at 1:500 000 scale, as well as all the material in the previous releases. Writing and editing of geological descriptions for the Explanatory Notes database will continue with new releases as material becomes available.

The Greenstone Geochemical Barcoding project, aimed at systematic detailed geochemical sampling and characterization of greenstone stratigraphies, will continue. This will provide a high-quality reference set for stratigraphic comparisons between greenstone successions in the Eastern Goldfields Superterrane.

West Yilgarn

The new project area of the Youanmi GIS 2020 will include areas previously covered by the Murchison, Central Yilgarn and South Yilgarn GIS packages.

The combined area allows correlation of granitic and greenstone units across both the eastern and western parts of the Youanmi Terrane resulting in seamless 1:100 000-scale interpreted bedrock geology.

The Youanmi GIS package (2020) will include:

- previously released material contained in the earlier (2019) release of the Murchison GIS package, and material from the South Yilgarn (2016) and Central Yilgarn (2008) packages
- new mapping in the Sandstone greenstone belt providing digital 1:100 000-scale and 1:500 000-scale coverage and cross-sections
- newly acquired geochronological and geochemical data
- Explanatory Notes database entries for some granitic and greenstone units
- newly released publications relating to the Youanmi Terrane region, including Records and Reports.

In 2020, new work on the northwestern Youanmi Terrane will be compiled for release in 2021 as digital interpreted bedrock geology. Writing and editing of geological descriptions for the Explanatory Notes database will continue with new releases as material becomes available.

Other projects and activities

- Geochemistry of granitic rocks in the South West Terrane
- Characterizing the trace element and O-isotope composition of zircon in granitic rocks from the Yilgarn Craton
- Metamorphic studies will continue in the South West Terrane, resulting in publication of GSWA metamorphic history records
- Geochemistry of mafic rocks in the Murchison region (ARC Linkage project with Sydney University), including two Honours Theses published as GSWA records.
- Geochemistry and isotope geology of old rocks within the Narryer Terrane (The University of Western Australia)



Figure 1. East Yilgarn 2019 seismic survey

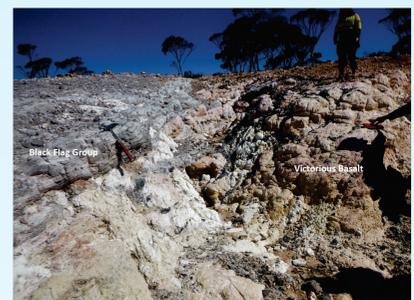


Figure 2. Contact between lower shale unit of the Black Flag Group and the plagioclase-phyric Victorious Basalt

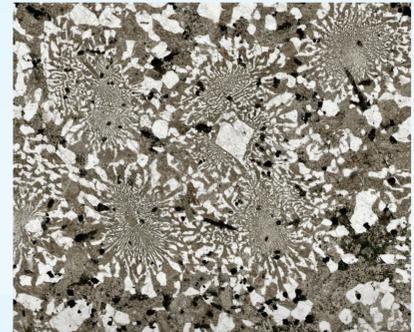


Figure 3. Plane-polarized light microscope image of granophyre crosscutting greenstones in the Gabanintha area



Figure 4. Banded iron-formation of the Wilgie Mia Formation from the Weld Range, looking east-northwest

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