

WUHUA MINING CORPORATION PTY LTD

EXPLORATION LICENCES 29205

NAPPERBY URANIUM PROJECT

PARTIAL SURRENDER REPORT

FOR THE PERIOD

4 July 2012 – 3 July 2014

Titleholder/Operator: Wuhua Mining Corporation Pty Ltd
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Table 1.1 Wuhua Mining Corporation Pty Ltd Tenement EL 29205 Schedule.

Table 2.1 Summary of Historical Tenements in the EL 29205 Area.

SUMMARY

Pacific Exploration Pty Ltd (“Pacific”) acquired a uranium tenement (EL 29205) in southwestern Northern Territory for exploring uranium resources. The transfer (D93491) to Wuhua Mining Corporation Pty Ltd (“Wuhua”) (100%) from Pacific Exploration Pty Ltd has been approved in June 2013.

The regional geology comprises the polymetamorphic Palaeoproterozoic Arunta Block and the Neoproterozoic to Carboniferous Ngalia Basin. Exploration Licence EL 29205 is located within the foothills of the Reynolds Range, east and northeast of a uranium field - Ngalia Basin. This area has the potential to host not only surficial and/or sandstone style uranium mineralisation probably accumulated in palaeovalleys, but also metasomatite/ vein style uranium mineralisation developed in the granitic rocks.

Uranium potentials are probably hosted in the palaeovalleys drained the U-sourced Reynolds Range and discharged into Ngalia Basin. Tenement EL 29205 is mostly covered by surficial material. Calcrete is developed in the Warburton Creek drainage system and may be prospective for surficial style calcrete uranium mineralisation with a more significant response on the southwestern border of the tenement. Along the southwestern border of the tenement, however, an elevated U^2/Th radiometric response was found within the Napperby Gneiss, probably of vein/ metasomatite style mineralisation investigated by PNC Exploration.

Exploration during the reporting period comprises ground reconnaissance trip to locate and sample the surface geology and nearby known mineral occurrences, ASTER night-time thermal data processing and interpretation and the desktop study for the uranium exploration. Based on this study, at the end of the second year of term EL29205 was underwent a compulsory 50% reduction, and reduced to 7 blocks effective 4 July 2014. This report covers exploration on the 7 relinquished blocks from grant to 3 July 2014.

Work undertaken across the relinquished portions of the tenement includes:

- Review of open file exploration data
- Reconnaissance field trips
- ASTER Night Time Thermal Infrared (NTTI) data interpretation

1. INTRODUCTION

1.1 Background and Tenure

Pacific Exploration Pty Ltd (“Pacific”) acquired three uranium tenements in southwestern Northern Territory (EL 29202, EL 29205, and EL 29221) and is developing the Napperby Uranium Exploration Project. The transfer (D93491) to Wuhua Mining Corporation Pty Ltd (“Wuhua”) (100%) from Pacific Exploration Pty Ltd has been approved in June 2013. The schedule of rent and expenditure for the tenement EL 29205 is summarised in Table 1.1. This tenement is located in the Reynolds Range - Ngalia Basin region (Figures 1.1 and 1.4).

Table 1.1 Wuhua Mining Corporation Pty Ltd Tenement EL 29205 Schedule.

Tenement ID	Tenement ID	Expires	Area km ²	1 st Year Rent	1 st Year Expenditure	2 nd Year Expenditure
EL 29205	4/07/2011	3/07/2018	44.51	\$448	\$13,000	\$24,000

Exploration Licence 29205 was granted over an area of 14 blocks to Wuhua Mining Corporation Pty Ltd (“Wuhua”) on 4 July 2012 (Figure 1.2). The area of EL29205 was reduced 50% to 7 blocks at the end of the second year of term.

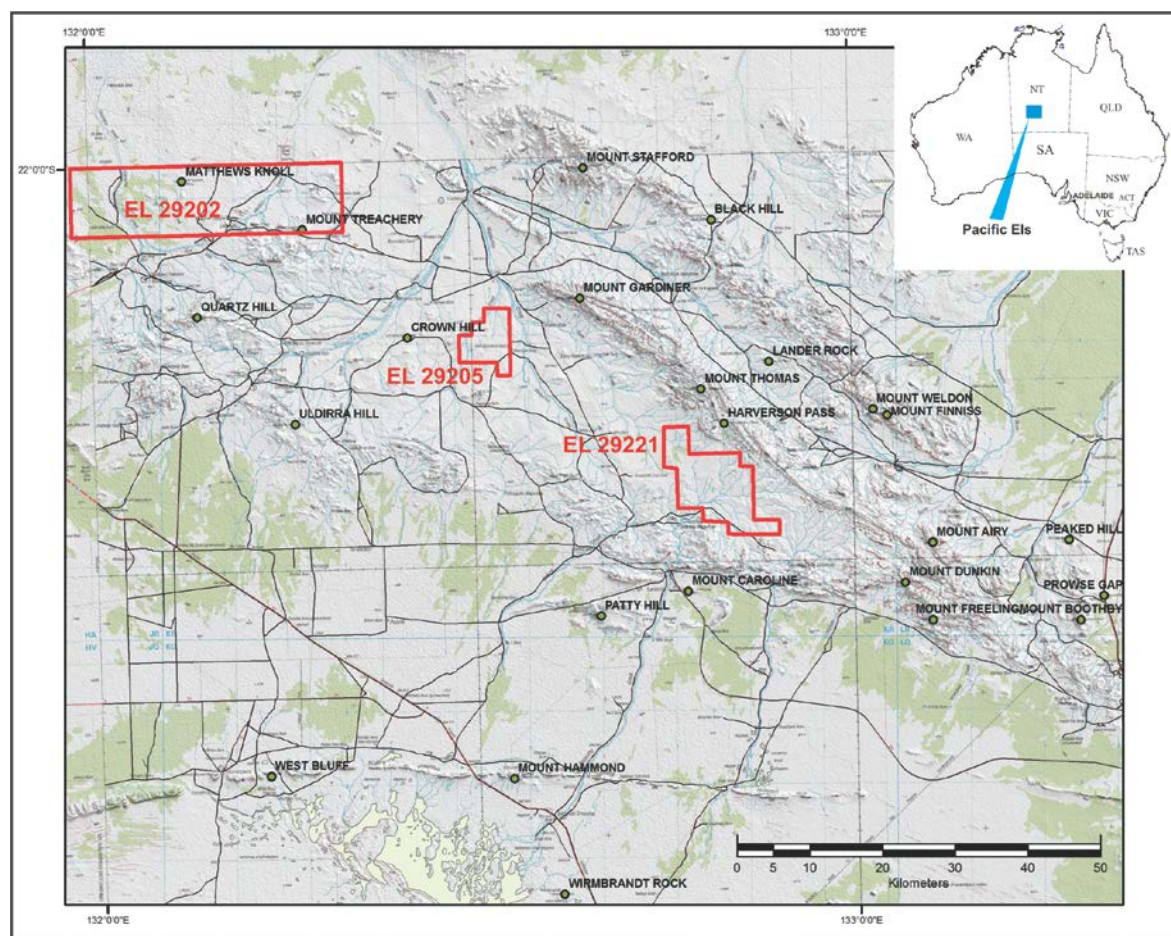


Figure 1.1 Regional Location Map showing “Wuhua” uranium project ELs. EL 29205 is located in the central part of the map.

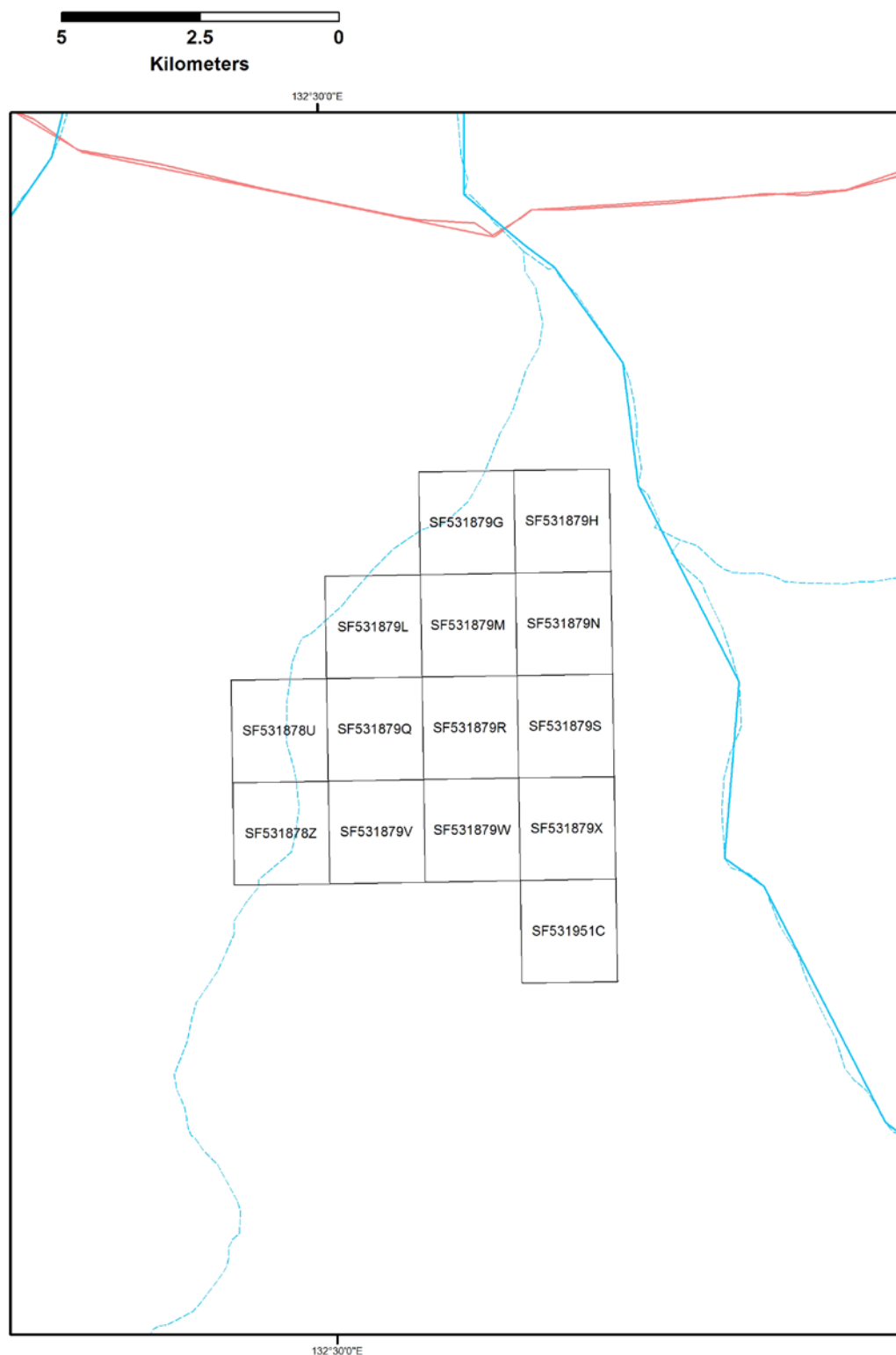


Figure 1.2 Plan of EL 29205, 14 blocks.

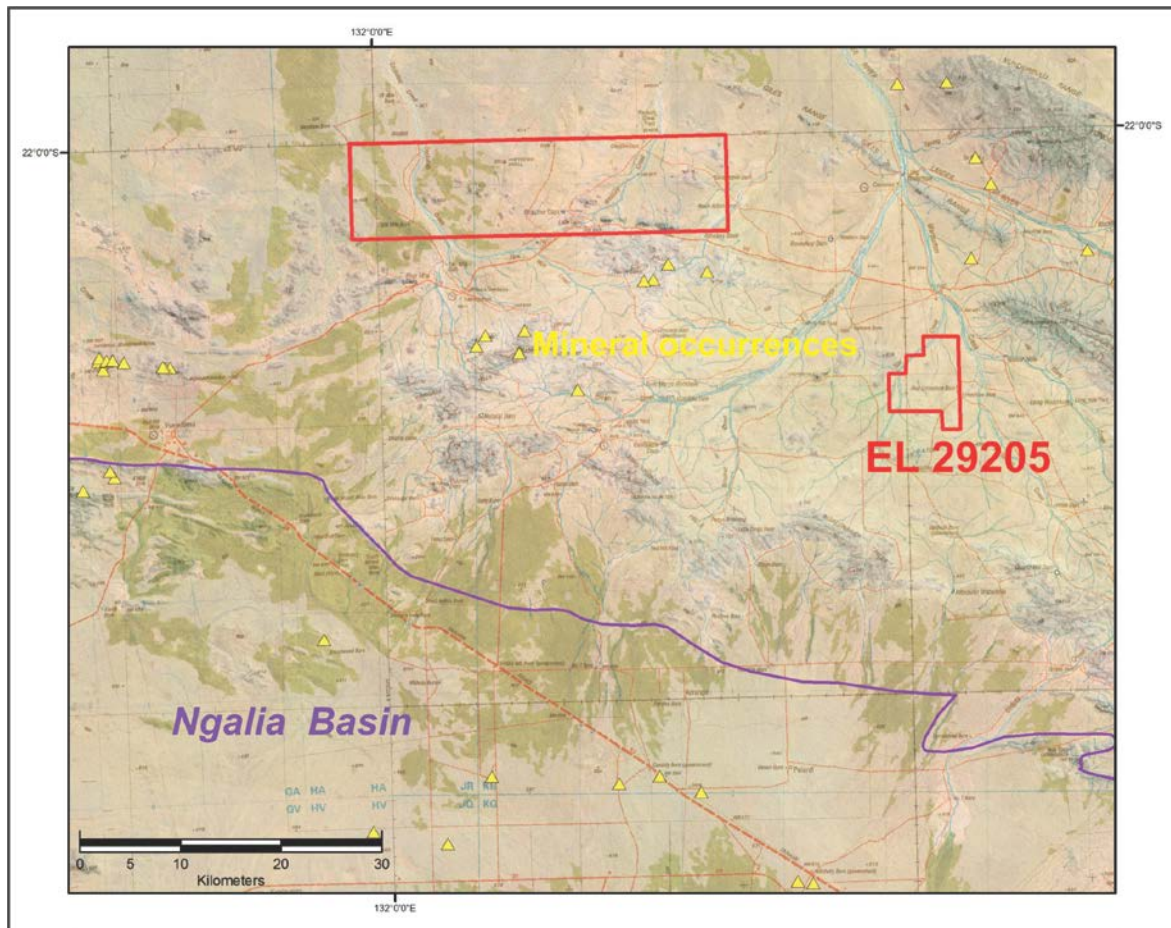


Figure 1.3 Landsat ETM7 realistic_123 over DTM imagery showing relationships of landscapes, roads, locality and EL 29205.

1.2 Location, Access and Logistics

EL 29205 is located approximately 250 kilometres northwest of Alice Springs and 1100 kilometres south of Darwin by the Stuart Highway in the southern part of the Northern Territory of Australia (Figure 1.1). Locally, EL 29205 is located approximately 70km east of the township of YUENDUMU; extending from the vicinity of Mount Denison homestead in the northwest to Napperby homestead in the southeast (Figure 1.3). The licence occurs in the Reynolds Range - Ngalia Basin region, within the foothills of the Reynolds Range (Figure 1.4).

Alice Springs (pop. 27,000) is well serviced by road transport and interstate bus services, because of its location mid-way between Adelaide and Darwin. The Stuart Highway and Adelaide-Darwin transcontinental railway corridor, passing through Alice Springs, bisect the area. Alice Springs is also serviced daily by jet aircraft from several Australian capital cities (Sydney, Adelaide, Perth and Darwin) and less regularly from Brisbane, Cairns and Broome. Alice Springs is the closest services centre, 280km by road via the Stuart Highway.

1.3 Climate and Vegetation

The region has a semi-arid continental climate, characterised by long hot summers when temperatures regularly exceed 35°C, and short mild winters. The average rainfall is about 280mm, most of which falls between October and March, but both frequency and amount are erratic. There are typically around 30 rainy days per year. The average annual evaporation (as measured at the nearest station in Alice Springs) is 2.9 m. The normal exploration field season runs from April to October.

The majority of the tenement is covered by various thicknesses of regolith cover and acacia trees and bush / grass undergrowth (Figure 1.5). The vegetation ranges from savanna woodland near the creeks, to gidgee and acacia scrub to annual grasslands. The vegetation is consistent with a semi-arid regime. Sand plains are covered by thick grasses, particularly spinifex (*Triodia*), and sparse low shrubs and trees such as mallee, bloodwood, desert currajong, and witcherty bush. Vegetation throughout most of the area consists of tall mulga open shrubland with a woollybutt open grassland understorey.

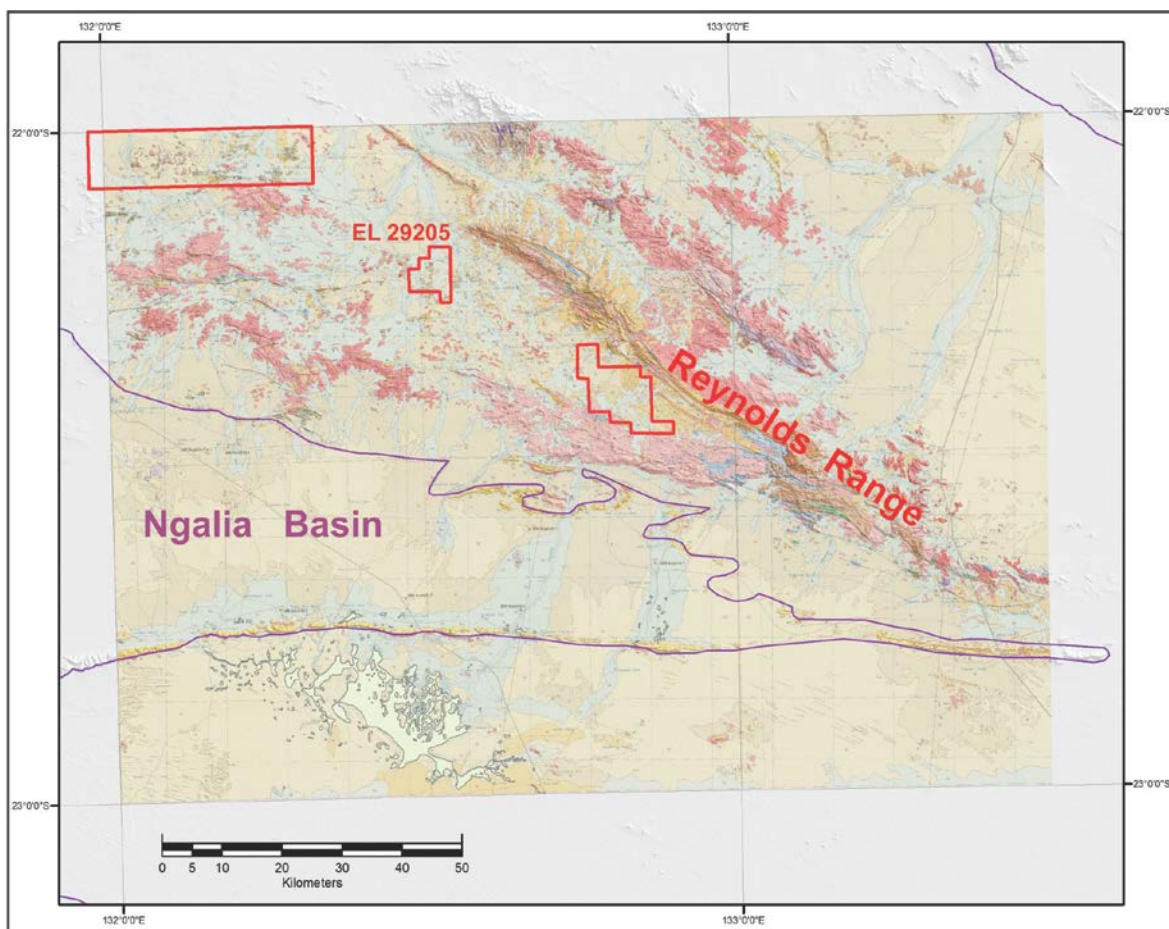


Figure 1.4 NAPPERBY 1:250,000 geological mapsheet showing relationships of Reynolds Range, Ngalia Basin and “Wuhua” uranium project ELs. EL 29205 is located in the top central part of the map.

1.4 Topography and Drainage

The Napperby area is characterised by sandy and alluvial plains with an average height of about 500 metres above sea level, which pass into hilly country and low ranges

with a maximum relief rarely exceeding more than 200 m above the surrounding plain. The area of the EL 29205 comprises a flat sandy plain rising gently southeastwards from around 500m ASL to around 760m ASL in the southeastern part of the EL 29205 (Figure 1.4). Creeks that rise in the highlands and ranges discharge towards the low land in the EL 29205 area.



Figure 1.5 Photo imagery of EL 29205 showing regolith cover and acacia trees and bush / grass undergrowth.

1.5 Work Done (2012 – 2014)

Field Work

A field reconnaissance was undertaken to assess the local geology in the second year of tenure. Most of the tenement areas are covered by Cainozoic sediments, predominantly uncemented aeolian sand plains and dunes; with some outcropping bedrocks (Figure 1.5). The base of the valley (creek) floor is largely covered by transported, predominantly colluvial-alluvial material. This cover is probably quite thick in places, but areas were identified where lag sampling was feasible to test for mineralisation in both the valley fill and basement.

ASTER Night-time Data Processing and Interpretation

Night-time Thermal Infra-Red (NTIR) data from the ASTER satellites have been acquired over “Wuhua” Napperby Uranium Project area (ELs: 29202, 29205, and 29221) in April 2014 (see Appendix 1). These data have been processed and interpreted with herein. Overall the NTIR technology can provide useful information, particularly when used with other informative data such as Landsat TM, geological map and non-marine sedimentology, for palaeovalley-related mineralization in sedimentary host rocks which have no surface expression.

Desktop Surveys

A desktop study compiled by Wuhua Mining Corporation Pty Ltd aims to interpret ASTER night-time thermal data, together with geological and geophysical information, to investigate uranium potentials. Office work consisted of desktop surveys primarily consisting of examining historical exploration in the area and cross-referencing this where possible with the current thinking on mineral deposition in the area to generate valid exploration targets for follow up in the second year of tenure. These include the review and interpretation of available remote sensing, geophysical and geological data for the licence area, generation of prospects by examination of these. During the second year a broad scale literature survey was conducted on the whole of the Napperby Project area (three ELs).

2. PREVIOUS EXPLORATION

A review of the historical exploration conducted over EL 29205 was completed by identifying the historical tenement that overlapped with the current tenement (Table 2.1).

Table 2.1 Summary of Historical Tenements in the EL 29205 Area.

Historical Tenement	Company	Granted	Ceased	Area km ²	Overlaps	Commodity
EL 1317	Central Pacific Minerals	19/04/1978	19/04/1980	1273.19	EL 29205	Uranium
EL 2341	BHP Minerals	27/01/1981	26/01/1984	1113.43	EL 29205	Diamonds
EL 3488	BHP Minerals	19/04/1982	18/04/1984	809.61	EL 29205	Diamonds
EL 7343	Poseidon Gold	30/04/1991	29/04/2001	912.79	EL 29205	Base metals
EL 9277	Normandy Gold	3/10/1995	21/08/1998	219.49	EL 29205	Gold
EL 9672	Mr Norm Cleary	25/11/1996	8/12/2003	1551.78	EL 29205	Gold
EL 23923	Tanami Exploration	1/06/2004	4/07/2011	1177.11	EL 29205	Uranium

3. GEOLOGY

3.1 Regional Geology

The crustal architecture of the region can be broadly subdivided into the Palaeo- to Mesoproterozoic Arunta Block and the Neoproterozoic to Carboniferous Ngalia Basin (Figure 3.1). The Arunta Block represents a complex amalgamated orogenic terrane that is represented by three shear bounded tectonic provinces, The Northern, Central and Southern Provinces (Stewart et al., 1984; Shaw et al., 1984). The Southern Province is an amphibolite facies terrane comprising granitic gneiss. The Central Province is a granulite facies terrane dominated by felsic granulite. The Northern Province comprises low grade supracrustal metasediments of amphibolite and greenschist facies. Both the Northern and Southern Province are intruded by voluminous granite whereas the Central Province is relatively granite free.

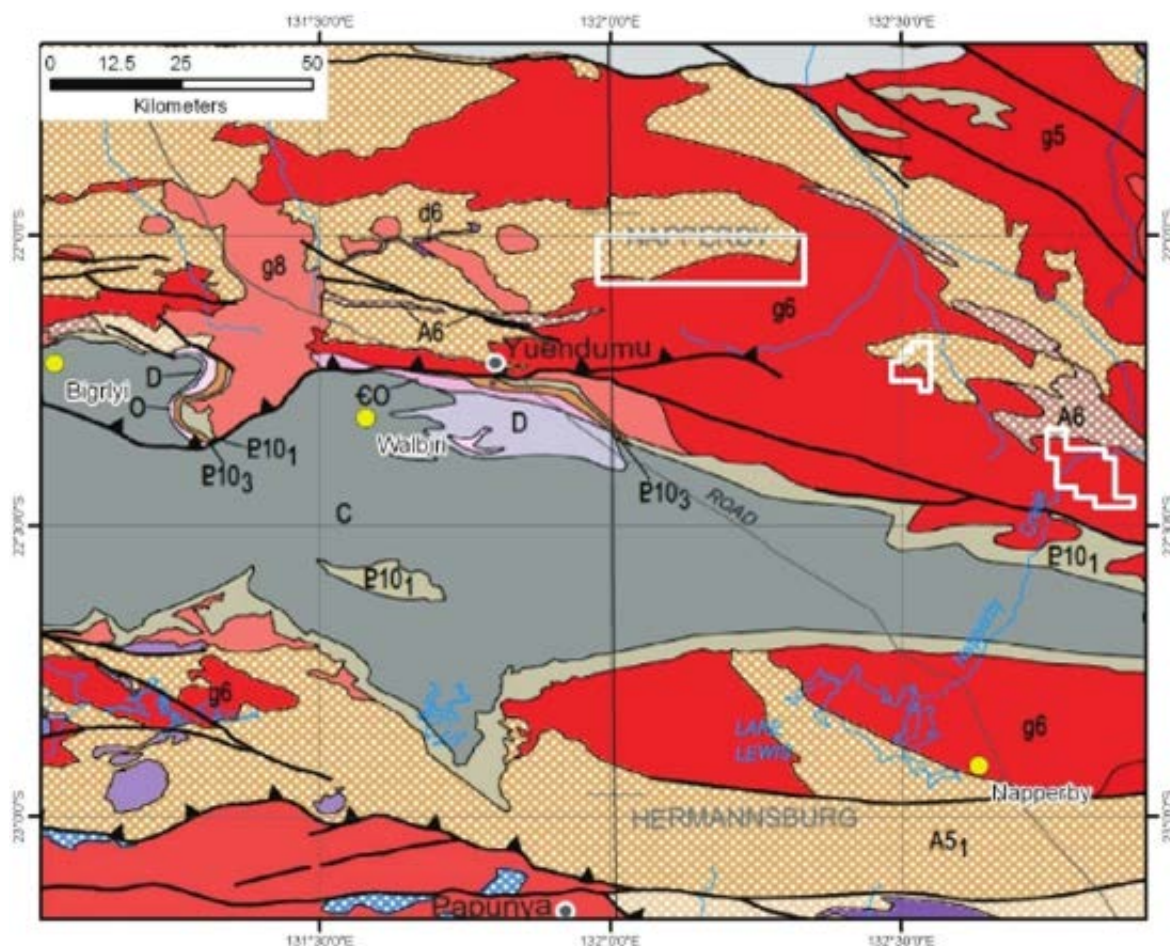


Figure 3.1 Regional Fact Geology Map (Regional solid geology showing tenements in relation to the Ngalia Basin (P10, O, D and C). Arunta Block comprises units A5 and A6 comprising deformed and metamorphosed supracrustal sequences and a variety of granitoid gneiss and intrusive granites (g5, g6, g7, g8). Also shown are sites of significant U-mineralisation [Napperby (New Well), Walbiri and Bigrlyi].

The Ngalia Basin, lying south and southwest of the tenement EL 29205 area, forms an elongate structural basin within the Palaeo- to Mesoproterozoic Arunta Block, preserving a Neoproterozoic to Carboniferous sedimentary sequence with a cumulative thickness of about 5000 m (Figure 3.1). The northern margin of the basin is bounded north-dipping thrust faults whereas the southern margin is formed by a gently north dipping unconformity.

Although there are no gazetted uranium occurrences proximal to the tenement areas, the sedimentary (sandstone style) uranium fields of the Ngalia Basin are located ~50km to the southwest of the tenements whilst the sandstone and/or surficial style uranium resources may occur in the potential palaeovalleys of the project area (Figure 3.1).

3.2 Local (EL 29205) Geology

Tenement EL 29205 is underlain by schistose granitic gneisses of Precambrian age intruded by Middle Proterozoic porphyritic microgranite (Figure 3.2). These rocks are overlain to the north and east by the Central Mount Stuart Formation, a sequence of sandstone, subgreywacke, siltstone, tillite, minor arkose and shale. This succession forms part of the early Ngalia Basin sedimentary sequence and immediately underlies the sandstone uranium prospective beds of the Kerridy Sandstone and Mount Eclipse Sandstone Formation. The tenement, however, falls outside the Ngalia Basin and the Palaeozoic successions sandstones that may host sandstone-hosted uranium mineralisation in potential palaeovalleys, although there is no uranium occurrences reported in the tenement EL 29205 blocks.

The area is blanketed by surficial deposits (Figure 3.2). Calcrete deposits of 1km in length are reported associated with the Warburton Creek drainage. These may be prospective for calcrete uranium mineralisation with a small U^2/Th radiometric response reported from near the mapped calcrete in the northeastern portion of the area and a significant response on the southwestern border of the tenement (Figure 3.3).



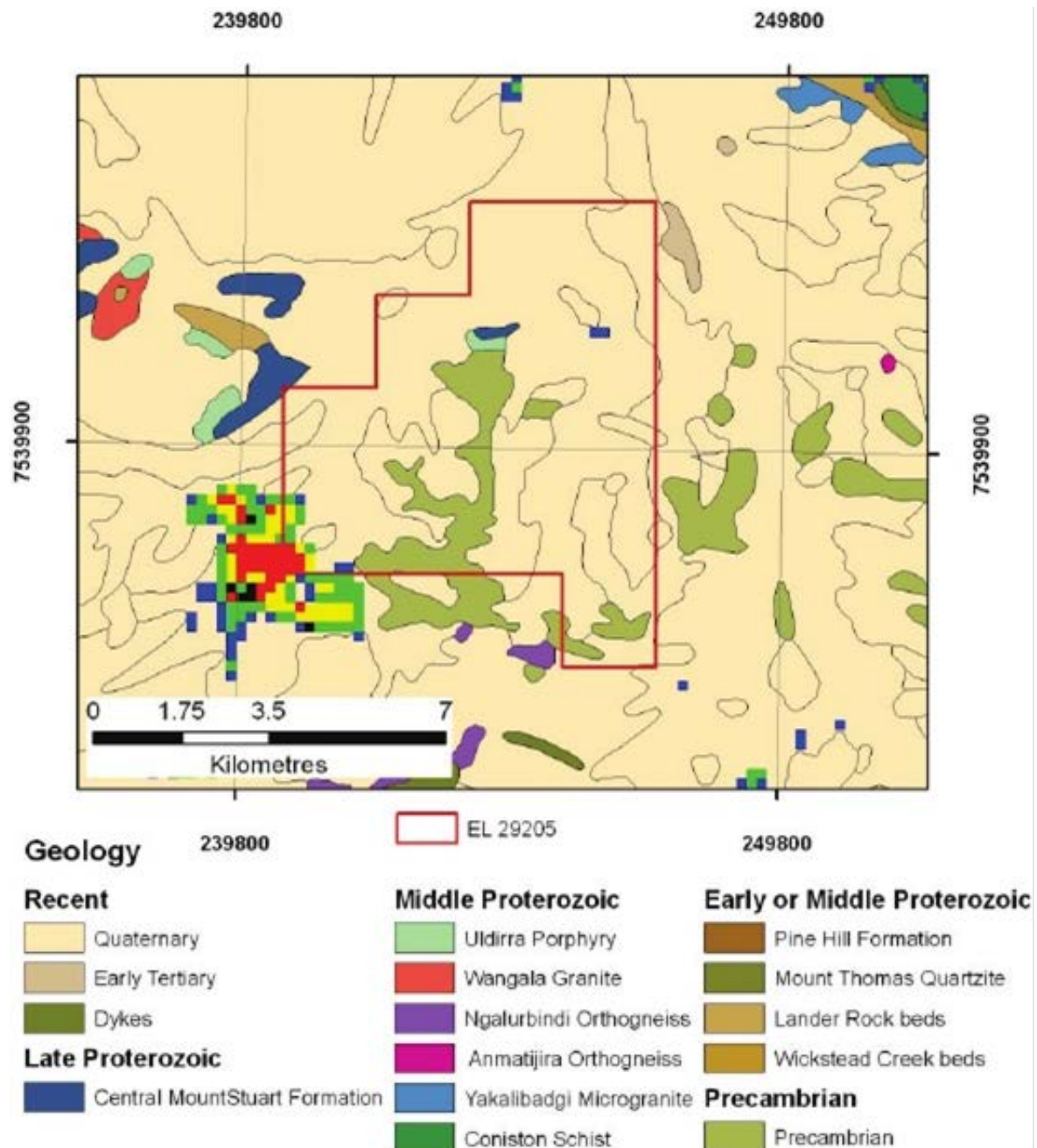


Figure 3.3 Tenement EL 29205 surface geology and U^2/Th radiometrics.

4. URANIUM MINERALISATION

4.1 Source Rocks of Uranium

The distribution of known uranium resources exhibits a clear spatial relationship with uranium-enriched bedrock in this region. The location of deposits is strongly influenced by the presence of Proterozoic age leachable uranium-rich source rocks in the headwaters of paleodrainages draining into the Ngalia Basin developed in Proterozoic Orogenic Domains (Figure 4.1). Significant uraniferous igneous rocks (containing >10 ppm uranium) formed during the Proterozoic are widespread throughout this region. The felsic granite gneiss and schist of the Arunta Block are significantly enriched in uranium. The Yulyupunya Granite Gneiss (1780Ma) and the Southwark Granite Suite, for example, contain up to 22.5ppm uranium (Young et al. 1995).

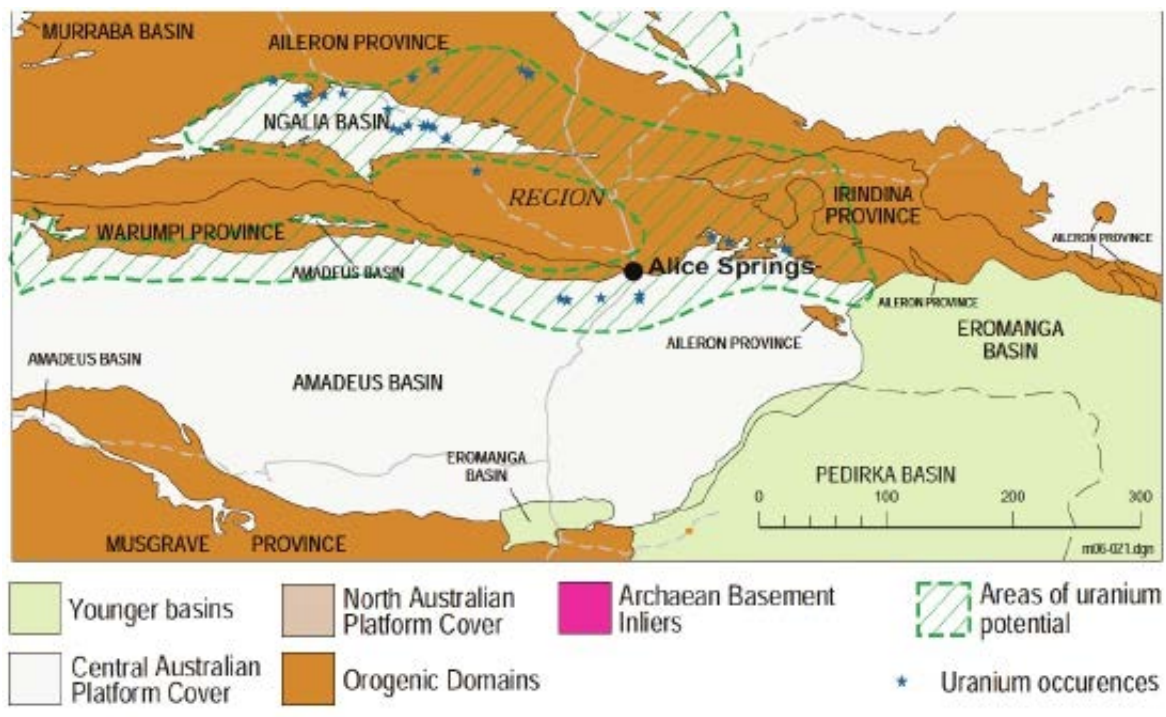


Figure 4.1 Uranium potential in the Ngalia Basin and Amadeus Basin.

4.2 Potential Types of Uranium Mineralisation

Relevance to the “Wuhua” tenement EL 29205 and surrounding area the uranium potentials are the sandstone-hosted, surficial, metasomatite and vein type mineralisation styles. These occurrences fall within the zone of regional uranium potential in the Northern Territory (Lally and Bajwah, 2006) (Figure 4.1). Of which, the sandstone and surficial types of uranium mineralisation can be deposited in paleovalley/lake and defined as any diagenetic/ epigenetic concentration of uranium minerals occurring in fluvial, alluvial,

lacustrine, and estuarine sediments. Recent discoveries of paleovalley-related uranium mineralisation (e.g., Afghan Swan deposit in Ngalia Basin of NT) highlight the potential prospectivity of the project area. In the project area examples, uranium mineralisation occurs mainly in and nearby the sedimentary (e.g., Ngalia Basin) basins flanking or overlying Proterozoic rocks known to be enriched in uranium (Figure 4.1).

The uranium fields of the **Amadeus Basin and Ngalia Basin** are associated with the project area, where the sandstone-hosted uranium mineralisation is reported from the Carboniferous Mount Eclipse Sandstone and Kerridy Sandstone Formations of the Ngalia and Amadeus Basins (Figure 4.1).

Some 20 sandstone-hosted uranium occurrences are known from within the Ngalia Basin (Figure 4.2) with significant uranium mineralisation reported at Bigrlyi (7.5Mt at 0.13% U_3O_8 , 0.12% V_2O_5) and Walbiri (0.423Mt at 0.16% U_3O_8 , and at Angela in the adjacent Amadeus Basin (10.7Mt at 0.13% U_3O_8) (Northern Territory Government Report, March 2013). Recent exploration activity in the Ngalia Basin intersected 5m at 1.33% U_3O_8 at Camel Flat (Energy Metals Ltd), and 7m at 0.14% U_3O_8 at Afghan Swan (Thundelarra Exploration Ltd) (Northern Territory Government Report, March 2013).

Sedimentary rocks of the Ngalia Basin were derived from, and deposited on felsic granite gneiss and schist of the Arunta Block which are significantly enriched in uranium. The Yulyupunya Granite Gneiss (1780Ma) and the Southwark Granite Suite, for example, contain up to 22.5ppm uranium (Young et al. 1995). Early shallow marine conditions were followed by continental conditions culminating in the Mount Eclipse Sandstone which was deposited in response to tectonic uplift and erosion of the Arunta Block at 350Ma to 370Ma. Importantly as uranium reductant, carbonaceous material is also common with a 7m thick unit of lignite reported (Spark, 1975).



Figure 4.2 Uranium occurrences in and adjacent to the Ngalia Basin [uranium occurrences shown in blue. Yellow: most recent exploration activity. Advanced or significant underdeveloped occurrences shown with pickaxe. (Northern Territory Government Report, March 2013)].

Several occurrences of calcrete-hosted uranium within and to the south of the Ngalia Basin have been identified. The most significant deposit, Napperby (New Well) (Figure 3.1 and Figure 4.2) contain an inferred resource of 9.34Mt U_3O_8 ore at a grade of 0.036% U_3O_8 (Northern Territory Government report, March 2013). Napperby (New Well) is situated in the drainage system of Napperby River and Lake Lewis, a playa lake system (Figure 3.1).

Minor uranium prospects and occurrences categorised as metasomatite and intrusive-type uranium are located within the Aileron and Irindina provinces of the Arunta Region, particularly in the Harts Range, Entia Dome and Reynolds Range areas. The region is under-explored and the possibility exists for further discoveries of these styles of uranium deposits (Lally and Bujwah, 2006). The Nolans Bore mineralisation of fluor-apatite occurs in the southeastern part of the Reynolds Range, 13km northwest of Aileron.

5. INTERPRETATION AND URANIUM PROSPECTIVITY

The partial surrender work is processed mainly based on the associated public domain geophysical and geological data including radiometrics, aeromagnetism, gravity, and DEM, surface and solid geologies for the project area was acquired from the NTGS. Reprocessing of the digital data, including the ASTER NTIR data applied during this report, has enhanced all of the geophysical and geological signatures and has also outlined a number of other subtle features.

5.1 Methodology

Topography (digital elevation models), Landsat and ASTER NTIR images, magnetic, gravity, and radiometric methods are integrated into this phase on the basis of GIS for an attempt to correlate the features observed from geological maps.

All coordinates listed in this report are in map projection MGA94, Zone 53 (GDA94). The targeting process was undertaken as follows:

- Import of the above into ArcGis and sub-setting into different sample types and grade ranges for presentation and analysis.
- Examination of fact geology and surface geochemical results and to provide geological information for targeting.
- Identification of airborne geophysical and remote sensing data.
- Review of all data mentioned above to identify the remained blocks of EL 29205.
- Selection of the partial surrender area.

Topography – Digital Elevation Model (DEM)

Topography over the tenement EL 29205 is relatively high and hilly, with some high-order drainage systems in the western and northern margins (blue -creeks and watercourses) which drain into northern watercourse systems (Figure 5.1). Lower hills are dominant within the tenement EL 29205. These hills have ferruginous - lateritised have regolith sub-crop near the crest, indicating in-situ.

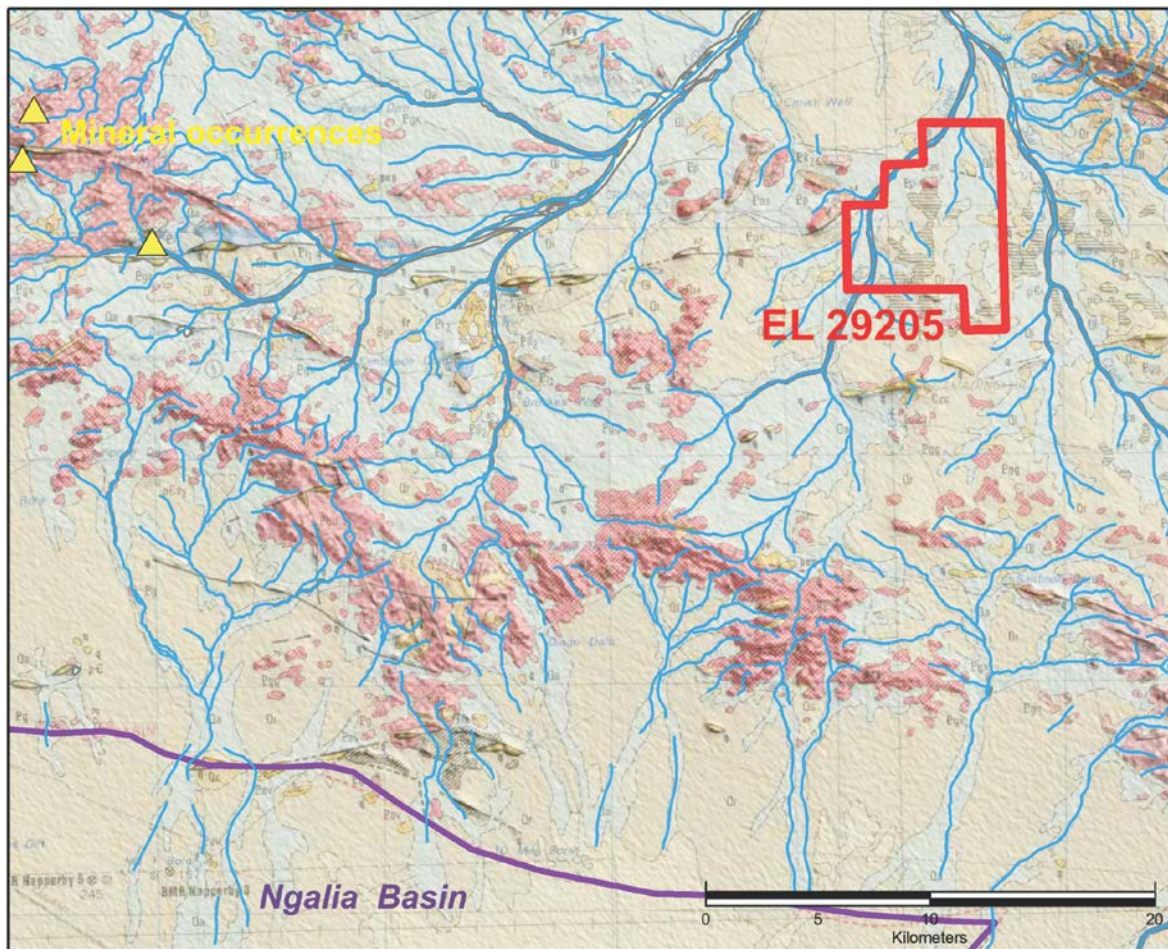


Figure 5.1 Digital Elevation Model (DEM) over surface geology.

Generally, DEM is very effective in the recognition of young (e.g., Cenozoic and/or Mesozoic) potential palaeochannel areas, as the lower topographic zones can reflect areas where some of the softer sediments have been eroded away. Therefore, DEMs can be used as surrogates for mapping the palaeochannels and related features when the modern and palaeo- geomorphologies are related spatially and genetically. This scenario should be confirmed by combining other methods, such as night-time thermal imagery, AEM/TEM and drilling. If the presence of potential palaeochannels can be determined, some segments of the palaeochannels here should be favourable for exploring sandstone-hosted and/or calcrete style uranium deposits.

Landsat TM

Landsat TM image is useful in defining spectrally anomalous zones or regions when appropriately draped over DEM to enhance terrain visualisations (Figure 5.2). This can be used to figure out the relationship between the U-source rocks and in-situ uranium or U/Th anomalies, which is helpful in exploring for metasomatite uranium mineralisation.

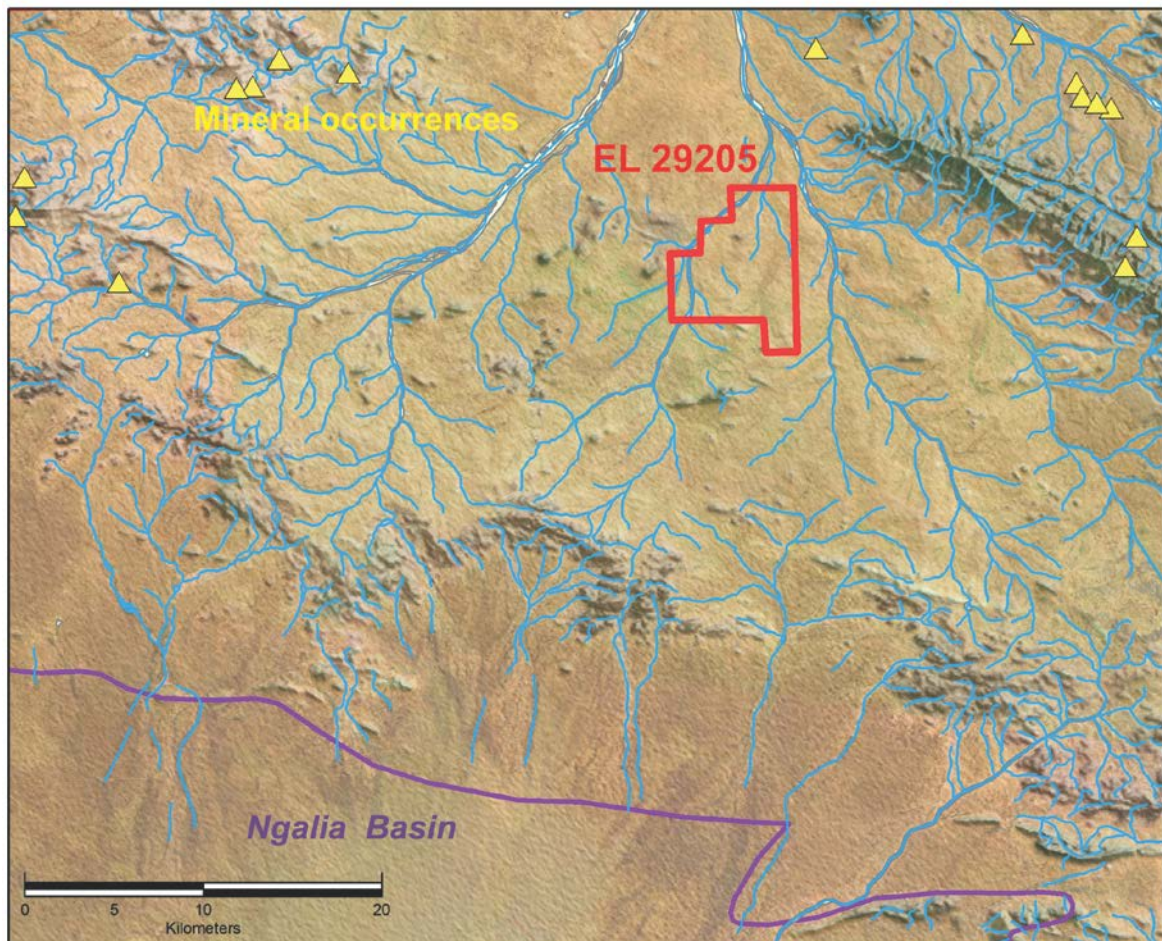


Figure 5.2 Landsat TM imagery over DEM.

Radiometric

The radiometric results, which show the distribution of gamma-ray spectrometry data, have been interpreted and compared with other data in GIS (Figures 5.3-1, 2, 3, 4, 5). These radiometric results do not appear to lead to better identification of the palaeochannels; numerous factors, such as effective depth (usually < 30 cm) of operation of the method and variable behaviour of the radioactive materials could interfere. However, the relative distribution of these radioelements in the regolith overlain bedrock as estimated from the intensity of their emitted peaks seem to directly encourage the analysis of bedrock and regolith distribution, which is useful in exploring for metasomatite and surfacial uranium deposits.

U radiometric image (Figures 5.3-1, 2, 3, 4, and 5) show an elevated uranium response for the Arunta Block along the northeastern margin of the Ngalia Basin. The uranium-enriched nature of the felsic basement gneisses and granites are considered a fertile source for subsequent uranium enrichment processes. The U^{232}/Th ratio anomalies coincide with a number of reported uranium occurrences in the Arunta Block.

Significant areas with an anomalous radiometric response are notably rich in and around the tenements (Figures 5.3-1, 5.3-2, 5.3-3, 5.3-4), with notable anomalies a significant spike in EL 29205 (Figure 3.2).

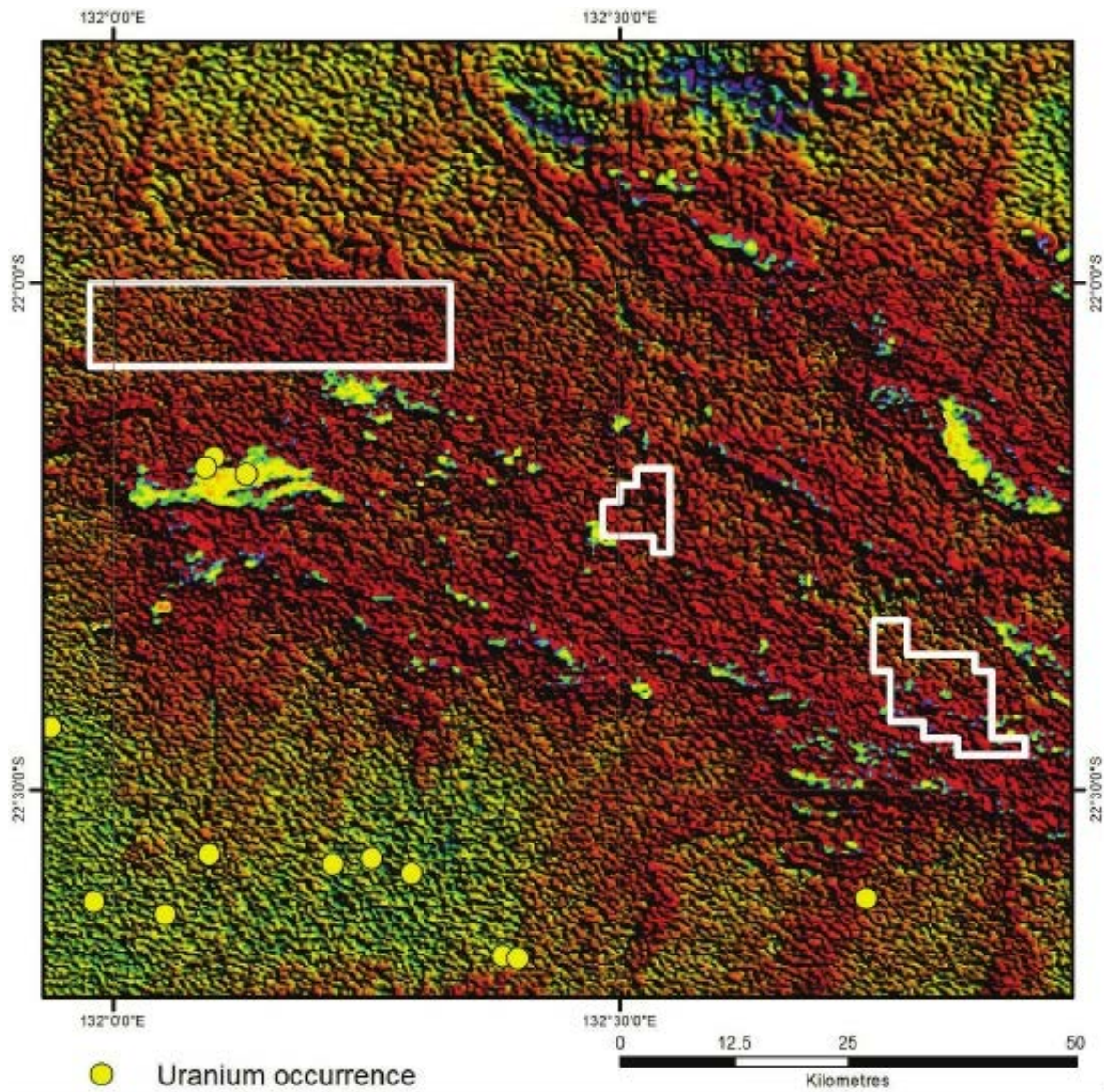


Figure 5.3-1 U radiometrics, U^2/Th Ratio and uranium occurrences in relation to 'Wuhua' tenements.

These radiometrics features suggests that the airborne radiometric anomalies are the products of the in-situ regolith developed in Arunta Block and the transported regolith deposited along the drainage creeks, which can be used for exploring metasomatite uranium deposits in the high radiometric anomalies occurring in Arunta Block and surfacial uranium deposits in the drainage creeks. Thus, it was thought that the airborne radiometric anomalies may be associated with favourable lithologies which have potential to host uranium deposits.

The areas correspond topographically with broad diffuse drainage areas, where U, being a mobile element, is stripped from the regolith easier than in areas of less drainage (Figure 5.3-4). The relationship between regolith and drainage system shows significance in defining areas anomalous in uranium (Figure 5.3-4).

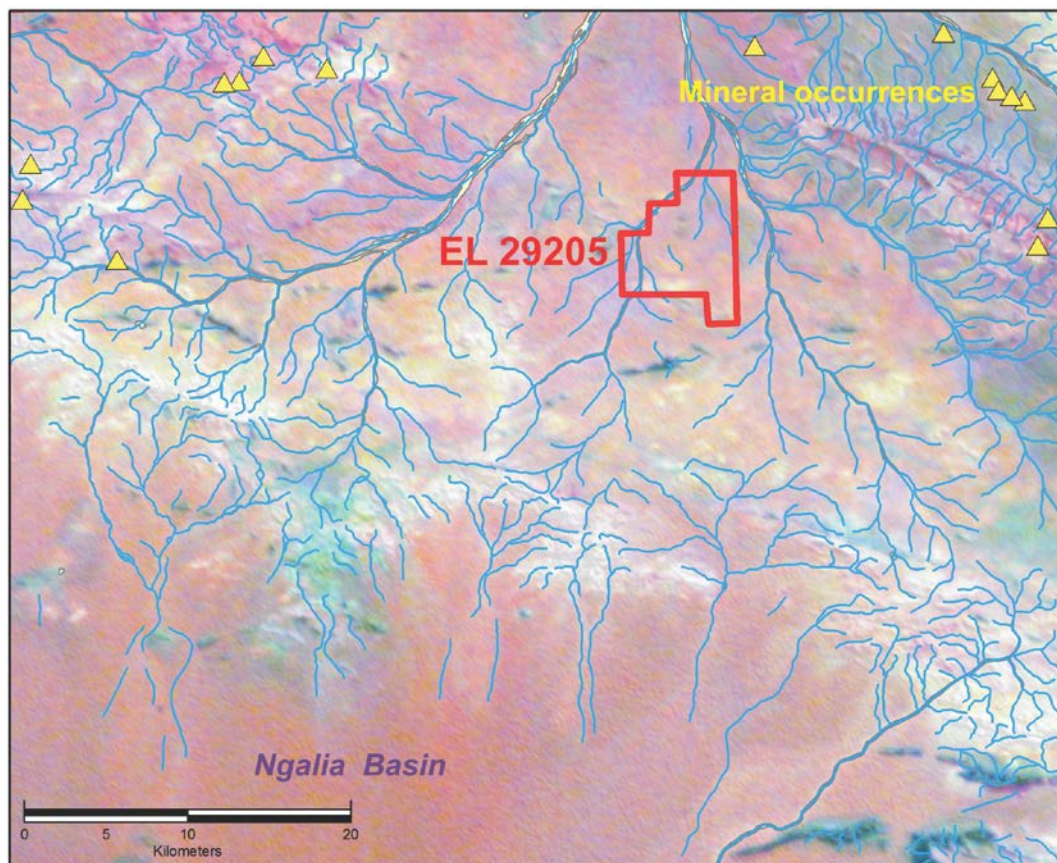


Figure 5.3-2 KThU radiometrics imagery and mineral occurrences in relation to tenement.

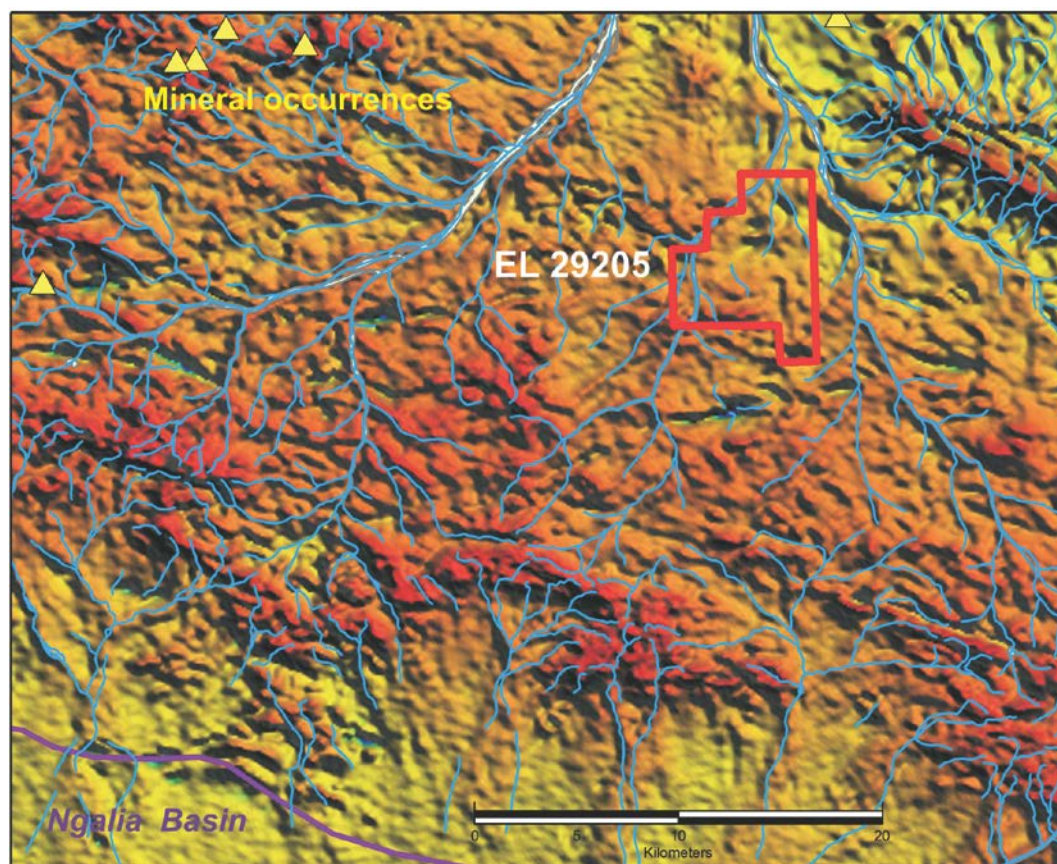


Figure 5.3-3 Radiometrics TC imagery and mineral occurrences in relation to tenement.

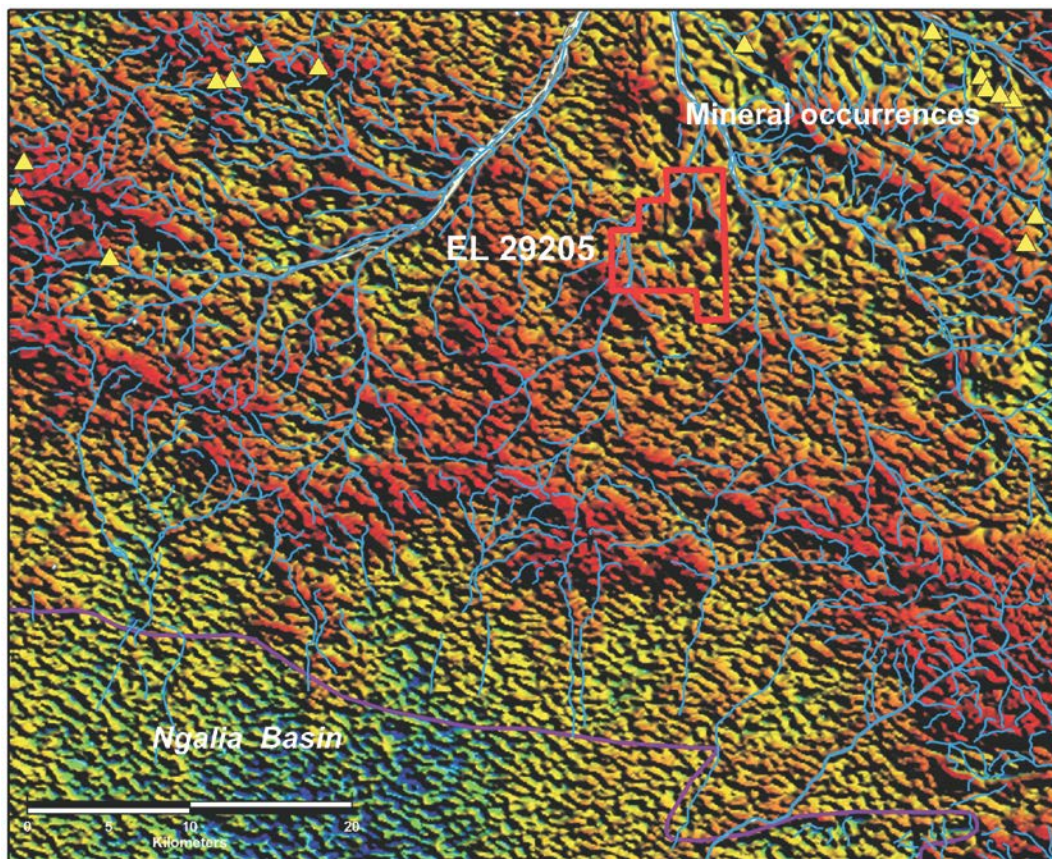


Figure 5.3-4 U radiometrics imagery and mineral occurrences in relation to tenement.

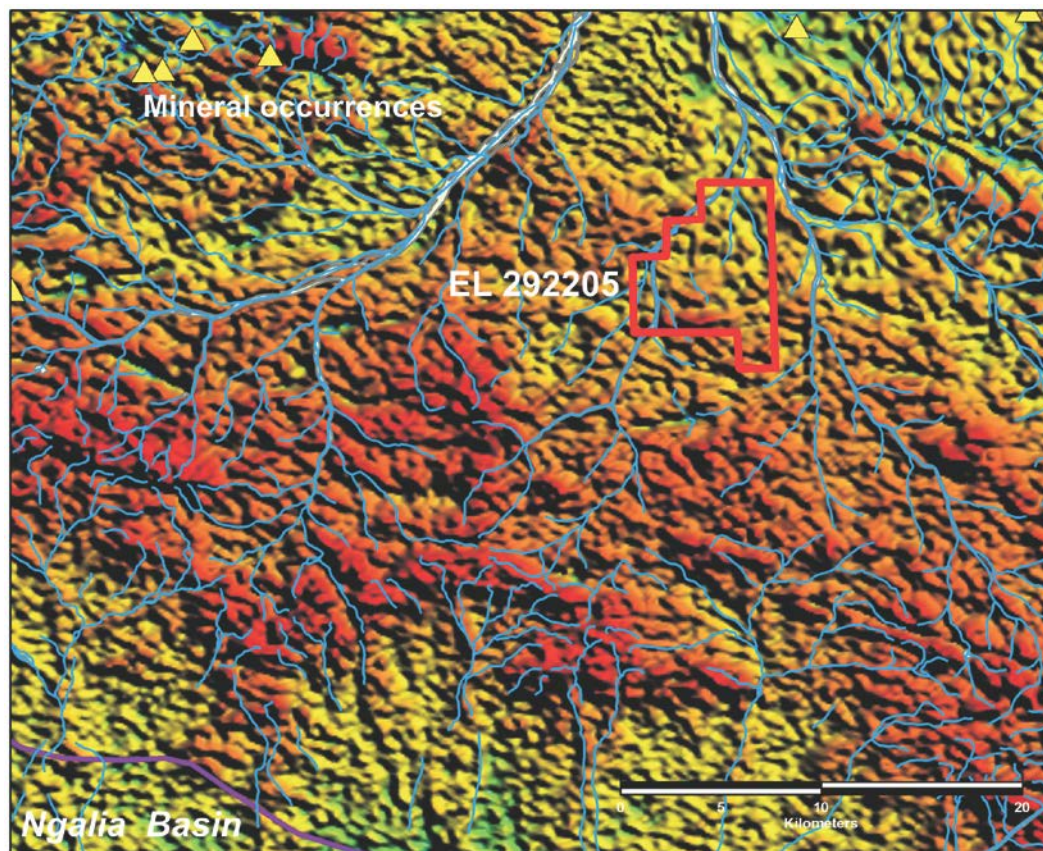


Figure 5.3-5 Th Radiometrics imagery and mineral occurrences in relation to tenement.

Thorium correlates moderately well with the radiometric anomaly (Figures 5.3-1, 2, 3 and 5) and topographic highs (Figure 5.1); U and Th weakly correlate with each other (Figures 5.3-4 and 5).

Total Magnetic Intensity (TMI)

Magnetic high features are interpreted as Fe-bearing metamorphic basement and fault-like images, with some features apparent showing relatively shallow basement to the Ngalia Basin (Figures 5.4-1 and 5.4-2). The Ngalia Basin margin is clearly defined by the total magnetic intensity data (Figures 5.4-2 and 5.5) and the regional basement geology map (Figure 3.1).

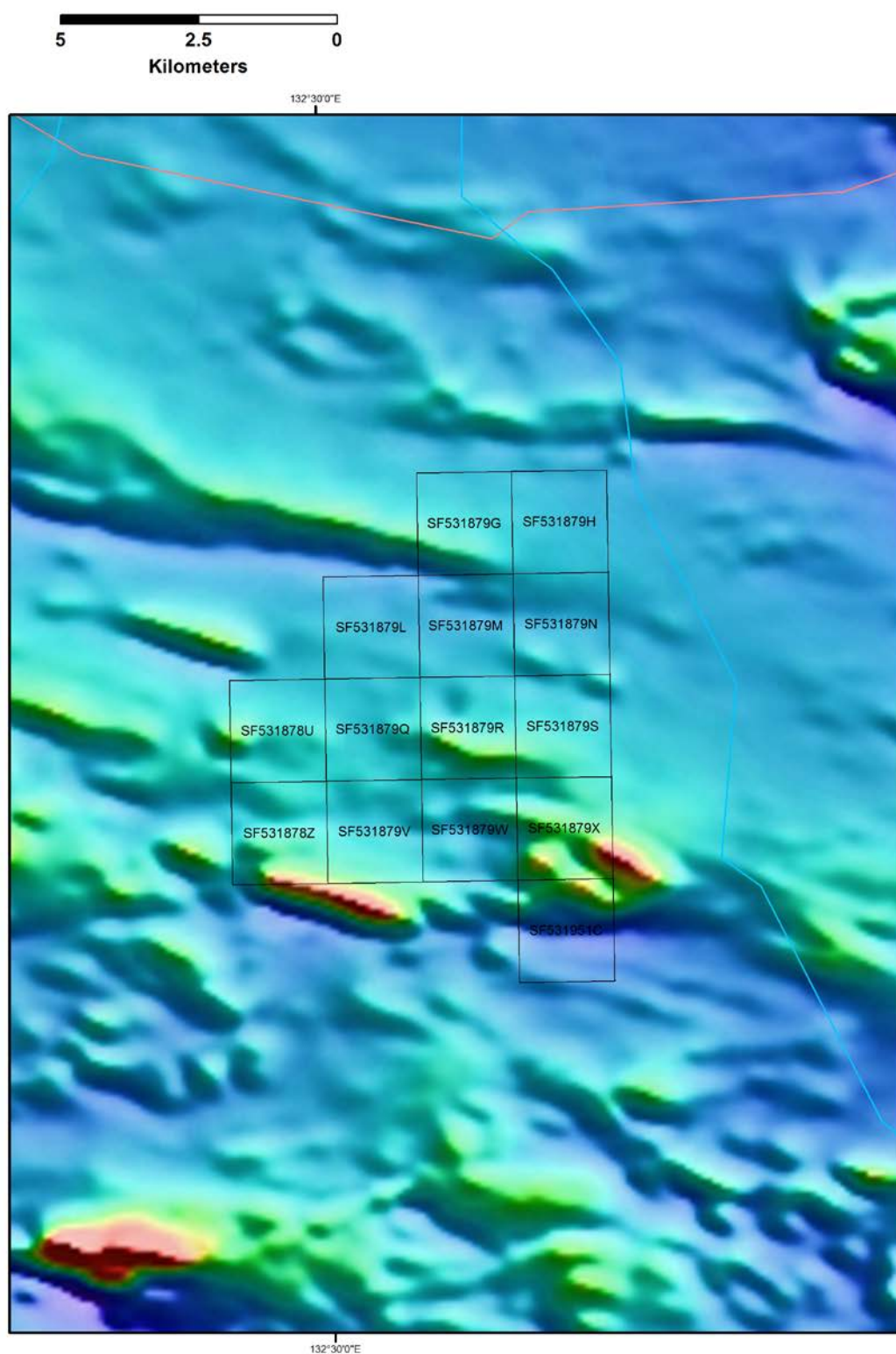


Figure 5.4-1 Total Magnetic Intensity (TMI) of EL 29205 (14 blocks).

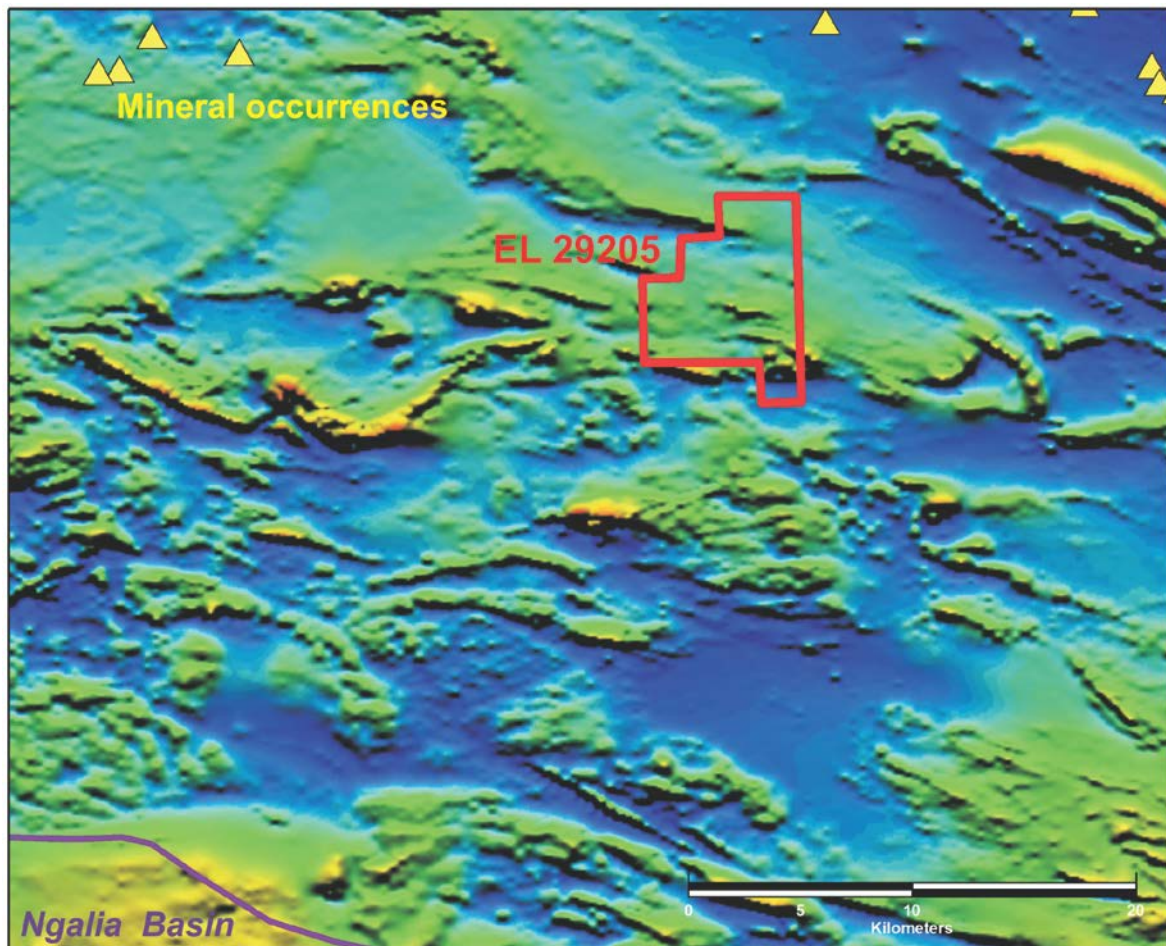


Figure 5.4-2 Total Magnetic Intensity (TMI) of EL 29205 showing Ngalia Basin and mineral occurrences.

Mesozoic and/or Cainozoic paleovalleys are not usually visible on regional magnetic data (Figure 5.4), as they are relatively shallow features, but careful use of detailed surveys may assist in locating channel deposits (e.g., basalt buried within the paleovalley generally showing positive magnetic anomaly).

Gravity

Because of normally small scales of palaeovalleys, gravity method should use high resolution survey, especially when it used with DEM, Landsat, NOAA, or AEM images. The Ngalia Basin margin is also clearly defined by the gravity data (Figure 5.5) and the regional basement geology map (Figure 3.1).

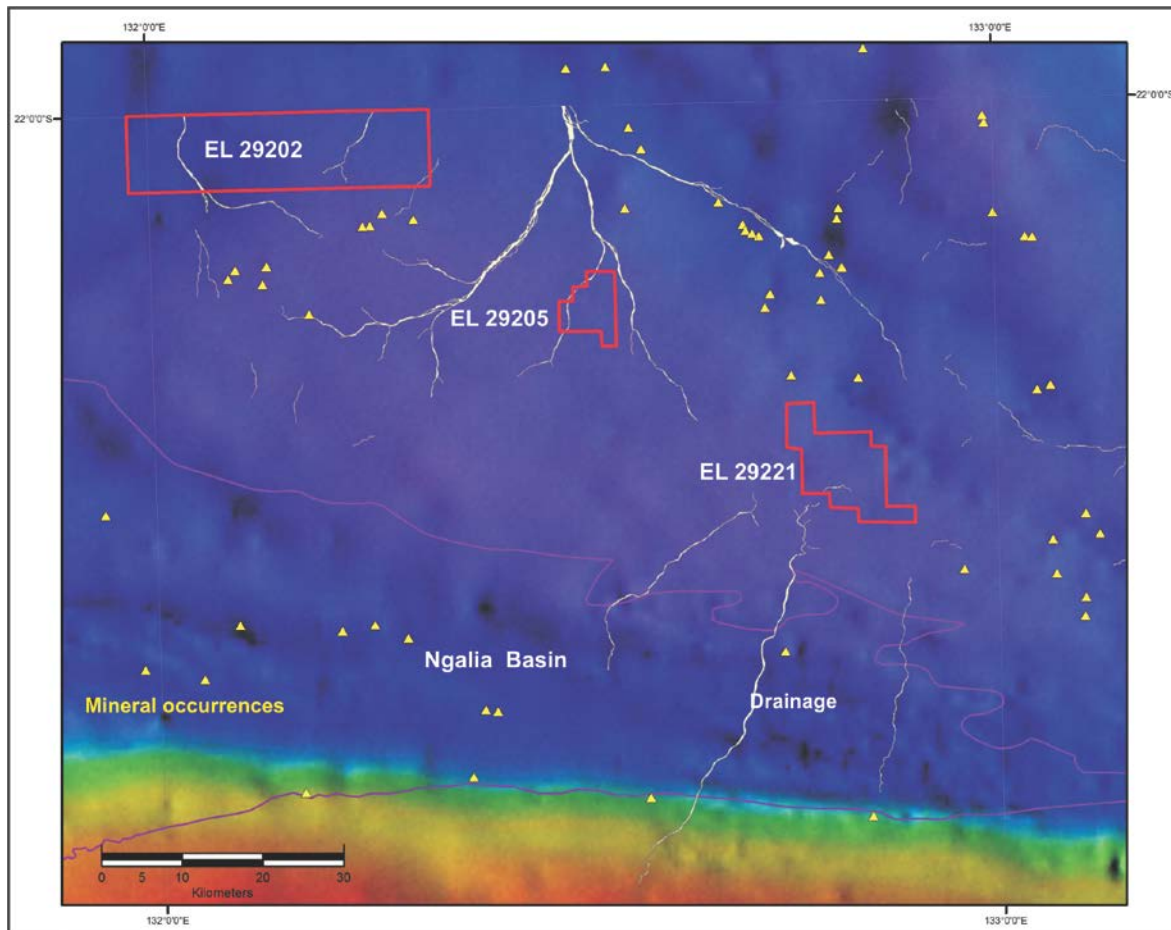


Figure 5.5 Gravity of the ‘Wuhua’ project area showing Ngalia Basin and mineral occurrences

5.2 ASTER Night-Time Thermal Infra-Red Data Interpretation

5.2.1 Introduction

Night-time Thermal Infra-Red (NTIR) data from the ASTER satellites have been acquired over “Wuhua” Napperby Uranium Project area (ELs: 29202, 29205, and 29221) (see Appendix 1). Overall the NTIR technology can provide useful information, particularly when used with other informative data such as Landsat TM, geological map and non-marine sedimentology, for palaeovalley-related mineralization in sedimentary host rocks which have no surface expression.

The coarse spatial resolution of the NOAA NTIR data (1.1 km spatial resolution, the frequency of overpass and the low cost of the data) is effective to delineate larger anomalous zones of contrasting temperature variation between the Channel sediments and the surrounding bedrocks. The high spatial resolution of the ASTER NTIR data (90m spatial resolution Level 1B 5-band TIR, the frequency of overpass and the relatively high cost of the data), however, is valuable in identifying the fine framework of the palaeochannels. Atmospheric effects resulting from cloud and wind moisture seen in ASTER NTIR datasets may obscure thermal boundaries. Thus, cloud cover and wind-shear can affect the quality of the data for interpretive work, but numerous scenes can be acquired in the

conditions of wind and cloud free due to the frequent overpass of the satellite and the value of the data. Five night time ASTER scenes images used were acquired early morning flight paths (for maximum thermal contrast) of 27 March 2005 (2 scenes), 30 October 2005 (1 scene) and 13 March 2014 (2 scenes).

Subsurface moisture (e.g., groundwater trapped in buried sediments) contributes to sediments ability to cool down and heat up at a different rate to that of surrounding bedrock. It is this feature of sediments that responds well to thermal analysis. Thermal bands from NOAA and ASTER imaging systems supply information which can be used to calculate variations in temperature from surface and near surface lithologies. The optimal time for these measurements is early morning and late evening when the temperature contrast will be the greatest.

5.2.2 Data and Results

The main remotely sensed datasets used in this interpretation are elevation data, ASTER NTIR data, Landsat 7TM and the U channel of regional scale airborne radiometrics. Standard geological mapsheets and explanatory notes were referred to for geological units.

The ASTER satellite has 5 bands acquiring data in the thermal infrared. The concept of identifying temperature variations is similar to NOAA NTIR (1.1km pixel); the key difference between the two satellites is the higher spatial resolution of the ASTER data (90 m pixel). Five night time ASTER scenes images were acquired over “Wuhua” Napperby Uranium Project area (Figure 5.6). Each scene covers an area of 60km x 60km. Cooler thermal responses appear dark on NTIR data.

5.2.3 Interpretation

NTIR data is another geophysical tool for mineral exploration which provides indirect information about concealed palaeomorphologies. Depending on the source data resolution can vary but it is inexpensive an excellent first pass to establishing areas of focus for uranium targeting. The detector and orbital configuration of NOAA-AVHRR and ASTER NTIR data could make it a very useful remote-sensing method in that it detects temperature variations in palaeochannel sediments related to the elevated moisture content of the channel. The application and findings of ASTER NTIR data over the Napperby Project area comprise three ELs: EL 29202, EL 29205 and EL 29221.

Interpretation of palaeosystems from ASTER NTIR data in the Napperby project was based on principals of remote sensing, sedimentology and geomorphology. Integration of these data delineated main trunks and tributaries of possibly stacked channel sediments (Figure 5.3). Channel sediments retain moisture due to their porosity and permeability forming a direct contrasted against the impervious granites surrounding them. Thermal responses which may be relevant to uranium exploration in the region fall into one of three categories, palaeochannels, palaeoalluvial fans and zones of congestion such as creek intersections and creek truncations due to structural controls. Palaeochannel centrelines with strong thermal contrasts have been delineated from the integration of ASTER and NOAA NTIR. In some cases these follow present day drainage.

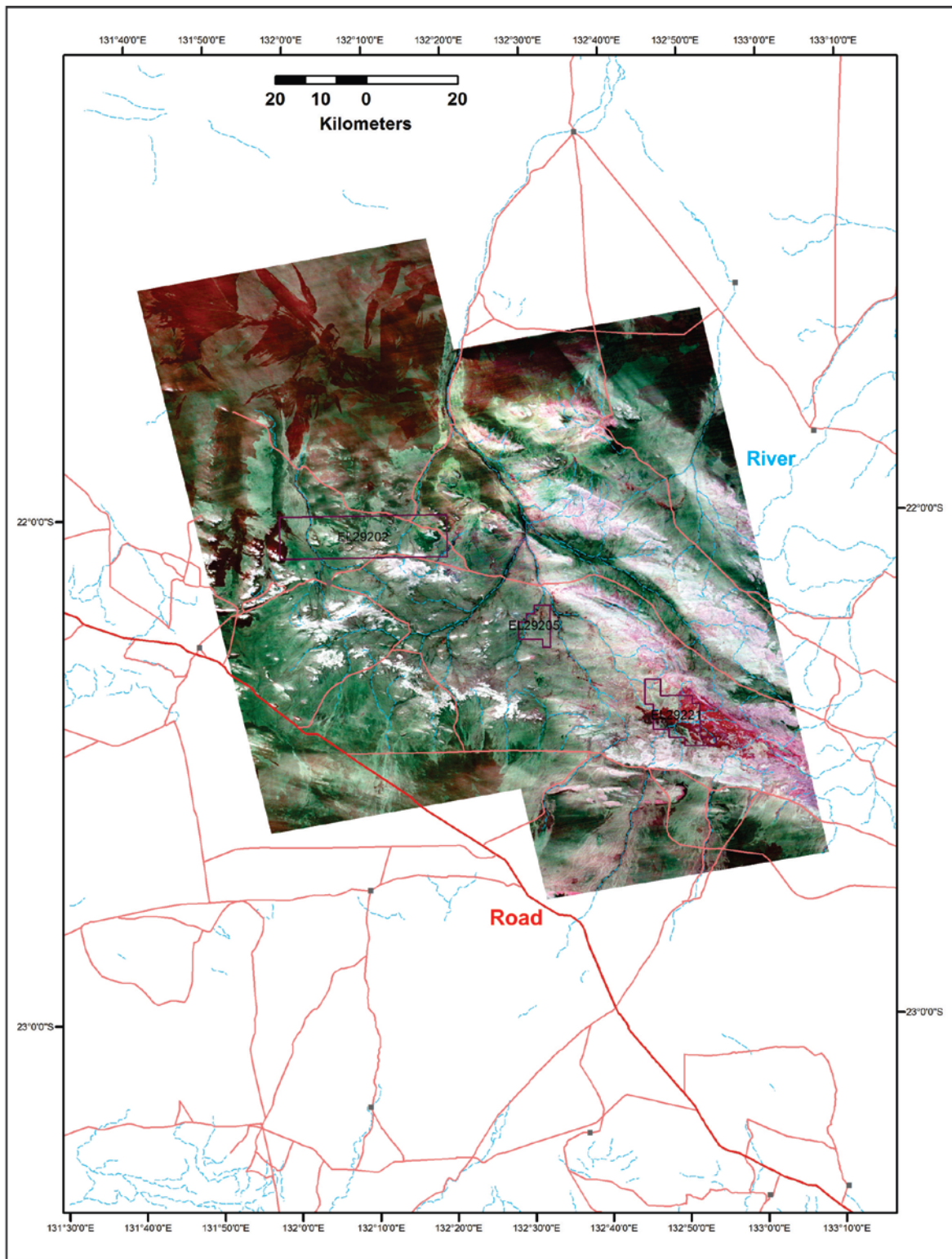


Figure 5.6 ASTER NTIR (TIR432) coverage over the Napperby project area.

Elevation data was integrated into this NTIR data interpretation (Figure 5.7 DEM+ASTER). The coincidence between the topographic lows of the elevation models and dark zones of the ASTER NTIR images highlight the subsurface textures which are related to concealed geomorphic landscapes such as incised valleys, sand dunes, river deltas and flood plains.

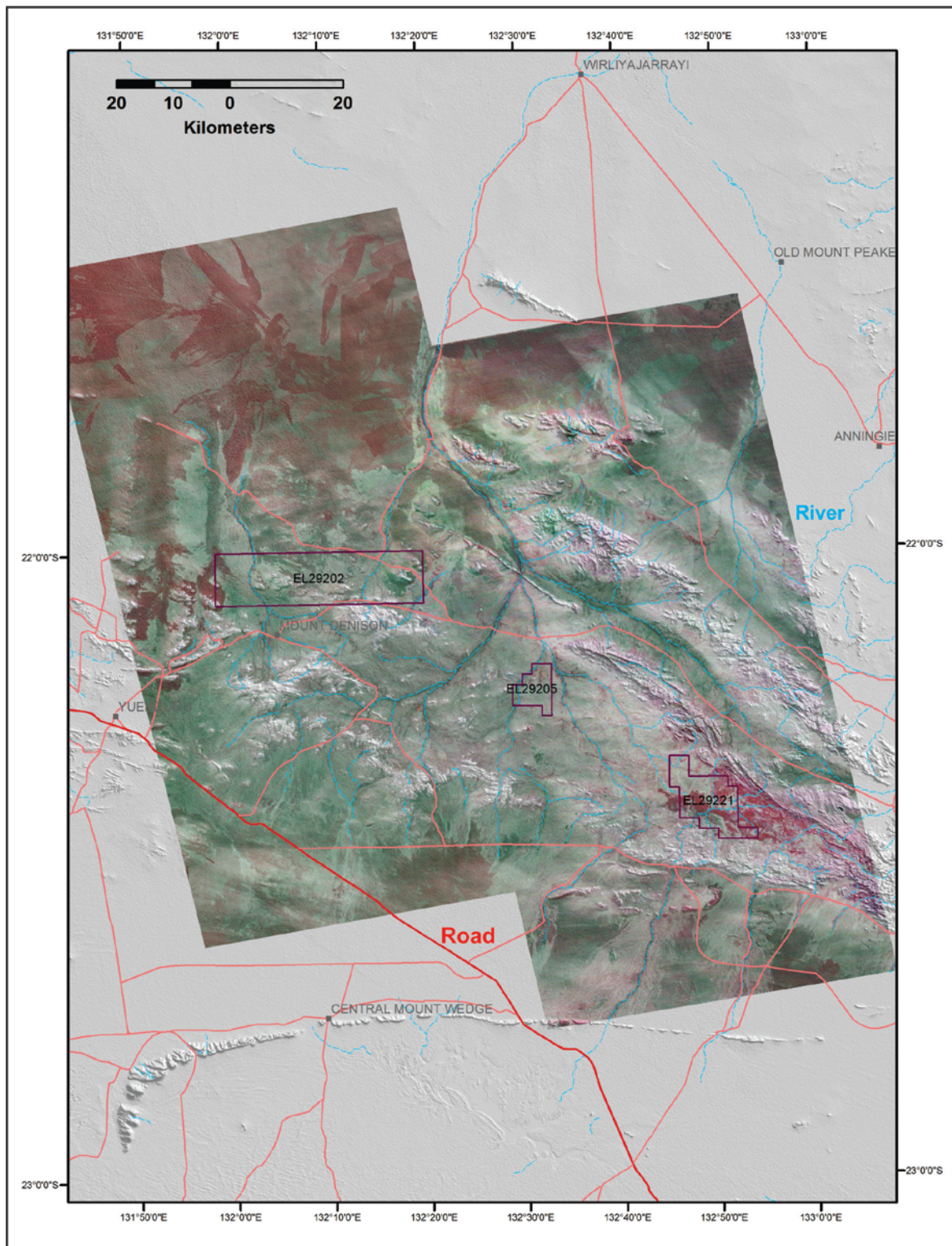


Figure 5.7 ASTER NTIR (TIR531) coverage over the DEM and Napperby project area.

Results of ASTER NTIR data applied to this region demonstrate suitability of the data for palaeochannel interpretation. The (palaeo-) landforms recognised by using ASTER NTIR include concealed palaeochannels, alluvial fans and regions of accumulated transported sediment. The direct surface expressions of buried palaeochannels are associated with topographic lows or drainages/creeks (Figure 5.7). Subsurface regions with cooler thermal responses interpreted as variations in the palaeovalley architecture require

follow up investigations (Figure 5.8), such as AEM/TEM and/or drilling. The integration of elevation data from the shuttle radar highlighted structural trends roughly showing surface expression of topographic lows (Figure 5.9). Channels and fans showed characteristic dendritic distribution of cool thermal sediments and dark zones of irregular polygons were noted in areas of sediment accumulation.

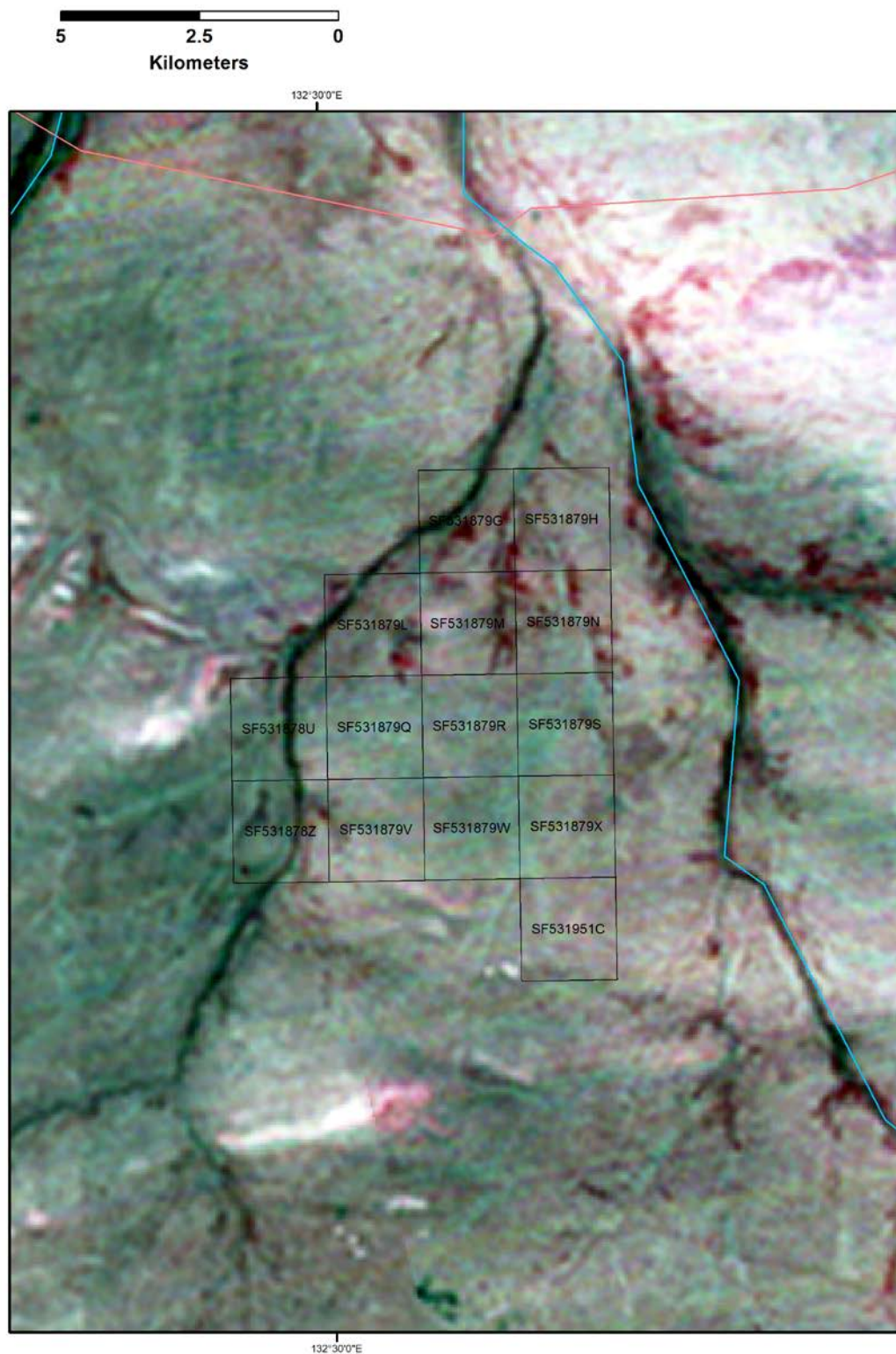


Figure 5.8 ASTER NTIR coverage over the EL 29205, 14 blocks.

Palaeovalley fills may host units for uranium in sandstone or calcrete style deposits. Also, alluvial fan systems and sheet sands in the basin margins, as demonstrated at Beverley Four Mile in the Frome Region of South Australia and in the case of Kazakhstan style uranium mineralization, are typical of hosting secondary uranium mineralisation. Napperby uranium project area comprises both palaeochannels and alluvial fans adjacent to and incising granitic source rocks with observed elevated uranium levels from airborne radiometric surveys (Figure 5.10).

ASTER NTIR data has highlighted a series of fans draining from granites with elevated U levels. These trend NE/ across EL 29205 (Figure 5.8). Satellite imagery from Landsat TM (Figure 5.2) and geological map (Figure 3.3) show the present day distribution of sediments from the topographic highs via fan systems. NTIR ASTER highlights the displacement, preferred channels and extent of the palaeo-fan lobes (Figure 5.11). Thermal responses in the lobes vary, showing sinuous dendritic channels and dark polygons of “ponding” where sediments have accumulated.

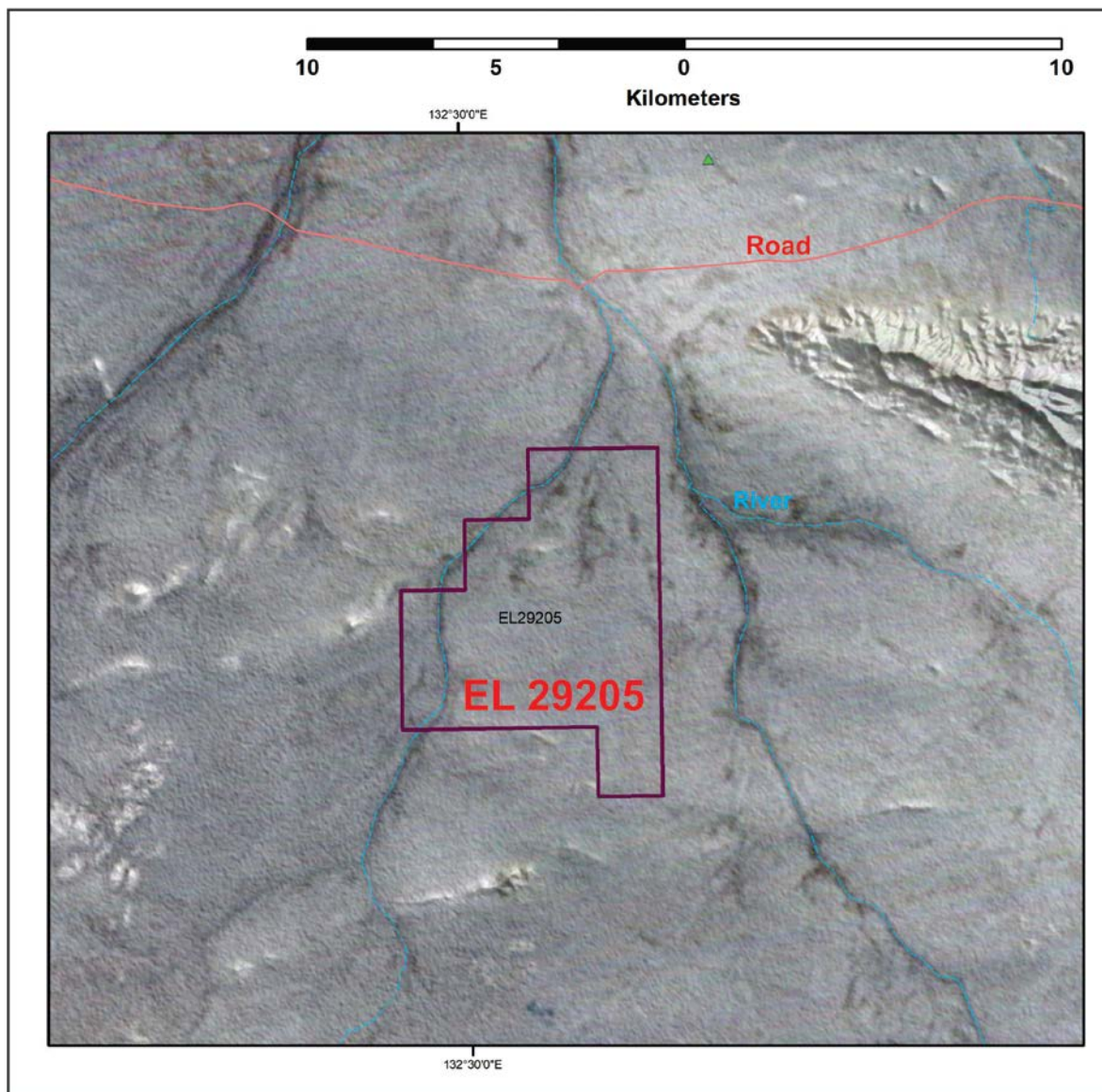


Figure 5.9 ASTER NTIR coverage over the DEM and EL 29205.

The uranium channel of the radiometrics shows present day drainage systems from the ranges have slightly elevated uranium levels. Buried channels and fans have no associated radiometric anomaly at the surface. The dark dendritic patterns they form have no surface uranium signature but still indicate transport direction from the “hottest” granites. Fractured and deeply weathered near surface units may have similar thermal response which may contribute to palaeochannel thermal response.

Geological maps of the area show numerous small outcrops of basement surrounded by Cainozoic units (Figure 3.3). It can be assumed that this cover sequence is shallow or resulted from severe weathering. Any event which generates porosity and permeability whether localised fracturing/jointing and weathering or on a larger scale such as shear zones or sedimentary units themselves will produce a thermal response. Some of the thermal responses may be due to shallow weathered in situ basement sparsely outcropping which has similar moisture retention abilities of transported sediments. As this interpretation is based only on NTIR data cold zones with thermal contrasts, some areas whether sedimentary in origin or weathered may fall into this category. Therefore, knowledge of the geology and its weathering ability needs to be incorporated into the prospective model of the region.

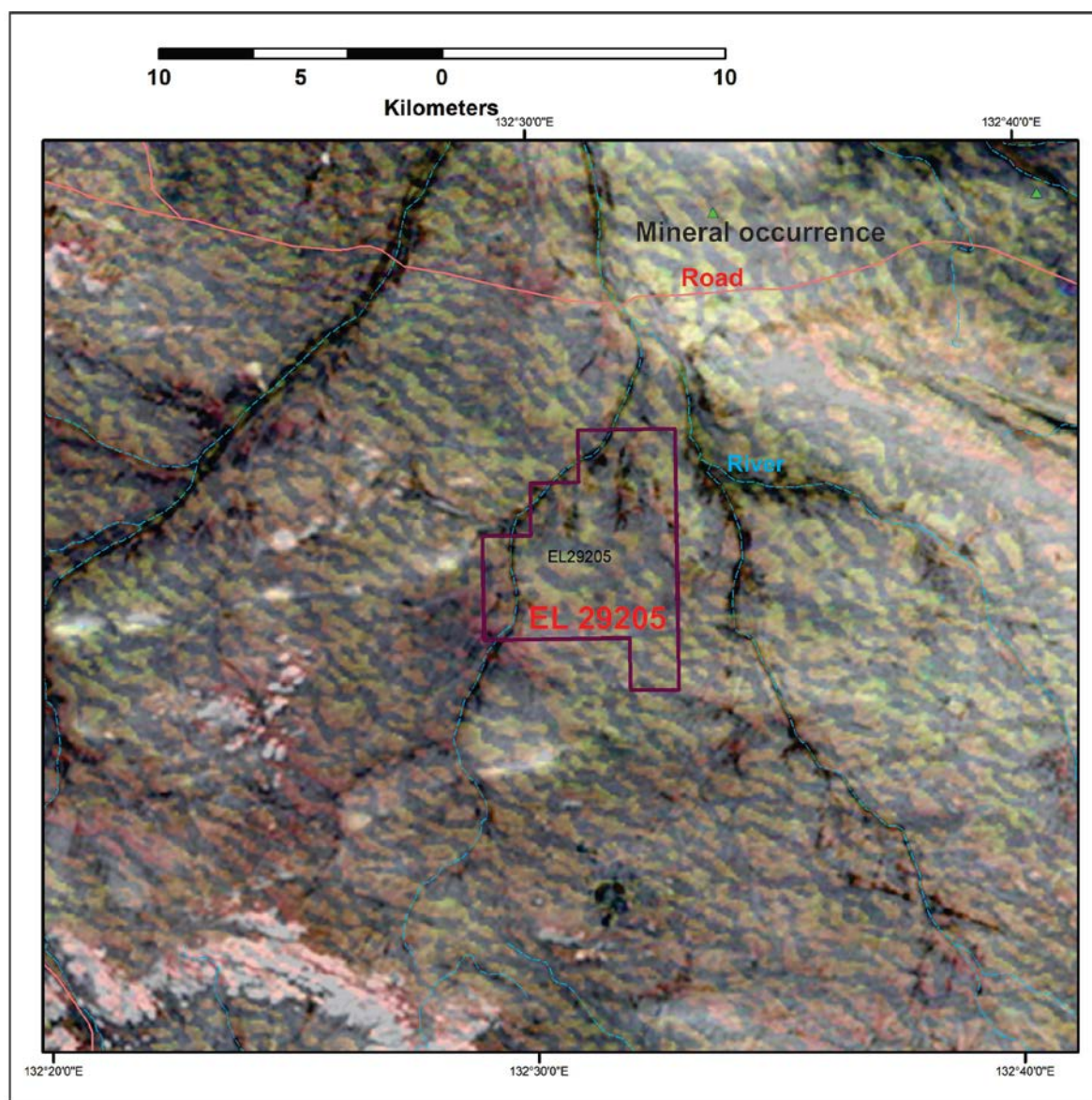


Figure 5.10 ASTER NTIR coverage over the U radiometrics and EL 29205.

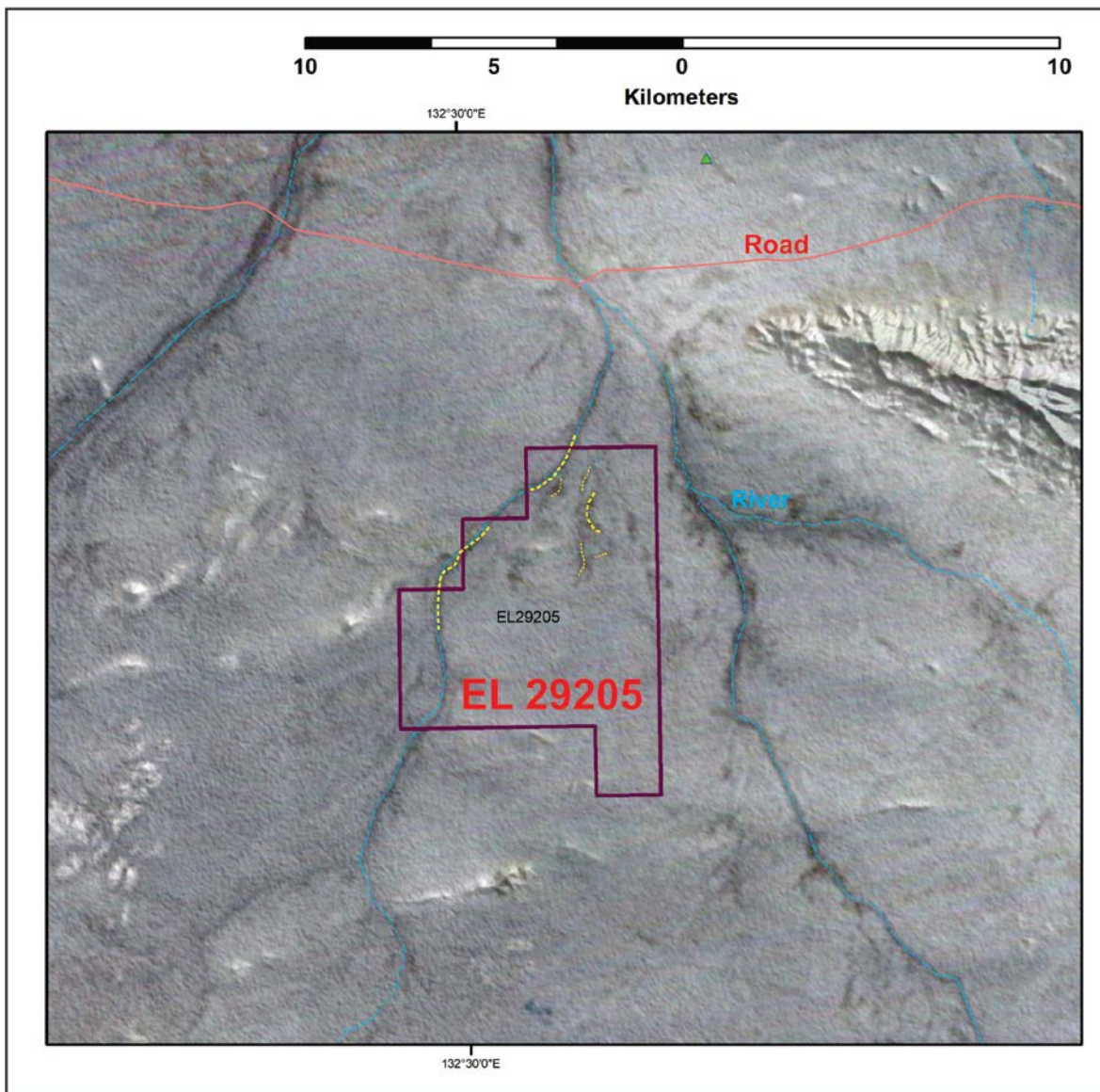


Figure 5.11 Interpreted channels draped over the DEM and ASTER NTIR images, and EL 29205, showing cool zones (yellow).

5.3 Uranium Prospectivity

The tenements are located within the general region of uranium prospectivity (Lally and Bajwah, 2006) and of relevance are occurrences in the area of sandstone-hosted, surficial and the metasomatite and vein uranium mineralisation styles. EL 29205 is located in the uranium potential zones of the Ngalia Basin and Amadeus Basin areas shown in Figure 4.1.

The style of mineralisation within the Arunta Block gneisses and metamorphic sequences is represented by pegmatite/vein style mineralisation (Sn-Ta-W) and the Nolans Bore metasomatite flour-apatite style mineralisation (REE-P-U).

EL 29205 is located to the northeast of the Ngalia Basin. They are therefore considered prospective for palaeovalley sandstone-hosted and calcrete style uranium

mineralisation, similar to those found within the Palaeozoic continental clastic successions of the Kerridy Sandstone Formation and Mount Eclipse Formation.

Surficial style mineralisation related to, palaeovalley, playa, or terrace deposits may be developed in areas where significant calcrete and terrace deposits are preserved, associated with the drainage system and possible palaeo-playa lakes. Calcrete is reported from the central licence area, tenement EL 29205, associated with the Warburton Creek drainage system. Two areas of calcrete, approximately 1km in length are included on the NAPPERBY 1:250 000 scale geology mapsheet. No previous sampling and geochemical data are available from either of the calcrete locations.

The main lithologies outcropping in the project are granites and sediments of Palaeozoic age, with Canozoic sediments in places. Zones of greater sediment accumulation identified may act as potential trapsites for palaeovalley-related sediment hosted uranium mineralization. They may reflect the palaeovalley architecture or may represent a similar scenario to the Beverley Prospect in the Frome Basin in South Australia. Further investigation is required during the drilling phase of the exploration program.

6. CONCLUSIONS AND RECOMMENDATIONS

The combination of DEM, AEM, and night-time thermal remotely-sensed imagery in GIS mode represent by far the best method for palaeovalley-related uranium exploration in the region. Ground magnetic and gravity, shallow seismic, TEM, and test drilling, where necessary, are also important media that can be used in subsurface structure delineation. Microgravity surveying techniques can also be applied to look for uranium-bearing palaeochannels in the project areas; gravitational techniques should work quite well, given the density contrast of the basement/bedrock and the channel sand. The AEM has proven to be a good guide to conductive variations in the subsurface and is one of the best techniques for detecting buried conductive anomalies.

Abandoned blocks (red-cross boxes) of EL 29205 is shown in Figure 6.1. The selected blocks of EL 29205 in the next step should be designed to test the tenement for the uranium targets described above. In summary, the following conclusions can be made regarding the geophysical and geological methods for locating potential mineralisation sites in the remained area of EL 29205:

- Further investigations should be directed in regions identified with thermal responses and which drain directly from granites with high uranium radiometric response. An airborne electromagnetic survey (AEM) is recommended second as results may define smaller target areas and aid in orientating traverse lines correctly.
- If necessary, carries out ground gravity traverses over the magnetic anomalies with the generation of geology maps.
- Compiles a detailed structural map and analysis of all priority magnetic and radiometric anomalies to determine the controls and disposition of any uranium mineralisation potential.
- Look for signs of channels and intrusives at depth or zones of high physical contrasts along shear zones and or contacts that might mark high redox potential.
- To determine survey line orientation, lithology strike and dip needs to be determined for the palaeovalley and underlying basement.
- *Test drilling* should traverse across or along the interpreted signatures, and particularly high priority zones selected. When these predictions prove wrong, the information should be used to revise and update the 3D models.
- Conduct a small RAB/RC/diamond drill program targeted at down dip and down plunge extensions to the any mineralisation intersected and to test the source of the uranium conductors located by geophysical survey.
- RC drilling. The cost of drilling possibly 10-100m deep holes to reach the basement means a palaeovalley-related (sandstone and surficial-style) uranium deposit would need to be found.
- Sample water from aquifers intercepted by station bores to map U distribution.
- Any trace of valuable minerals within the basinal sediments or bedrocks (e.g., gold, uranium) is of interest as a guide to the location of basement mineralisation.

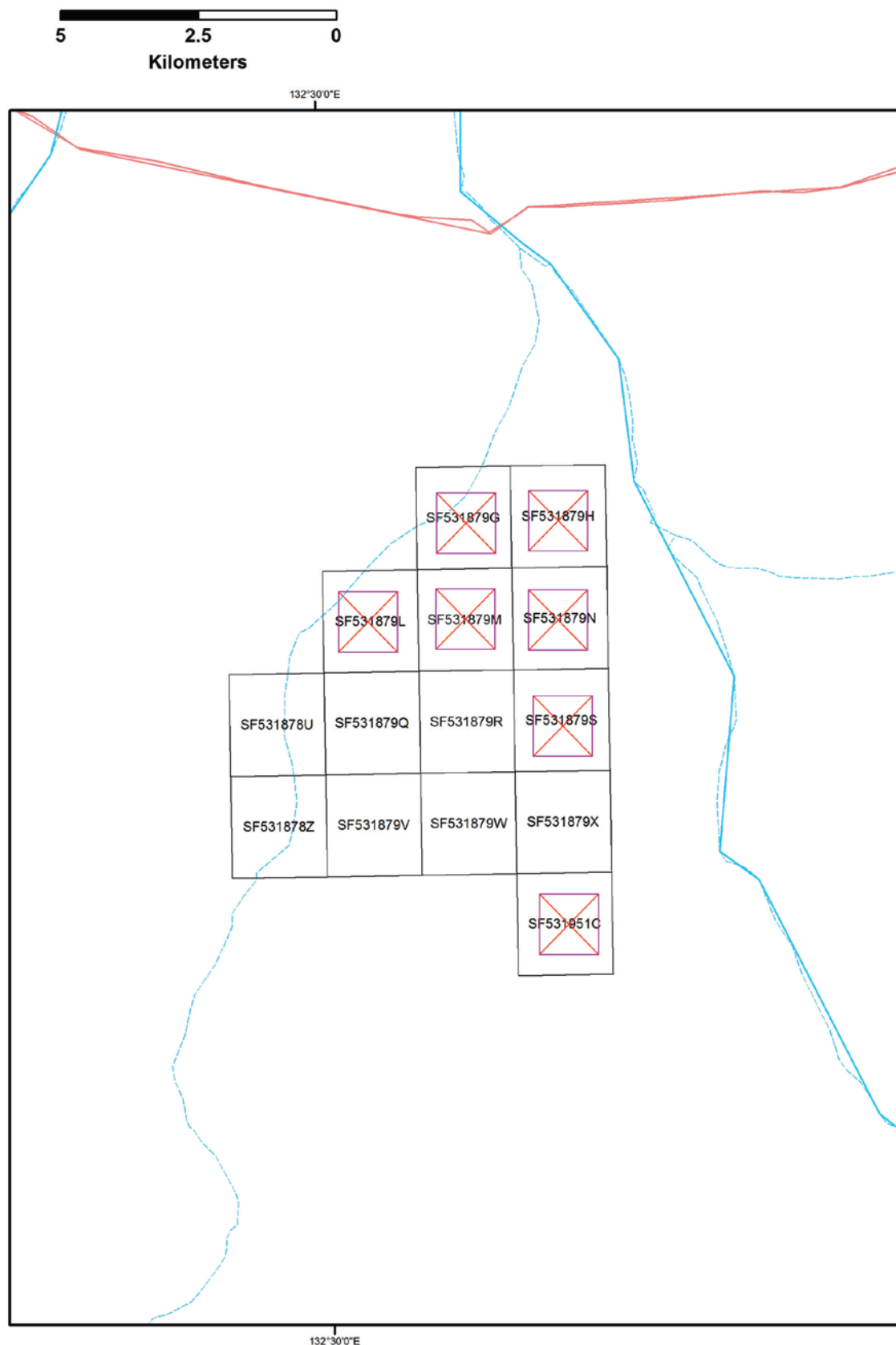


Figure 6.1 Relinquished tenement blocks of EL 29205. Red-cross boxes indicate abandoned blocks and white boxes are retained blocks.

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Appendix 1



Processing of ASTER Night Time Thermal Infrared Imagery ELs 29202, 29205 and 29221, near Crown Hill, Northern Territory

Job No.	16779
Client	Wuhua Mining Corporation Pty Ltd
Area of interest	ELs 29202, 29205 and 29221, near Crown Hill, Northern Territory

Data Type	ASTER Night Time Thermal Infrared
Datum	WGS84
Projection	SUTM53

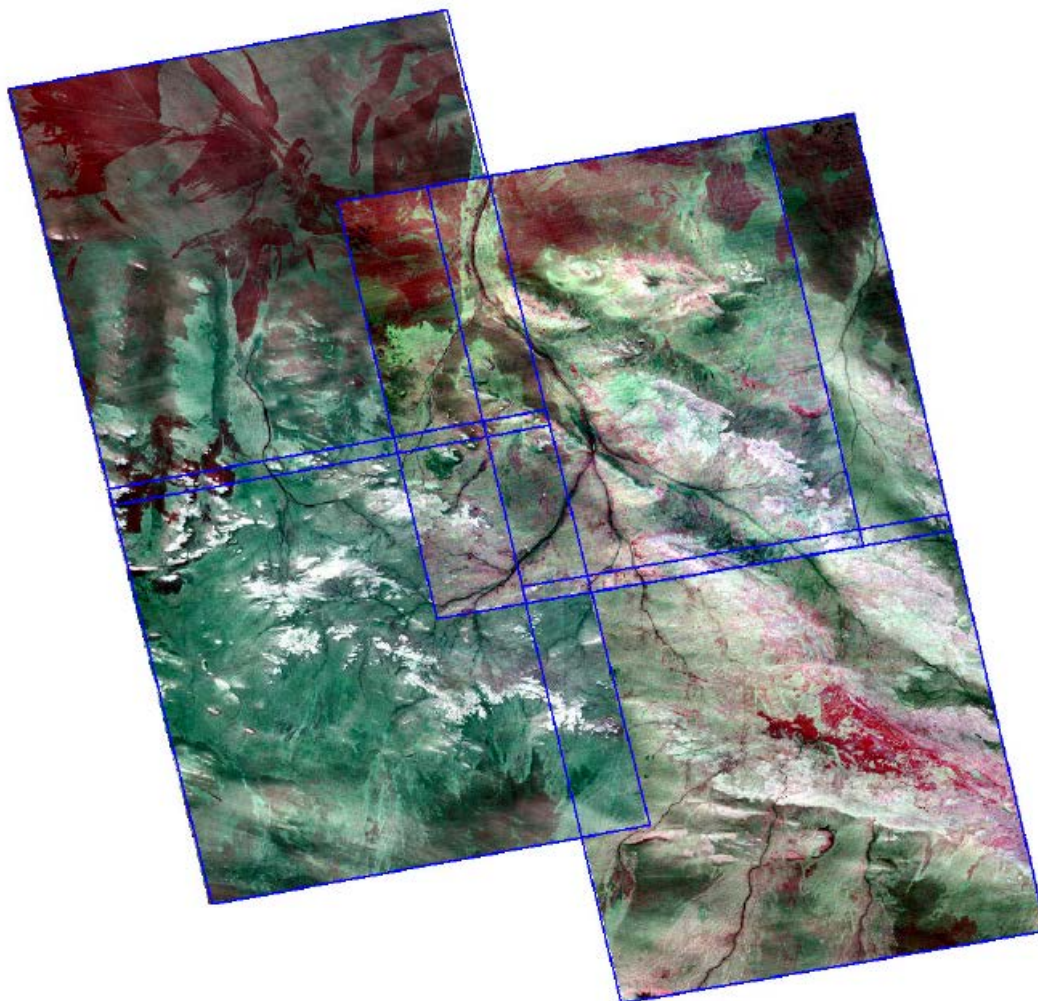
Raw Data:

- Five night time ASTER scenes acquired 27 March 2005 (2 scenes), 30 October 2005 (1 scene) and 13 March 2014 (2 scenes)
- 90m resolution Level 1B 5-band TIR

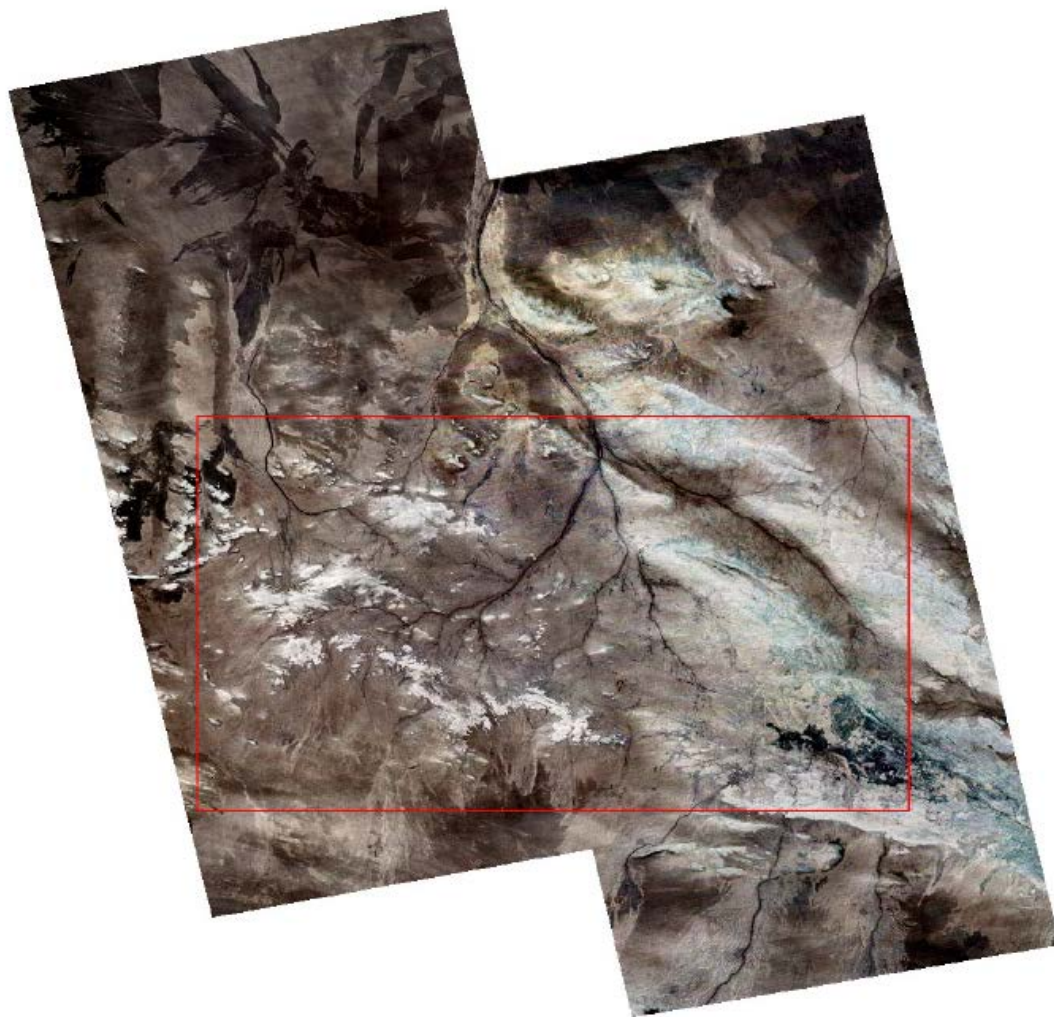
Processing:

- The Level 1B data was imported into ER Mapper using in-house code and rotated to north during the import,
 - Same date scenes were mosaicked using ER Mapper,
 - Same-date scenes/swathes were shifted in location to match the Geoimage Landsat 7 base and re-sampled to 45m resolution using ER Mapper,
 - A cloud mask was applied to the 13 March 2014 swathe prior to mosaicking ,
 - The three swathes were mosaicked using PCI Geomatica,
 - Contrast enhanced, Arc-compatible GeoTIFF format enhancements of the mosaic prepared in ER Mapper. Contrast stretch for the enhancements was applied to the bounding rectangle surrounding the ELs and then applied to the full mosaic.
- TIR bands 12, 11, 10 (TIR321) in RGB
- TIR bands 13, 12, 11 (TIR432) in RGB

- TIR bands 14, 12, 10 (TIR531) in RGB
- TIR bands 14, 13, 12 (TIR543) in RGB



*ASTER scenes processed - scenes outlined in blue
Acquired from west to east – 27 March 2005, 30 October 2005 and 13 March 2014
Bands 14, 12, 10 in RGB*



*Final mosaic showing bounding rectangle used for contrast stretching outlined in red
Bands 12, 11, 10 in RGB*

Imagery Details:

ASTER Night Time TIR Mosaic:

Top Left Coordinate = 153174.36mE, 7627041.42mN

Cell Size = 45.00m

Number of Lines = 3302

Number of Pixels = 3543

Projection = SUTM53

Datum = WGS84