REGOLITH - AN ALLY TO NEW MINERAL EXPLORATION IN EASTERN QUEENSLAND

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Studies in the Mundubbera area of Central Queensland have investigated how regolith knowledge can be combined with remotely sensed data to define new mineral exploration targets. Mundubbera is a region where successful gold exploration has occurred in the past, and new approaches using geochemical dispersion haloes in the regolith may lead to new discoveries in the future. Airborne radiometric and magnetic data have been integrated with Landsat TM images and field studies of landforms to determine the regolith framework of the region. Several regolith landforms are identified as concealing possibly prospective bedrock. These landforms include a Central plateau comprising a thin Cainozoic sandstone sheet over intrusions of granite and granodiorite, and the pediments and hills along the margins of the Surat and Mulgildie Basins. On the edges of the basins, prospective bedrock is likely to be close to the surface. The abandoned gold mines in the district provide examples of the regolith and geophysical environments associated with proven mineral deposits. This information can be applied to selecting new exploration targets in nearby areas.

Key words: regolith, mineral exploration, radiometrics, magnetics, Landsat TM, gold, Mundubbera, Queensland

INTRODUCTION

A CRC LEME project to assess regolith distribution and landscape evolution has commenced in eastern Queensland. The project highlights the area's continuing prospectivity for new mineral discoveries. The region extends for about 800 km from Mackay to the New South Wales border, and has a number of encouraging attributes for mineral exploration.

* There have been several mineral deposits of world significance found in the region. These include the Mt Morgan gold and copper deposit, which produced over 240 t of gold, and the Gympie gold field, which produced more than 106 t of gold. Both Mt Morgan and Gympie were mined for more than a century. Production from the Gympie field is continuing.
* Other significant mineral finds in the region include the large magnesite deposits at Kunwarara north of Rockhampton.
* Numerous and varied minerals have been recorded including Au, Ag, Cu, Ni, Cr, Sb, W, Fe, and Pt, in environments ranging from Volcanic-hosted Massive Sulphides, to skarns, to laterites.

A wealth of new geological data is now also available. These include:

* Department of Mines & Energy's Airdata comprising regional coverage of radiometric and magnetic data;
* Updated geological knowledge from new mapping projects of the Geological Survey of Queensland; and,
* Landsat TM images that can be optimised for regolith / landform interpretations.

The new studies integrate the geological datasets to improve knowledge of the regolith and landform evolution in eastern Queensland. In the region, there are prospective mineral exploration areas covered by regolith and Cainozoic and late Mesozoic sedimentary rocks. These covering deposits may contain dispersed chemical indicators from sources in the basement rocks. If dispersion haloes can be recognised, the regolith will be an important ally for mineral explorers in coming years.

The initial studies are investigating three neighbouring 1:250 000 sheets in the centre of the eastern Queensland region. These are the Mundubbera, Maryborough, and Gympie sheets. The progress of studies on the Mundubbera sheet (Figure 1) is discussed here.

METHODS

For this study, the main sources of data were the Mundubbera geological map (1:250 000 scale), Landsat TM images, airborne radiometric and magnetic data, and information on landforms and regolith from

reconnaissance fieldwork. The Landsat TM and airborne data were processed using ER Mapper and TNT Mips software, and all data were assembled in a MapInfo GIS and a Microsoft Access database. Field observations were collected on an Apple Newton and downloaded together with GPS position information to the project database.

OBSERVATIONS AND RESULTS

GEOLOGICAL SETTING/OVERVIEW

The Mundubbera 1:250 000 sheet extends from 25-26°S, 150-151° 30' E, and was mapped by Whitaker *et al.* (1975). The sheet is in the final stages of re-mapping by the Geological Survey of Queensland as part of the South Connors Project. Mundubbera is the only substantial town in the area, and there is also a small settlement at Eidsvold. Cracow is now almost abandoned, and gold mining operations there are under care and maintenance.

The Mundubbera sheet comprises a series of north trending zones (Figure 2). These are described from east to west.

- Steeply dipping Devonian to Carboniferous rocks in the east are related to a former subduction zone. Also in this area are a number of Permian to Triassic intrusions, and several Neogene basalt flows.
- Immediately to the west is a narrow zone of Jurassic sediments of the Mulgildie Basin in the north, merging with the Surat Basin in the south.
- Large Carboniferous to Triassic intrusives make up the Rawbelle Batholith which dominates the central part of the sheet. The intrusives consist of granite, granodiorite, adamellite, and gabbro. The Eidsvold Complex on the eastern side is part of the Rawbelle Batholith, and is also the host for the gold obtained from the Eidsvold area. The gold was found mainly in quartz reefs in granite.
- Carboniferous intrusions fringe the Rawbelle Batholith in the west. These comprise granodiorite and adamellite.
- Permian and Upper Carboniferous volcanics occur west of the Carboniferous intrusions, and also along the eastern margins of the Rawbelle Batholith. In the west, they comprise the Camboon Volcanics which host the Cracow gold deposits. Mineralisation is related to post- lower Permian / pre- Jurassic rhyolite intrusions into the Camboon Volcanics. The gold is also associated with faults.
- Overlying the Permian to Triassic intrusives in the centre of the sheet is an extensive but thin Cainozoic sandstone (Figure 3) with a variably preserved ferruginous cap. An erosional scarp commonly marks the perimeter of this sandstone plateau, and a pediment of mottled saprolite extends from its base. To the east of the *Central plateau* are numerous knolls and mesas of sandstone representing incomplete erosion of a formerly more extensive continuous sand sheet.
- In the western and southwestern parts of the Mundubbera sheet, extensive Surat Basin sediments comprising the Precipice Sandstone, Evergreen Formation, and Hutton Sandstone dip gently to the southwest. The ages of the Precipice Sandstone and Evergreen Formation are Early Jurassic, and the Hutton Sandstone is Early to Middle Jurassic.
- In the northwestern area of the sheet, there are west-dipping sedimentary rocks comprising the Permian Back Creek Group (mudstone, sandstone, limestone), and the Early Triassic Rewan Formation (sandstone).

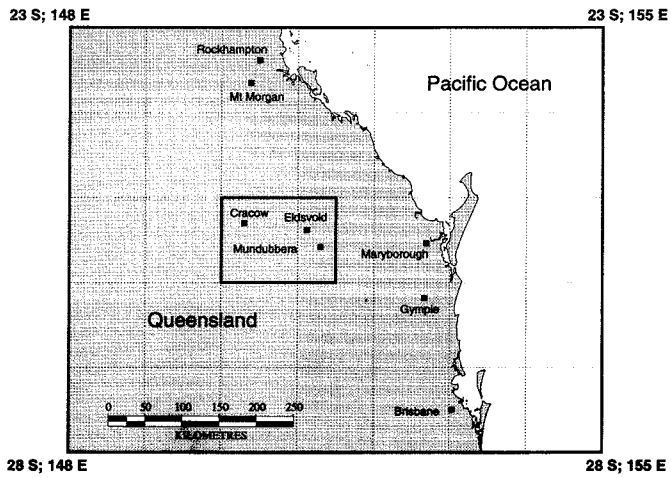

Figure 1: *Location of the Mundubbera 1:250 000 sheet in southeast Queensland*

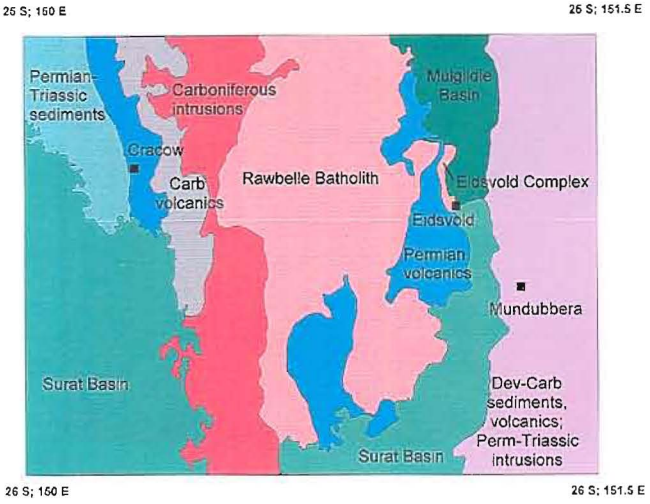

Figure 2: *Major structural elements and simplified geology, Mundubbera 1:250 000 sheet. (Modified after Whitaker et al, 1975.)*

Regolith studies have the potential to assist mineral exploration in the Mundubbera 1:250 000 sheet in four main target areas, which are:

- *The Central plateau* of Cainozoic sandstone with its associated ferricrete and partially preserved soil profiles with strong ferruginous mottling. These deposits overlie potentially mineralised zones in granite and granodiorite;
- Buried extensions of the Eidsvold Complex, either in the Surat Basin at the southern end, or in the Mulgildie Basin at the northern end;
- The Surat Basin embayment south of Eidsvold and southwest of Mundubbera. The sedimentary rocks of the basin overlie potentially mineralised areas along the margins of the Rawbelle Batholith, and in other concealed intrusions; and,
- The Surat Basin in the southwest of the sheet. The Permian Camboon Volcanics extend south from the Cracow area beneath Surat Basin sedimentary rocks, and may contain gold mineralisation.

Historical background - mining history

Gold is the main economic mineral found on the Mundubbera sheet. It was discovered near Eidsvold in the mid 1800's, and mining began in 1862 (Department of Mines, 1988). The main gold producing area was discovered near Cracow in 1931 (although traces of gold had been reported as early as 1875). More than 19 t of gold was produced at Cracow, and about 3 t at Eidsvold.

Mineral occurrences - distribution and significance

Of the more than 65 mines, abandoned mines or prospects on the Mundubbera 1:250 000 sheet, 55 are gold localities (Figure 3). Included in the remainder are several tungsten and antimony finds, and rare occurrences of copper, silver, magnetite, chrome, bauxite, and iron. Most of the gold is associated either with Permian to Triassic granodiorite or Permian volcanics. The gold in the granodiorite is located in the south-central and east-central parts of the sheet. The gold in the volcanics occurs in west and south-central areas.

Landforms and TM data

The landscape has a lowest elevation of about 150 m above sea level (ASL) on the Burnett River east of Mundubbera. The maximum elevation is 568 m at Mt Mungungal in the north-central part of the sheet. Hence the elevation range is about 400 m for the area in general. The stream bed elevation of the Dawson River on the western edge of the sheet is only about 50 m higher than that of the Burnett River 170 km away at the eastern edge.

The main drainage divide is the Auburn Range, which extends north-south across the western part of the sheet (Figure 3). Most of the drainage is to the east, and includes the Nogo River, which links to the southward flowing Burnett River north of Eidsvold. The Auburn and Boyne Rivers join the Burnett River from the west and south respectively at Mundubbera. Downstream from Mundubbera, the Burnett River flows east across the ridges of mainly Devonian and Carboniferous sedimentary rocks.

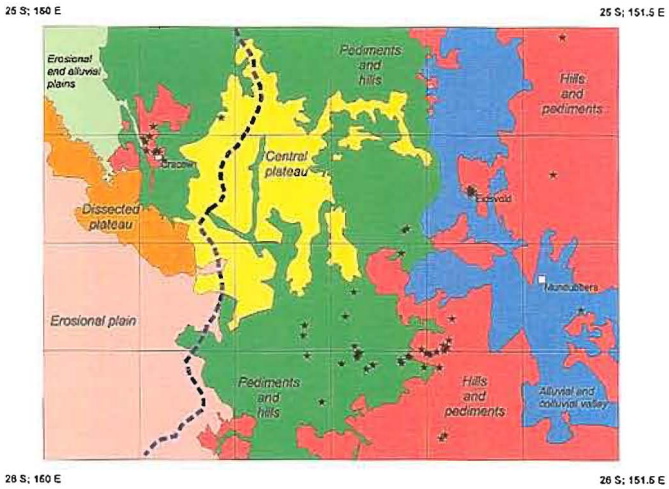

Figure 3: *Generalised landforms and gold localities on the Mundubbera 1:250 000 sheet. Dashed line marks drainage divide.*

On the western side of the Auburn Range, streams drain to the northwest and link with the northward flowing Dawson River, one of the major tributaries of the Fitzroy River, which flows east to the sea near Rockhampton.

Regional landforms were interpreted from a mosaic of three Landsat TM scenes covering the Mundubbera 1:250 000 sheet area. A standard Red-Green-Blue image using Bands 3, 2, and 1 was used. The area has been extensively cleared for grazing, with only the more rugged areas retaining their original vegetation of eucalyptus forest. Seven generalised landforms have been identified (Figure 3).

* **Central plateau** - This region consists of Cainozoic sandstone with a dissected margin, particularly in the south and east. The elevation is generally between 350-400 m ASL. Erosion has occurred mainly around the perimeter of the sandstone plateau, where breakaways up to 5 m high are present. Only limited erosion has occurred across the top where minor streams occupy restricted drainage corridors. Beyond the *Central plateau* to the east and south are numerous isolated mesas of Cainozoic sandstone. These are entirely absent to the west of the *Central plateau*. The sandstone is up to 15 m thick (Whitaker and others, 1975), and is presumably the remains of an alluvial sand sheet of regional extent.

* **Hills and pediments** - The *Hills and pediments* comprise a terrain where hills are the dominant landform, but extensive pediments also occur. In the northeastern part of the Mundubbera sheet, the *Hills and pediments* landform consists of bedrock ridges and pediments at an elevation of 250-400 m ASL. This landform is predominantly an erosional bedrock terrain where shallow in situ regolith overlies bedrock incised by many-channelled drainage networks. Northeast of Mundubbera are several flat-topped plateaus formed by Neogene basalt flows. The Hills and pediments extend along the eastern margin of the sheet, and also occur as a forested area southwest of Mundubbera. Other less extensive areas are in the vicinity of Cracow, and on the southern boundary of the sheet near 150° 30′ E.

- **Pediments and hills** - The *Pediments and hills* border the *Central plateau* on all but the southwestern side. The landscape consists primarily of dissected slopes (pediments) and some low hills. Bedrock is at or near outcrop in most areas. Overall, the region is less rugged than the *Hills and pediments*.

- **Alluvial and colluvial valley** - (Burnett Valley) - The north-south drainage corridor of the Burnett and Boyne Rivers lies between the *Hills and pediments* in the east and the *Pediments and hills* in the west. The valley is between 100-200 m ASL, and comprises pediments and restricted alluvial plains.

- **Erosional plain** - This undulating plain occurs in the southwest, and is the surface of the shallow margins of the Surat Basin. The rolling landscape includes mesas of Jurassic Evergreen Formation sandstone and several Neogene basalt cones. Surat Basin sediments are commonly exposed in stream banks and gullies. Low hills of Torsdale beds (acid tuff) and Camboon Volcanics (basalt, andesitic tuff) are present on the plains. The *Erosional plain* occurs at about 200-400 m ASL.

- **Dissected plateau** - To the south and west of Cracow, an erosional scarp marks the edge of a *Dissected plateau* of Precipice Sandstone. The sandstone forms the basal unit of

the Surat Basin in this area. The plateau lies between 200-350 m ASL, and includes the Nathan Gorge excavated by the Dawson River. Southeast of Cracow, this landform merges with the comparatively undissected *Central plateau*

- **Erosional and alluvial plains** - (Dawson Valley) - North of the *Dissected Plateau* near Cracow are *Erosional and alluvial plains* adjacent to the Dawson River. Their elevation is between about 100-200 m ASL. Shallow bedrock structure is evident beneath the surface of the erosional plains

REGOLITH SETTING

On the Landsat TM mosaic, most elevated areas display lineations and patterns related to the structure of the underlying bedrock. In these areas, the regolith cover is thin to absent. In many areas, a surficial ironstone gravel forms the top of the regolith, and provides an important source of road base (see also McNally, 1995)

The amount of erosion varies across the landscape, influencing the preservation of regolith profiles. In some areas, the regolith has been removed to expose fresh bedrock; in others, a complete weathered profile consisting of a ferruginous cap extending down through an intensely mottled zone into a pallid zone overlying weathered bedrock is present. In the granitic terrains, the landscape varies from scattered whalebacks to exposed boulder corestones, to *in situ* decomposed granite. Even in the dominantly erosional environment on the Mundubbera sheet, the regolith character varies quite significantly with position across the landscape

The greatest thickness of regolith is in the alluvial valleys, where soil profiles on one or more transported sediment units can be preserved over *in situ* profiles developed on bedrock. In general, the alluvial valleys contain only restricted areas of sediment accumulation as much of the deposits are in transit to depositional areas further downstream beyond the margins of the Mundubbera sheet.

Distinctive red-orange soils are present on the flat-topped high plateaus of Neogene basalt northeast of Mundubbera. Weathering has produced large purple and white mottles in vesicular basalt, grading upwards into orange-red ferruginous saprolite. At the top of the profile, an erosion-resistant ferricrete cap is common. Breakaways are present at the tops of scree slopes along the plateau edge. The steep escarpments bounding the basalt plateaus, particularly in the east, indicate substantial long-term erosion and sediment removal by tributaries of the Burnett River

On the *Central plateau*, the Cainozoic sandstone has a very subdued surface topography, and contains windows exposing the underlying granite and granodiorite. Exposures of the weathering profile on the sandstone are found in creek banks. The quartzose sand is variably stained by ferruginous compounds, but ironstone gravels comprising haematitic and goethitic pisoliths are common at the surface. The source of iron has not been determined to be solely within the sandstone itself. It is likely that migration of iron and other elements from the underlying granite and granodiorite has also occurred, especially as the sandstone is relatively thin (<15 m). Therefore, the regolith on the *Central plateau* may be useful in geochemically assessing the prospectivity of the concealed granite and granodiorite

The Landsat TM data indicate widespread orange-red staining of the land surface, most likely caused by oxidised iron compounds. Some of the staining can be directly related to outcrops of iron-rich bedrock, such as the oolitic ironstone of the Evergreen Formation in the western part of the sheet. The ferruginous haloes around known outcrops of oolitic ironstone indicate chemical migration into the cover deposits

In general, the ferruginous haloes are reasonably closely associated with the bedrock outcrops, and do not suggest that major transport of cover deposits has occurred. With iron being transported into the younger deposits, there is the possibility that other elements may also have been involved. Hence regolith geochemistry has potential as a useful tool for mineral exploration

AIRDATA

Stages 1 and 2 of the Department of Mines & Energy's Airdata project provide a continuous band of radiometric and magnetic data from Townsville to Toowoomba. The data were collected at a line spacing of 400 m at a terrain clearance of 80 m. The along-line sampling intervals for the radiometric and magnetic surveys were 70 m and 7 m respectively. Approximately 85% of the Mundubbera 1:250 000 sheet was covered in the Airdata project. The area without data is in the west, and is primarily over Surat Basin sediments

RADIOMETRIC DATA

As the radiometric data display the areal variation of potassium, thorium and uranium in the top 20-30 cm of the earth (Watson and others, 1997; Anderson and Nash, 1997), the data effectively provide a continuous geochemical map of these elements in the regolith

Overall, the radiometric data show a good correlation with regional geology, as expected in regions where the regolith is mostly thin and *in situ*. Of the individual elements, potassium shows clear-cut definition of contrasting areas of high, medium or low abundance.

Comparatively high concentrations occur in the granites and volcanics. The Cainozoic sandstone on the *Central plateau*, and the Surat and Mulgildie Basin sediments are generally low in potassium. The potassium distribution best shows the modern transport and short-term deposition of regolith along streams, with sinuous stream-following patterns of slightly higher abundance notable.

The *Dissected plateau* of Precipice Sandstone southwest of Cracow is characterised by low potassium. The volcanics to the east of Cracow contain medium (to high) potassium over outcrops, but potassium is a little more subdued in valley alluvium. Potassium shows good correlation with terrain and vegetation in the Cracow area. Dense vegetation appears to limit the potassium response.

The thorium distribution does not define areas of contrasting abundance as clearly as the potassium distribution. However, thorium can provide detail within areas already defined as having uniform potassium content. Thorium is therefore useful in investigating internal variability of such areas, which can assist in determining mineral exploration targets. High thorium concentrations are present in three areas of the Rawbelle Batholith within a much larger area defined as containing high potassium, located between 150° 45′ E and 151°E.

There is also an association of high thorium with some of the boundaries of areas high in potassium. Thorium is generally low in the volcanics and sediments, and the Eidsvold Complex also has low thorium abundance. In the sediments of the Surat Basin southwest of Mundubbera, there are numerous localised areas of high thorium in a region of low to medium abundance. These areas could be related to chemical dispersion from sources either in or beneath the Surat Basin deposits. Other areas high in thorium include the ferruginous soils of the Gurgeena and Binjour Plateau basalts northeast of Mundubbera.

The uranium distribution is, like thorium, less clear-cut than potassium in showing areas of contrasting abundance. However, areas of high uranium correlate well with high thorium in the Rawbelle Batholith. In the Surat and Mulgildie Basins, and the *Central plateau* of Cainozoic sandstone, uranium abundance is generally low to medium although restricted areas of low and high values are also present.

At a broad level of detail, the radiometric data enable seven different units to be identified on the Mundubbera sheet. These units are based on differences in qualitative abundance of the three elements, classified as high, medium, or low (Table 1). All of these units contain sufficient variation in potassium, thorium, and uranium to enable many sub-units to be recognised and related to geology, landforms, regolith, and magnetic contrasts.

Potassium, thorium, and uranium distributions at the 55 known gold localities were compared (Figures 4-6). Most localities were associated with low potassium, low thorium, and low to medium uranium abundances.

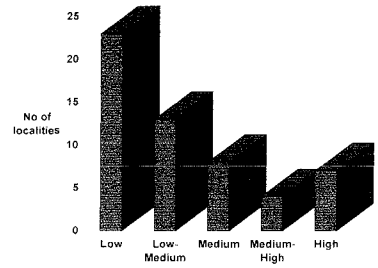

Figure 4 *Potassium distribution at gold localities*

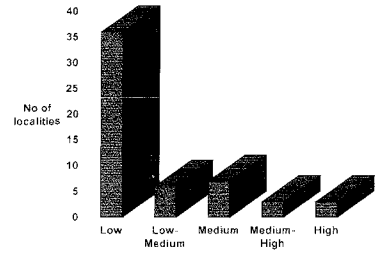

Figure 5 *Thorium distribution at gold localities*

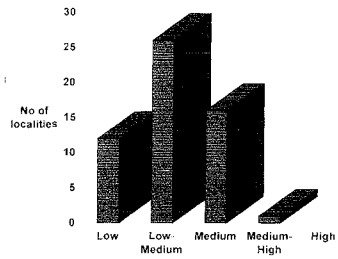

Figure 6 *Uranium distribution at gold localities*

MAGNETIC DATA

The 1st vertical derivative magnetic data are a primary mapping tool in New South Wales studies (Watson and others, 1997) and these data were investigated in the study of the Mundubbera 1:250 000 sheet. The patterns on the magnetics image are considered to relate to geological structural elements such as major faults or fault zones, and differences within and between rock units. Concealed intrusions may also be shown by magnetic intensity that contrasts with surrounding areas.

The magnetics data show a great deal of structural detail in the central area encompassing the Rawbelle Batholith and the

Table 1: *Qualitative evaluation of radiometric data distinguishes seven regional units.*

Unit	K	Th	U	Comments
1	High to Medium	Medium high	High to medium	Exposed eastern side of the Rawbelle Batholith (granite, granodiorite), and Volcanic rocks and granite on the southeastern margin of the Mundubbera sheet
2	High to medium	Medium	Low	Volcanic rocks in the Cracow region along the western margin of the Central plateau
3	High to medium	Low to medium	Low to medium	Volcanic rocks (Narayan Beds); granodiorite, adamellite (Cadarga Creek Granodiorite) in the south-central area
4	Medium	Low	Low	Carboniferous Kilbeggan Adamellite in the southern Auburn Range area; Permian-Triassic Cadarga Creek granodiorite at Auburn Falls (30 km southwest of Mundubbera)
5	Medium to low	Low	Low	Granite, granodiorite, quartz gabbro (Eidsvold Complex); Devonian ñ Carboniferous sedimentary rocks
6	Low	Medium	Low to medium	Central plateau sandstone; sedimentary rocks of the Surat and Mulgildie Basins
7	Low	Low	Low	25(00i - 25(10i S; 150(30i - 150(45i E; Volcanic rocks ñ Narayan Beds; Late Carboniferous granite, adamellite

Permian and Carboniferous volcanics, and extending southwards onto the edge of the Surat Basin. Here the magnetics data provide detail of the basin's substrate. In contrast, in the east, the Mulgildie and Surat Basins show comparatively minor magnetic structure, suggesting a greater thickness of cover deposits than in the southwest. The area of low magnetic contrast also includes much of the Devonian to Early Carboniferous sediments east of Eidsvold, although the Devonian volcanics in the midst of the sequence are clearly recorded as a cuspate linear pattern extending north-south. The magnetics data define the arcuate Eidsvold Complex as an area of magnetic complexity, and show that its northeastern and southeastern extremities extend beyond its surface exposure.

There are a number of examples of zones of high magnetic contrast coinciding with or near to boundaries defined by radiometric data, as in the Delubra Quartz Gabbro (at 25° 10' S; 150° 38'E, and at 25° 45' S, 150° 55'E). Other minor areas of high magnetic intensity in or beneath Surat Basin sediments (south of 25° 45'S between 151°E and 151° 15' E) are similar to those at known gold and silver localities nearby at the abandoned mines of May Queen and McDonnells. Hence the magnetic data may be useful in selecting exploration target areas in shallow parts of the Surat Basin.

CONCLUSIONS

The TM data has enabled interpretation of seven generalised landform units:

- **Central plateau**
- **Hills and pediments**
- **Pediments and hills**
- **Alluvial and colluvial valley (Burnett River)**
- **Erosional plain**
- **Dissected plateau**
- **Erosional and alluvial plains (Dawson River)**

The TM data and reconnaissance field work have confirmed an erosional landscape with a large area of residual Cainozoic sandstone preserved as a *Central plateau* and, in the east, as numerous degraded hills and mesas. Overall, the landscape has been affected by chemical transport, particularly involving iron. This is evident by orange-red staining on the land surface, shown on the TM image, and by widespread ferruginous regolith comprising mottled zones and ferricretes observed in the field. The regional patterns of ferruginous staining are likely to reflect variations in the immediate bedrock rather than be related to laterally distant sources. Other significant pathfinder elements may be associated with this chemical transport process so that in selected areas, sampling for geochemical analysis may prove fruitful.

There are four broad regolith areas that could be considered for mineral exploration:

- **The Central Plateau** - The plateau is comprised of thin weathered sandstone over granite and granodiorite intrusions. Mineral occurrences are known from exposed areas of granodiorite, and include gold, silver, copper, and tungsten. There are a number of areas on the *Central plateau* that have high potassium and thorium values that may be related to exposure or near exposure of the underlying granodiorite. The radiometric data may therefore be showing chemical variability related to the granodiorite beneath the sandstone rather than to the sandstone itself. There are also a number of linear features on the magnetics

data that could be investigated further on the basis that complex magnetic structure is associated with known gold localities southwest of Mundubbera (Figure 3).

- **The Surat Basin margin, southwest area** - On the *Erosional plain* in this area, variations in the amount of ferruginous staining of the regolith are evident, in places related to the outcrop or near outcrop of the oolitic ironstone of the Evergreen Formation. The extension of the Camboon Volcanics southwards beneath the Surat Basin deposits towards Auburn represents a potentially prospective area. The data show that there are a number of small areas with high magnetic values here, and some areas of high potassium and thorium as well.
- **Surat Basin margin, southwest of Mundubbera** - The granite and gabbro of the Rawbelle Batholith potentially extend beneath the Surat Basin sediments in this area. Localised areas of high radiometric and magnetic values occur in the vicinity of known occurrences of gold, silver and copper.
- **Eidsvold Complex** - Magnetic data indicate that the complex extends below cover to the southeast, and northeast. The gold production area was in the south, so the cover deposits on the southeastern extension may contain trace element indications of concealed mineralisation.

Most of the 55 known gold localities on the Mundubbera sheet occur in areas characterised by low potassium, low thorium, and low to medium uranium abundances. Areas with these characteristics are widespread throughout the Mundubbera region, so the radiometric data alone are not sufficient to identify mineral exploration target areas. Many of the gold localities are also associated with linear features and complex structures on the 1st Vertical Derivative magnetics image, so combining the datasets provides better options for at least broad scale target selection. Geochemical studies of ferruginous components from the regolith have been essential to successful mineral exploration in Western Australia (Anand, 1998) and in northern Queensland (Beams, 1998). The abundance of ferruginous regolith in the Mundubbera area provides opportunities for geochemical studies to complement airborne geophysics and Landsat TM data in determining and evaluating exploration targets.

The studies so far have not included any significant processing enhancements of the Airdata or TM datasets. Advanced treatment of radiometric data carried out by Dickson and others, (1996) identified potential target areas for mineral exploration in the Devlin Creek area near Rockhampton. Applying these techniques to the Mundubbera region may enable better targeting of areas for mineral exploration. The geophysical data may best be used for identifying broad target areas for exploration, with ferruginous regolith then providing opportunities for geochemical sampling to detect possible dispersion haloes from concealed deposits.

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