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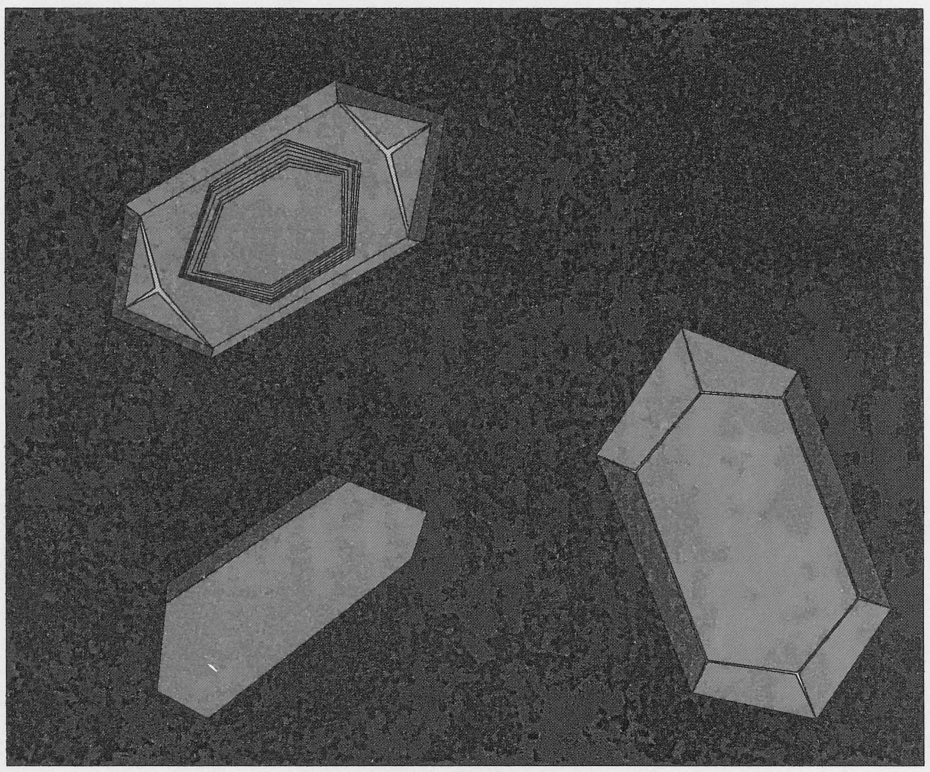
AUSTRALIAN GEOLOGICAL SURVEY ORGANISATION

OZCHRON DOCUMENTATION

RECORD 1993/44



by R.W. Page, L.A.I. Wyborn, M. Hazell, and R.J. Ryburn

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OZCHRON Dataset Documentation

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R W Page, L A I Wyborn, M Hazell,
and R J Ryburn

DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

Minister for Resources: Hon. Michael Lee, MP
Secretary: Greg Taylor

AUSTRALIAN GEOLOGICAL SURVEY ORGANISATION

Executive Director: Harvey Jacka

ISSN: 1039-0073

ISBN: 0 642 19346 0

Section 1—The structure of the OZCHRON Database

1.1 Introduction

OZCHRON is the geochronological data storage and retrieval system of the Minerals and Land Use Program of the Australian Geological Survey Organisation (AGSO). It is a dynamic database that will be continuously updated as the volume, variety and quality of geochronological data increase.

Geochronological information on Australian Precambrian and Phanerozoic terranes has been generated over more than 30 years, and the information in OZCHRON has been compiled from a variety of published and unpublished sources. Additional unpublished ages and interpretations acquired by AGSO under co-operative agreements are also included. OZCHRON summarises the analytical data and resultant ages, and acknowledges the primary source of the data. Comments are also included on the geological relevance and reliability of those ages.

This manual is a guide to the structure of OZCHRON and describes the structure and purpose of the individual fields. Listings of the authority tables are also included, as well as a complete data dictionary for all tables. The manual has been prepared on the assumption that the purchaser is setting up their own database. In AGSO, OZCHRON is implemented under Oracle's relational database management system running under the UNIX operating system on a DG AViiON computer. Those purchasers who buy the database in ORACLE format may also find useful an AGSO in-house Record by Ryburn, R.J., Page, R.W., & Richards, J.R. 1993, 'User's guide to the OZCHRON database'. *AGSO Record* 1993/11.

This manual has been prepared in loose leaf format so that descriptive data on additional releases, or on new methods can easily be added.

1.2 Structure of OZCHRON

OZCHRON is a complex relational database that consists of 10 main tables and 17 associated 'authority' tables. The names of the main and authority tables are listed in Table 1.1. Full definitions are listed in Sections 2, 3 and 4. Figure 1.1 shows the interrelationship between the various main and authority tables.

OZCHRON is part of the National Geoscience Mapping Accord (NGMA) database system. All sample attribute data (e.g., location, stratigraphic formation, lithology, etc.) are stored in tables that are part of the NGMA field databases (Blewett, R. 1993, The NGMA Field Databases–a field guide. *AGSO Record* 1993/46). Each geochronological method covered by the OZCHRON database employs one or two tables of geochronological data. Where a number of analytical results are required to arrive at one age determination, as in Rb-Sr whole-rock isochron work, there are two tables, one for analytical results and one for the pooled age result and interpretation. The analytical results are generally joined to a pooled-result number and to the sample information by a combined index on originator plus sample number (i.e., SampleID), the originator being the person/organisation responsible for collecting the sample and/or publishing the results. This dual indexing

system allows published sample numbers to be preserved and obviates the need for an additional numbering system. The only requirement is that the sample numbers from any one originator must be unique within his or her numbering system.

A sample in OZCHRON is fully identified only by a combination of **Originator Number** and **Sample Number**, the **Sample Number** being any sequence of numbers and letters up to 16 characters long. This uniqueness is protected by a concatenated index covering both fields – duplicate combinations are not possible. With the exception of the SHRIMP table, all analytical tables record both **Originator Number** and **Sample Number**: for SHRIMP data these are found only in the SHRIMP_AGES table. A **Sample Number** on its own is usually sufficient to retrieve the required sample, but do not forget that duplicate **Sample Numbers** are permitted if the originators are different. The combinationn of **Sample Number** and **Originator Number** form a unique key which points to stratigraphic information about the individual sample in the ROCKS table. Through the combination of **Originator Number** and **Sample Number** in the ROCKS table, the **Site-ID** can be identified for any sample, and location information and outcrop description be obtained from the SITES and OUTCROPS table, repectively.

	Table Name	Contents
Main Tables		
1	SITES	Individual site location data and accuracy
2	OUTCROPS	Outcrop-scale data and drill hole data
3	ROCKS	Stratigraphic and lithological data for individual samples
4	LITHDATA	Extendable lithological attribute table for rocks
5	RB_SR	Rubidium-Strontium analytical data
6	RBSR_AGES	Rubidium-Strontium pooled results
7	U_PB	Uranium-Lead mineral analytical data
8	UPB_AGES	Uranium-Lead mineral pooled results
9	SHRIMP	Uranium-Lead ion microprobe analytical data
10	SHRIMP_AGES	Uranium-Lead ion microprobe pooled results
Authority Tables		
1	AGSOCOUNTRIES	List of valid countries
2	AGSOSTATES	List of valid states
3	GEOPROVS	List of valid geological provinces
4	HMAPS	List of valid 1:100 000 maps
5	QMAPS	List of valid 1:250 000 maps
6	MAPREFS	List of map references
7	LOCMETHODS	List of methods for locating field sites
8	ORIGINATORS	List of valid contributors
9	LANDF	List of valid landform types
10	VEGTYPES	List of valid vegetation types
11	STRATLEX	List of valid stratigraphic names
12	GEOTIME	List of geological time, linked to stratigraphic lexicon
13	ROCKTYPES	List of valid rock types
14	LITHNAMES	List of valid rock names
15	LITHDATATYPES	List of valid lithological data
16	REFERENCES	Bibliographic references
17	STRATRELS	Stratigraphic Relationships

Table 1.1. List of the main and authority tables in OZCHRON

OZCHRON AND FIELD DATABASES

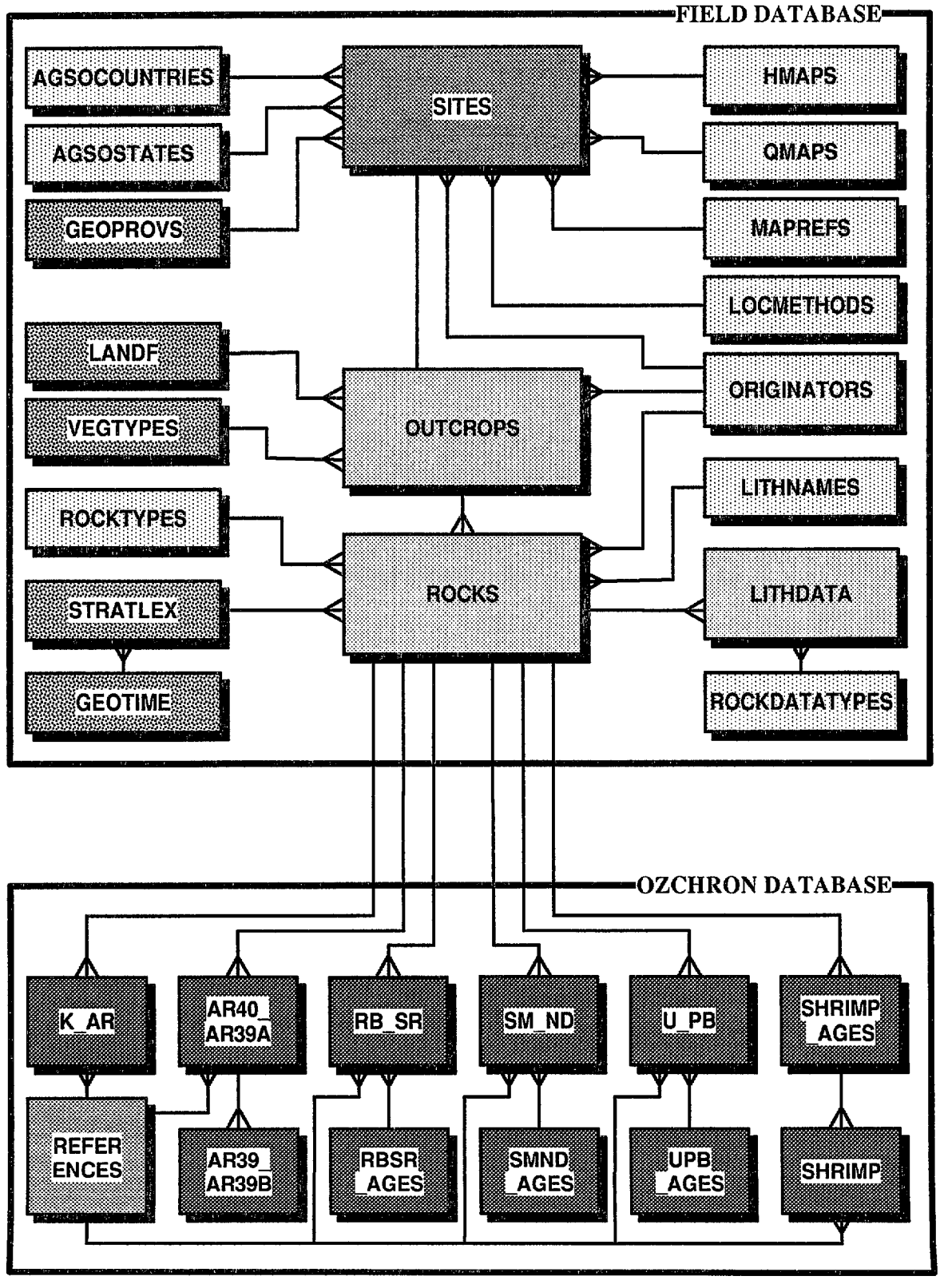

FIGURE 1.1 A schematic diagram of the OZCHRON database showing the relationships between the component tables. Most of the indicated relationships between tables are many to one, the arrow heads indicating the 'many' side of the relationships.

Section 2—Descriptions of the main tables used in OZCHRON

2.1 – THE SITES TABLE

The SITES table standardises the recording of geographic point location data in AGSO corporate databases. The table is mainly for surface location data for field geological, geochemical and geophysical observations. For example, an entry in the SITES table may record location data for observations at an outcrop, sample(s) data, a gravity reading, or all three. Geographic coordinates are recorded either as decimal latitudes and longitudes, or as AMG eastings and northings.

Description of fields (actual field names are listed in brackets)

Originator Number (ORIGNO) - Mandatory integer of up to 4 digits. The originator is represented by a number and their full name is stored in the related ORIGINATORS table. Only the number is stored in the SITES table. The originator is usually the person or organisation that collected the data at the site, and is also an indication of where to go for more information.

Site ID (SITEID) - Mandatory field of up to 16 characters for a user-supplied number or ID for the site. Any combination of numbers and letters is used, but the Site ID must be unique to the originator. There may be more than one sample collected from each site.

Field ID (FIELDID) - An optional field of up to 16 characters for an alternative site number or ID.

Observation Date (OBSDATE) - The date that the field site was visited or observed - in the standard ORACLE date format of DD-MMM-YY - e.g. '23-JUL-92'.

Observation Time (OBSTIME) - The time that the field site was observed - in Oracle's 24-hour format of HH:MM - e.g. '14:47'.

Country (COUNTRYID) - Mandatory 3 capital characters indicating the country or continent. Defaults to 'AUS' for Australia. Valid capital letters are stored in the AGSOCOUNTRIES table.

State (STATE) - A field of up to 3 capital characters indicating the State. Mandatory if the country is Australia. Valid entries are stored in the AGSOSTATES authority table.

Geological Province (GEOPROVNO) - An integer of up to 5 digits pointing to the Geological Province which is stored in the GEOPROVS authority table.

Subprovince (SUBPROVNO) - An integer of up to 5 digits pointing to the Geological Subprovince which is stored in the GEOPROVS authority table.

Structural Domain (DOMAINNO) - An integer of up to 5 digits pointing to a domain which is stored in the GEOPROVS authority table. Names of batholiths are also entered here.

Geogarea (GEOGAREA) - An optional descriptive field of 64 characters for the name of the geographic area (valley, plain, mountain range) from which the sample comes e.g., Newcastle Ranges, Tuggeranong Valley.

Location Description (LOCDESC) - An optional descriptive field of 64 characters for additional information relating to to the site's location - e.g., '5 km SE of Brown's Bore'. Locality information available from much of the earlier published geochronological literature is commonly imprecisely or poorly described. Hence there are a number of instances in the OZCHRON database where point locations are interpolated or based on an educated guess.

1:100 000 Map (HMAPNO) - A 4-digit integer identifying the 1:100 000 map sheet-area on which the site falls. The name of the map sheet is stored in the HMAPS authority table.

1:250 000 Map (QMAPID) - The 6-character ID of the 1:250 000 map sheet-area on which the site falls - e.g., 'SF5402'. The name is stored in the QMAPS authority table. The first four characters identify the 1:1 000 000 map, and the first two letters in the ID give the 6° UTM zone.

Metres East (EASTING) - A 6-digit positive integer for the full AMG easting of the site in metres.

Metres North (NORTHING) - A 7-digit positive integer for the full AMG northing of the site in metres.

Absolute Accuracy in metres (ACCURACY) - A mandatory field for the absolute accuracy of the given coordinates in metres on the ground. Data transferred from the pre-1992 SAMPLES table, which stored locality information associated with earlier versions of the ROCKCHEM and OZCHRON databases, did not include accuracy estimates. The following assumptions were therefore made in translating these results to the SITES table.

1 - Unless otherwise known, it is assumed that all geographic coordinates were obtained from 1:100 000-scale maps, and were therefore accurate to about 100 metres.

2 - Results known to have been measured only from 1:250 000-scale maps are assumed accurate to 250 metres.

3 - Other known circumstances have had their accuracies appropriately estimated - e.g., Antarctica.

Elevation in metres (HEIGHT) - An integer with up to 5 digits for the elevation of the site in metres above mean sea level. Can be negative.

Elevation accuracy (HEIGHTACC) - A positive integer of up to 3 digits for the absolute error in metres of the elevation entered in the previous field.

Decimal Latitude (DLAT) - A positive numeric field with up to 2 digits in front of the decimal point, and up to 6 digits after the decimal point.

N/S (NS) - A single character field that can only take the values 'N' or 'S' for north or south, respectively.

Decimal Longitude (DLONG) - A positive numeric field with up to 3 digits in front of the decimal point and up to 6 digits after the decimal point.

E/W (EW) - A single character field that can only take the values 'E' or 'W' for east or west, respectively.

Location Method (METHOD) - A mandatory integer of up to 3 digits pointing to a record in the LOCMETHODS authority table showing the method used to obtain the geographic coordinates of the site.

Map ID (MAPID) - A 10-character field that identifies a map in the MAPREFS table. This field allows specific maps to be referenced in much the same way that a bibliographic reference might be used. A future user of the SITES table can then refer to this map to do their own assessment of the accuracy of the geographic coordinates.

Airphoto (AIRPHOTO) - An optional field of 36 characters to identify the airphoto on which the site is located and/or was plotted. The field is for the name of the airphoto series, the run number and the photo number - e.g. 'Cloncurry 8/2134'.

Related Data Sets - Nine single character fields that show what data sets join to the site. Only two values are allowed, null or capital 'X' - the 'X' being placed in all fields with related data sets. The field names are as follows-

OC	OUTCROPS table
ST	STRUCTURES table
RO	ROCKS table
PT	PETROGRAPHY database
RC	ROCKCHEM database
OZ	OZCHRON database
MD	MINDEP database
SC	STREAMCHEM database
RT	RTMAP database
RP	ROCKPROPS database

2.2 – THE OUTCROPS TABLE

The OUTCROPS table is designed for descriptions of the outcrop as a whole and for relationships between lithologies and structures in the outcrop. Information on individual lithologies, samples and structures belong in the ROCKS and STRUCTURES tables - both of which have a many-to-one relationship with OUTCROPS. The OUTCROPS table has a one-to-one relationship with the SITES table, and uses the same two keys covering the Originator and Site ID. The reason for the separation is that tables other than OUTCROPS need to link in with the location information in SITES.

Description of fields (actual field names are listed in brackets).

Originator Number (ORIGNO) - As for the Sites Form.

Site ID (SITEID) -As for the Sites Form.

Rock Relations (ROCKRELS) - An optional field of 120 characters for a description of the rock relations in the outcrop.

Sketches (SKETCH) - An optional field of 60 characters noting any sketches made at the outcrop.

Photographs (PHOTO) -An optional field of 60 characters noting any photos taken at the outcrop.

Drill Hole Data -

Company (DHCOMPANY) - An optional 48 character field for the name of the company that drilled the hole.

Hole (DRILLHOLEID) - An optional 48 character field for the name or other ID of the hole.

Azimuth (DHAZIMUTH) - An optional 3 digit integer for the azimuth of an inclined hole in degrees east of true north.

Inclination (DHINCLIN) - An optional 2 digit integer for the inclination below the horizontal of the drill hole. For vertical holes this is 90 degrees.

Vegetation -

Code (VEGCODE) -An optional field of up to 4-characters for the vegetation type in AGSO's vegetation authority types table (VEGTYPES) and is based on AUSLIG's vegetation map of Australia.

Description (VEGETATION) - An optional 60 character field for a text description of the vegetation at the site of the outcrop. Important for remote sensing database.

Landform-

Code (LANDCODE) -An optional field of up to 4 characters for the landform in AGSO's landforms authority table (LANDF). It is based on the 'Australian Soil and Land Survey Handbook' by Gunn, R.H., Beattie, J.A., Reid, R.E., and van der Graff, R.H.M., 1988, Inkata Press, Melbourne.

Description (LANDFORM) - An optional 60 character field for a text description of the landform at the site of the outcrop.

2.3 – THE 'ROCKS' TABLE

The ROCKS table has a many-to-one relationship with the SITES table—and also with the OUTCROPS table if an outcrop record exists for a site. This is a natural relationship as a number of different lithologies and samples commonly occur at the one site.

Description of fields (actual field names are listed in brackets).

Rockno (ROCKNO) - A unique sequential number which links attributes in the LITHDATA table to records in the ROCKS table.

Originator Number (ORIGNO) - As for the SITES and OUTCROPS tables.

Site ID (SITEID) - As for the SITES and OUTCROPS tables.

Sample ID (SAMPLEID) - An optional field of 16 characters for the ID of a sample. The number must be unique to the Originator, although it can be identical to the SiteID, if there is only one sample from a given site.

Rock Type (ROCKTYPE) - A positive integer of up to two digits that identifies the basic rock type from the ROCKTYPES authority table which has 17 possibilities. This field is designed to allow easy selection of all samples of a particular rock type (e.g., intrusive mafic rocks, clastic sediments, felsic gneisses).

Lithology Qualifier (QUALIFIER) - A 20-character optional field for the qualifying term, if any, before the Lithology Name field that follows. The qualifying term must be in the LITHNAMES authority table and classified as Type 'Q' for qualifier. An example of a Qualifier is 'pelitic', as in 'pelitic schist'.

Lithology Name (LITHNAME) - A 20-character optional field for a lithology name. Only names already in the LITHNAMES authority table and classified as Type 'I', 'M' or 'S' (igneous, metamorphic, sedimentary) may be entered.

Grouping (GROUPING) - A 22-character optional field for a user-defined classification. This field is used to classify suites of rocks from particular regions into classes other than those suggested by other fields on the form. The values entered here are chosen by the Originator and have no global significance.

Stratigraphic Unit (STRATNO) - A positive integer of up to 5 digits that automatically identifies the formal stratigraphic name, Rank, Status, Age Range, and Map Symbol from STRATLEX, AGSO's authority table for stratigraphic names which is derived from the Stratigraphic Lexicon.

Informal Name (INFORMAL) - Optional free-text field of 64 characters for an informal stratigraphic name.

Entered age (AGE) - Optional free-text field of 64 characters for the geological age (e.g., Proterozoic, Archaean).

Stratigraphic Height (STRATHEIGHT) - An integer of up to 8 digits indicating the height of the observation or sample above the base of the stratigraphic unit or some arbitrary stratigraphic datum. This field is typically used where a sample or observation scomes from a measured section or drill hole.

Upper Drill-Hole Depth (HOLEDEPTH) - A positive integer of up to 8 digits giving the down hole depth in metres from ground level to an observation or sample, or upper limit of a sample interval from a drill hole.

Lower Drill-Hole Depth (HOLEDEPTH2) - A positive integer of up to 8 digits giving the down hole depth in metres from ground level to an observation or sample, or lower limit of a sample interval from a drill hole.

Description (DESCRIPTION) - A 64-character optional field for a description of the lithology. If a lithology is sufficiently characterised by the previous fields, then this field should be used for additional descriptive information relating to the lithology.

Other Data (OTHERINFO) - A 64-character optional field that may be used for any data not covered by the above fields that the user feels are relevant.

2.4 – THE LITHDATA TABLE

The LITHDATA table, which has a many-to-one relationship with the ROCKS table, provides an extendable attribute system for the ROCKS table. All entries in LITHDATA are controlled by the LITHDATATYPES lookup table.

Description of fields (actual field names are listed in brackets).

Rockno (ROCKNO) - A unique sequential number which links attributes in the LITHDATA table to records in the ROCKS table.

Data Type (DATATYPE) - A mandatory field of up to 4 capital letters for an abbreviation pointing to a Data Type (attribute name) in the LITHDATATYPES authority table. Only data types already in the LITHDATATYPES table may be entered, but the same Data Type may be inserted more than once (e.g., a sample may exhibit two types of alteration).

Subtype (SUBTYPE) - A mandatory field of up to 4 capital letters for an abbreviation pointing to a subtype (value of an attribute) of a Data Type in the LITHDATATYPES table.

Description (DESCRIPTION) - An optional field of 64 characters for any additional descriptive information relating to the Data Type/Subtype record.

2.5 – THE RB_SR TABLES

The Rb-Sr tables embody the standard isochron method of Rb-Sr dating. Analysed samples may be from crushed whole rocks or mineral separates. Analytical results yield a pair of isotope ratios which can be plotted on the co-ordinates $^{87}Sr/^{86}Sr$ versus $^{87}Rb/^{86}Sr$. A suite of geologically related whole-rock samples should form a straight line, with the slope indicating the time since the rock system cooled beneath the strontium migration temperature, and the $^{87}Sr/^{86}Sr$ axis intercept giving the isotopic composition of the Sr (initial $^{87}Sr/^{86}Sr$ ratio) at that time. Data from a combination of a whole rock and its constituent minerals may provide data about the timing of a subsequent metamorphic event.

The Rb-Sr data are stored in two tables. The RB_SR table records analytical data on individual samples or separates. The blocks are linked by a Record Number, which indicates which analytical results belongs to any given pooled result. The RBSR_AGES table is for the 'pooled' age information derived from combined analytical results.

2.5(a) – THE RB_SR TABLE

Description of fields (actual field names are listed in brackets).

Record Number (AGE_POINTER) - Automatically generated. Points to the record number of a 'pooled result' in the RBSR_AGES table.

Analysis Number (ANALNO) - System-generated unique number. Determines the ordering of records in the form.

Order Number (ORDERNO) - Optional number for establishing the ordering of analytical results associated with a particular record number in the RBSR_AGES table.

Originator Number (ORIGNO) - When combined with the sample number forms a unique key to point to stratigraphic information in the ROCKS table. When combined with Sample Number in ROCKS, the Site ID can be identified and location and outcrop information can be obtained form the SITES and OUTCROPS table respectively.

Sample Number (SAMPNO) - When combined with the originator number forms a unique key to point to stratigraphic information in the ROCKS table. When combined with Originator Number in ROCKS, the Site ID can be identified and location and outcrop information can be obtained form the SITES and OUTCROPS table respectively.

Reference Number (REFNO) - Mandatory pointer to an existing reference in the REFERENCES Table.

Method Number (METHODNO) - Optional pointer to a description of the analytical method in the METHODS table.

Total Rock or Mineral (MINERAL) - Optional field of up to 16 characters for indicating the material analysed - 'whole rock' or the name of the separated mineral.

Rb ppm (RB_PPM) - Mass abundance of rubidium in parts per million.

Sr ppm (SR_PPM) - Mass abundance of strontium in parts per million.

$^{87}Rb/^{86}Sr$ (RB87SR86) - Calculated isotope ratio $^{87}Rb/^{86}Sr$.

$^{87}Sr/^{86}Sr$ (SR87SR86) - Observed isotope ratio $^{87}Sr/^{86}Sr$.

Comments (COMMENTS) - Optional 240-character field for any additional information.

2.5(b) – RBSR_AGES TABLE

Description of fields (actual field names are listed in brackets).

Record Number (RECNO) - System-supplied number. Links this table with analytical results in the RB_SR table.

MSWD(MSWD) - Mean square of weighted deviates.

Age (AGE) - The Rb-Sr isochron or model age expressed in Ma.

Standard Deviation (STD_DEVA) - Error in age at the 95% confidence level in Ma.

Initial Ratio (INIT_RATIO) - The isochron's intercept on the $^{87}Sr/^{86}Sr$ axis.

Standard Deviation (STD_DEVI) - Error in initial $^{87}Sr/^{86}Sr$ at the 95% confidence level.

Comments (COMMENTS) - Optional field of up to 240 characters for additional information and commentary on the geological significance of the results.

2.6 – CONVENTIONAL U-Pb DATA

There are two isotopic methods currently used which are based on the radioactive decay of uranium to lead: conventional and ion-microprobe (or SHRIMP) analysis. The conventional method involves chemical pre-treatment of a uranium-bearing mineral—commonly zircon—in amounts ranging from milligrams to a few grains, and reduction of the data using the 'Concordia' diagram, consisting of a Y axis = $^{206}Pb^*/^{238}U$ and an X axis = $^{207}Pb^*/^{235}U$. The asterisk in these relationships denotes the radiogenic component generated over the lifetime of the host mineral, a quantity obtained by subtracting the common Pb in proportion to the observed ^{204}Pb abundance. Conventionally, this contaminant is isotopically likened to the average Pb in the country rock, or to the ratios prescribed by the Pb growth curve most favoured by the author for Pb of the appropriate age.

A further complication is possible contamination in the laboratory during processing. Since there is an inevitable uncertainty about the isotopic character of the common Pb, the corrected concordia variables, and the consequent age estimates, are most reliable when the observed $^{206}Pb/^{204}Pb$ is large (~10,000).

The power of the Concordia treatment lies in the assumption that the present-day value of the ratio $^{238}U/^{235}U$ is a natural constant. This is true for most localities and for virtually all of the analysed samples in the database. However, one case is known of a "natural reactor" at Oklo, Gabon, West Africa. Here a mid-Proterozoic uranium accumulation in an old river bed "went critical", and a significant proportion of its ^{235}U was consumed.

Assumed constancy in the U ratio leads to a single, time-dependent exponential curve ("Concordia") which is the locus of all samples which have neither lost nor gained U or Pb in the time since zircon crystal formation. Loss of Pb (or gain of U) yields a point below Concordia. The converse, plotting above the curve, is less common. A suite of zircon fractions from the one sample, in which there is a range of Pb loss, defines a single line (Discordia), for which the upper intercept with Concordia corresponds with zero Pb loss and the age of crystal formation. Displacement along Discordia is related to the degree of loss.

There are several algorithms which describe such a line. The simplest permits a second, lower, intercept which may be related to the time of a second event associated with an "instantaneous" loss of the missing Pb. A chord joining sample point with the origin intercepts Concordia at the minimum possible age estimate for the host sample. There is yet another complication possible, arising from the inheritance of Pb from an earlier incarnation. This is discussed below under the SHRIMP data.

Conventional U-Pb data are stored on two forms. In the U_PB table, data from the individual minerals are stored, whilst in the UPB_AGES table, the results from the individual minerals are pooled. The U_PB table embodies a many-to-one relationship, as there are commonly a number of analyses that go to make up one pooled result stored in the UPB_AGES table.

2.6(a) – U_PB TABLE

Description of fields (actual field names are listed in brackets).

Record Number (RECNO) - System-supplied number, which is automatically generated. Points to the record number of a 'pooled result' in the UPB_AGES table.

Analysis Number (ANALNO) - System-generated unique number - the primary key.

Originator Number (ORIGNO) - When combined with the sample number forms a unique key to point to stratigraphic information in the ROCKS table. When combined with Sample Number in ROCKS, the Site ID can be identified and location and outcrop information can be obtained form the SITES and OUTCROPS table respectively.

Sample Number (SAMPNO) - When combined with the originator number forms a unique key to point to stratigraphic information in the ROCKS table. When combined with Originator Number in ROCKS, the Site ID can be identified and location and outcrop information can be obtained form the SITES and OUTCROPS table respectively.Originator **Number (ORIGNO)** - When combined with the sample number forms a unique key to point to locational and stratigraphic information in the SITES and ROCKS tables respectively.

Fraction (FRACTION) - Optional 16 character field for the analysed fraction of a sample.

Reference Number (REFNO) - Mandatory pointer to an existing reference in the References Table.

Method Number (METHODNO) - Optional pointer to a description of the analytical method in the Methods Table.

Weight (WEIGHT) - Sample weight in milligrams.

U in ppm (U_PPM) - Mass abundance of uranium in parts per million.

Pb in ppm (PB_PPM) - Mass abundance of lead in parts per million.

Radiogenic Pb in ppm (PBRAD_PPM) - Optional. Calculated mass abundance of radiogenic lead in parts per million—after correction for common lead.

Pb^{206}/Pb^{204} Measured (PB206PB204) - Optional. Measured $^{206}Pb/^{204}Pb$ ratio. An indicator of the amount of common lead contamination.

$^{206}Pb^*$ in ppm (PB206RAD) - Optional. Mass abundance of radiogenic ^{206}Pb in parts per million.

$^{207}Pb^*$ in ppm (PB207RAD) - Optional. Mass abundance of radiogenic ^{207}Pb in parts per million.

$^{208}Pb^*$ in ppm (PB208RAD) - Optional. Mass abundance of radiogenic ^{208}Pb in parts per million.

$^{207}Pb^*/^{206}Pb^*$ (PB207PB206) - Optional. Atomic ratio of radiogenic ^{207}Pb and ^{206}Pb.

$^{206}Pb^*/^{238}U$ (PB206U238) - Optional. Atomic ratio of radiogenic ^{206}Pb to parent ^{238}U - ordinate of Concordia diagram.

$^{207}Pb^*/^{235}U$ (PB207U235) - Optional. Atomic ratio of radiogenic ^{207}Pb to parent ^{235}U - abscissa of Concordia diagram.

Minimum $^{207}Pb^*/^{206}Pb^*$ Age (MIN76_AGE) - Optional. Minimum Pb-Pb age in Ma derived from the slope of the chord from origin to sample point. This age is also given by the intercept of this chord on Concordia.

Standard Deviation (STD_DEV1) - Optional. The 67% error limits of the minimum age estimate in Ma.

$^{206}Pb^*/^{238}U$ Age (AGE206_238) - Optional. Age in Ma derived from the ratio $^{206}Pb^*/^{238}U$.

Standard Deviation (STD_DEV2) - Optional. 67% error limits of the $^{206}Pb^*/^{238}U$ age in Ma.

$^{207}Pb^*/^{235}U$ Age (AGE207_235) - Optional. Age in Ma derived from the ratio $^{207}Pb^*/^{235}U$.

Standard Deviation (STD_DEV3) - Optional. 67% error limits to the $^{207}Pb^*/^{235}U$ age in Ma.

$^{208}Pb^*/^{232}Th$ Age (AGE208_232) - Optional. Age in Ma calculated from ratio $^{208}Pb^*/^{232}Th$.

Standard Deviation (STD_DEV4) - Optional. 67% error limits to the $^{208}Pb^*/^{232}Th$ age in Ma.

Comments (COMMENTS) - Optional field of up to 240 characters for additional information.

2.6(b) – UPB_AGES TABLE

Description of fields (actual field names are listed in brackets).

Record Number (RECNO) - System-supplied number, which is automatically generated. Links this table with analytical results in the U_PB table.

MSWD (MSWD) - Mean square of weighted deviates.

Age (AGE) - Pooled age expressed in Ma. Commonly deduced from the upper intercept of the discordia line with Concordia, or from pooled $^{207}Pb/^{206}Pb$ data.

2SD (STD_DEVA) - Optional 95% confidence level standard deviation in Ma.

Lower Intercept (LI_AGE) - Age in Ma indicating the time of Pb-loss allowed for in the simplest model, i.e., the lower intercept of the discordia line with Concordia.

2SD (STD_DEVI) - Optional 95% confidence level standard deviation in Ma.

Comments (COMMENTS) - Optional field of up to 240 characters for additional information or a commentary on the geological significance of the age result.

2.7 – THE U-Pb 'SHRIMP' DATA TABLES

These tables are used for U-Pb data obtained from the sensitive high-resolution ion microprobe (SHRIMP). The calculations are similar to those described above under the conventional U-Pb Minerals Form. The difference is that polished sections of individual grains are analysed *in situ*. The primary beam of oxygen ions is focussed to a spot about 30 microns in diameter and multiple analyses of a single grain are possible. Distinctions can thus be drawn between older cores of mineral grains and later material forming the rims.

The SHRIMP table has a many-to-one structure similar to the U_PB table. The originator number and sample number, however, are located in the SHRIMP_AGES table, as one rock sample is usually associated with multiple spot analyses.

2.7(a) – SHRIMP TABLE

Description of fields (actual field names are listed in brackets).

Record Number (RECNO) - Automatically generated. Points to a record number in the SHRIMP_AGES table.

Analysis Number (ANALNO) - System-generated unique number - the primary key.

Laboratory Number (LABNO) - Optional 16-character field for laboratory identification, as distinct from field sample numbering.

Grain Number (GRAINO) - Optional 16-character field for identifying a particular mineral grain on the sample mounting.

Spot Number (SPOTNO) - Optional 16-character field for identifying a spot analysis amongst several on a single mineral grain.

Order Number (ORDERNO) - Optional number for establishing the ordering of analytical results associated with a particular SHRIMP_AGES record number.

Reference Number (REFNO) - Mandatory pointer to an existing reference in the REFERENCES Table.

U in ppm (U_PPM) - Mass abundance of uranium in parts per million.

Th in ppm (TH_PPM) - Mass abundance of thorium in parts per million.

Th/U (TH_OVER_U) - Calculated weight ratio of thorium to uranium.

^{204}Pb in ppm (PB204_PPM) - Calculated mass abundance of ^{204}Pb.

^{206}Pb/^{204}Pb Measured (PB206PB204) - Measured ^{206}Pb/^{204}Pb ratio.

f% (F_PCT) - Percentage of common ^{206}Pb in measured ^{206}Pb.

^{207}Pb*/^{206}Pb* (PB207PB206) - Atomic ratio of radiogenic isotopes ^{207}Pb and ^{206}Pb after correction for common lead.

Standard Deviation (STD_DEV1) - The 67% error limits in the ^{207}Pb*/^{206}Pb* ratio.

$^{208}Pb^*/^{206}Pb^*$ (PB208PB206) - Atomic ratio of radiogenic isotopes ^{208}Pb and ^{206}Pb after correction for common lead.

Standard Deviation (STD_DEV2) - The 67% error limits in the $^{208}Pb^*/^{206}Pb^*$ ratio.

$^{206}Pb^*/^{238}U$ (PB206U238RAD) - Atomic ratio of radiogenic $^{206}Pb^*$ to parent ^{238}U - ordinate of Concordia diagram.

Standard Deviation (STD_DEV3) - The 67% error limits in the $^{206}Pb^*/^{238}U$ ratio.

$^{207}Pb^*/^{235}U$ (PB207U235RAD) - Atomic ratio of radiogenic $^{207}Pb^*$ to parent ^{235}U - abscissa of Concordia diagram.

Standard Deviation (STD_DEV4) - The 67% error limits in the $^{207}Pb^*/^{235}U$ ratio.

$^{208}Pb^*/^{232}Th$ (PB208TH232RAD) - Atomic ratio of radiogenic $^{208}Pb^*$ to parent ^{232}Th.

Standard Deviation (STD_DEV5) - The 67% error limits in the $^{208}Pb^*/^{232}Th$ ratio.

Minimum $^{207}Pb^*/^{206}Pb^*$ Age (MIN76_AGE) - Minimum $^{207}Pb^*/^{206}Pb^*$ age in Ma derived from the slope of the chord from origin to sample point. This age is also given by the intercept of this chord on Concordia.

Standard Deviation (STD_DEV6) - The 67% error limits of the minimum age estimate in Ma.

206/238 Age (AGE206_238) - Age in Ma derived from from the ratio $^{206}Pb^*/^{238}U$.

207/235 Age (AGE207_235) - Age in Ma derived from the ratio $^{207}Pb^*/^{235}U$.

208/232 Age (AGE208_232) - Age in Ma calculated from ratio $^{208}Pb^*/^{232}Th$.

Comments (COMMENTS) - Optional field of up to 240 characters for additional information.

2.7(b) SHRIMP_AGES TABLE

Description of fields (actual field names are listed in brackets).

Record Number (RECNO) - System-supplied number, which is automatically generated. Links this table with analytical results in the SHRIMP table

Originator Number (ORIGNO) - When combined with the sample number forms a unique key to point to stratigraphic information in the ROCKS table. When combined with Sample Number in ROCKS, the Site ID can be identified and location and outcrop information can be obtained form the SITES and OUTCROPS table respectively.

Sample Number (SAMPNO) - When combined with the originator number forms a unique key to point to stratigraphic information in the ROCKS table. When combined with Originator Number in ROCKS, the Site ID can be identified and location and outcrop information can be obtained form the SITES and OUTCROPS table respectively.

Age (AGE) - Pooled age expressed in Ma. Deduced from the upper intercept of the discordia line with Concordia.

2 Standard Deviations (STD_DEVA) - 95% confidence level standard deviation on the pooled age in Ma.

Lower Intercept (LI_AGE) - Age in Ma indicating the time of Pb-loss allowed for in the simplest model - i.e. the lower intercept of the discordia line with Concordia.

2 Standard Deviations (STD_DEVI) - 95% confidence level standard deviation on the lower intercept age in Ma.

Comments (COMMENTS) - Optional field of up to 240 characters for additional information, or commentary on the geological significance of the age result.

Section 3—Description of the Authority Tables

Note: the authority tables are listed in alphabetical order. Full listings of the entries in the more commonly used authority tables are also given.

3.1 AGSOCOUNTRIES AUTHORITY TABLE

This table is for recognised countries. All have an associated ID.

Countryid	Countryname
ANT	Antarctica
AUS	Australia
INA	Indonesia
INT	International Waters
NZL	New Zealand
PNG	Papua New Guinea
SOL	Solomon Islands

3.2 AGSOSTATES AUTHORITY TABLE

This table is for states of Australia only and all have a set ID.

Stateid	Statename
ACT	Australian Capital Territory
NSW	New South Wales
NT	Northern Territory
QLD	Queensland
SA	South Australia
TAS	Tasmania
VIC	Victoria
WA	Western Australia

3.3 GEOPROVS AUTHORITY TABLE

This authority table is for geological provinces, subprovinces and domains. Granitic batholiths are listed as domains.

Province Number (PROVNO) - A mandatory integer of up to 3 digits. This is the primary key for the GEOPROVS table.

Province Name (PROVNAME) - A 64 character field for the name of the geological province, subprovince, or domain.

Province-ID (PROVLETS) - A 3 character ID to be plotted on maps to identify the geological province.

Type (TYPE) - A character field indicating if the province, subprovince, or domain is a basin, or batholith.

Rank of Province (RANKNAME) - A character field indicating if the provname is a geological province, subprovince, or domain.

Status of the unit (STATUSNAME) - A character field indicating the status of the unit. Informal, revised, etc.

Parent (PARENT) - A 3 digit integer for the parent unit of the subprovince or domain. The parent unit represented by the integer is another entry in the GEOPROVS table.

Geodx Reference (GEODX_REF) - An integer that links to AGSO's GEODX Stratigraphic Index database. Informal units in STRATLEX that have not come from GEODX do not have an entry in this field.

Commnets (COMMENTS) - A free text field for any comments pertaining to the province.

User-id (USERID) - A 8 character field for the userid of the person who entered or updated the record in the table.

Last Changed (LASTCHANGED) - A date field showing the date of last update of the table.

Location of province - The following 4 fields are the longitudes and latitudes of a 4-sided polygon surrounding the area of the geological province. This polygon indicates of the geographic location of the geological province.

ELON - Most easterly longitude

WLON - Most westerly longitude

TLAT - Most northerly (or top) latitude

BLAT - Most southerly or (bottom) latitude

Coordinates (COORDS) - A field for the digitised boundary of the geological province.

The following are permissible entries in the GEOPROVS authority table.

PROVNO	PROVNAME	RANKNAME	PARENT
0	unknown		
1	Adavale Basin	Province	
2	Adelaide Fold Belt	Province	
3	Albany-Fraser Province	Province	
4	Amadeus Basin	Province	
5	Arafura Basin	Province	
6	Arckaringa Basin	Province	
7	Arnhem Block	Province	
8	Arrowie Basin	Province	
9	Arunta Block	Province	
10	Bancannia Trough	Province	
11	Bangemall Basin	Province	
12	Birrindudu Basin	Province	
13	Bonaparte Basin	Province	
14	Bowen Basin	Province	
15	Bremer Basin	Province	
16	Broken Hill Block	Province	
17	Canning Basin	Province	
18	Cape York-Oriomo Inlier	Province	
19	Carnarvon Basin	Province	
20	Carpentaria Basin	Province	
21	Clarence-Moreton Basin	Province	
22	Coen Block	Province	
23	Cooper Basin	Province	
24	Daly River Basin	Province	
25	Darling Basin	Province	
26	Davenport Geosyncline	Province	
27	Denison Block	Province	
28	Drummond Basin	Province	
29	Duaringa Basin	Province	
30	Dundas Trough	Province	
31	Eromanga Basin	Province	
32	Esk Trough	Province	
33	Eucla Basin	Province	
34	Galilee Basin	Province	
35	Gascoyne Block	Province	
36	Gawler Block	Province	
37	Georgetown Block	Province	
38	Georgina Basin	Province	
39	Gippsland Basin	Province	
40	Halls Creek Province	Province	
41	Hamersley Basin	Province	
42	Hillsborough Basin	Province	
43	Hodgkinson Fold Belt	Province	
44	Kanmantoo Fold Belt	Province	
45	Karumba Basin	Province	
46	Kimberley Basin	Province	
47	Lachlan Fold Belt	Province	
48	Laura Basin	Province	
49	Leeuwin Block	Province	
50	Litchfield Block	Province	
51	Maryborough Basin	Province	
52	McArthur Basin	Province	
53	Money Shoal Basin	Province	
54	Mount Isa Inlier	Province	
55	Mount Painter Block	Province	
56	Murphy Inlier	Province	
57	Murray Basin	Province	

PROVNO	PROVNAME	RANKNAME	PARENT
58	Musgrave Block	Province	
59	Nabberu Basin	Province	
60	New England Fold Belt	Province	
61	Ngalia Basin	Province	
62	Northhampton Block	Province	
63	Oaklands Basin	Province	
64	Officer Basin	Province	
65	Ord Basin	Province	
66	Otway Basin	Province	
67	Paterson Province	Province	
68	Pedirka Basin	Province	
69	Perth Basin	Province	
70	Pilbara Block	Province	
71	Pine Creek Geosyncline	Province	
72	Polda Basin	Province	
73	Rocky Cape Block	Province	
74	Rum Jungle Block	Province	
75	South Nicholson Basin	Province	
76	Stansbury Basin	Province	
77	Stuart Shelf	Province	
78	St Vincent Basin	Province	
79	Styx Basin	Province	
80	Surat Basin	Province	
81	Sydney Basin	Province	
82	Sylvania Dome	Province	
83	Tasmania Basin	Province	
84	Tennant Creek Block	Province	
85	Granites-Tanami Block	Province	
86	Torrens Basin	Province	
87	Tyenna Block	Province	
88	Victoria River Basin	Province	
89	Warburton Basin	Province	
90	Wiso Basin	Province	
91	Wonominta Block	Province	
92	Yambo Block	Province	
93	Yilgarn Block	Province	
94	Eastern Goldfields Province	Sub-province	93
95	Southern Cross Province	Sub-province	93
96	Eastern Fold Belt	Sub-province	54
97	Cloncurry-Selwyn Zone	Domain	96
99	East Kimberley	Sub-province	46
100	North Kimberley	Sub-province	46
101	West Kimberley	Sub-province	46
120	Murchison Province	Sub-province	93
121	Western Gneiss Terrane	Sub-province	93
122	Mendlyarri Batholith	Domain	94
123	Boorabbin Batholith	Domain	94
124	Boyce Batholith	Domain	94
126	Northern Province	Sub-province	9
127	Central Province	Sub-province	9
128	Southern Province	Sub-province	9
129	Chewings Zone	Domain	128
130	Redbank Thrust Zone	Domain	127
131	Halls Creek Inlier	Sub-province	40
132	King Leopold Inlier	Sub-province	40
133	Batten Trough	Sub-province	52
134	Bauhinia Shelf	Sub-province	52
135	Wearyan Shelf	Sub-province	52

PROVNO	PROVNAME	RANKNAME	PARENT
136	Arnhem Shelf	Sub-province	52
137	Caledon Shelf	Sub-province	52
138	Urapunga Tectonic Ridge	Sub-province	52
139	Walker Trough	Sub-province	52
141	Kalkadoon-Leichhardt Belt	Sub-province	54
142	Western Fold Belt	Sub-province	54
143	Mary Kathleen Zone	Domain	96
144	Quamby-Malbon Zone	Domain	96
145	Lawn Hill Platform	Domain	142
146	Leichhardt River Fault Trough	Domain	142
147	Ewen Block	Domain	142
148	Myally Shelf	Domain	142
149	Bass Strait Batholith	Domain	47
150	Bathurst Batholith	Domain	47
151	Bega Batholith	Domain	47
152	Berridale Batholith	Domain	47
153	Blue Tier Batholith	Domain	47
154	Bonang Batholith	Domain	47
155	Central Victorian Batholith	Domain	47
156	Cooma Batholith	Domain	47
157	Corryong Batholith	Domain	47
158	Furneaux Batholith	Domain	47
159	Gabo Island Batholith	Domain	47
160	Gingera Batholith	Domain	47
161	Grenfell Batholith	Domain	47
162	Gulgong Batholith	Domain	47
163	Kosciusko Batholith	Domain	47
164	Maragle Batholith	Domain	47
165	Marulan Batholith	Domain	47
166	Moruya Batholith	Domain	47
167	Murrumbidgee Batholith	Domain	47
168	Oberon Batholith	Domain	47
169	Promontory Batholith	Domain	47
170	Scottsdale Batholith	Domain	47
171	Taswegia Batholith	Domain	47
172	Tumut Batholith	Domain	47
173	Wagga Batholith	Domain	47
174	Western Victoria Batholith	Domain	47
175	Wologorong Batholith	Domain	47
176	Wyangala Batholith	Domain	47
177	Yeoval Batholith	Domain	47
178	Young Batholith	Domain	47
179	Big Toby Batholith	Domain	142
181	Ewen Batholith	Domain	142
182	Kalkadoon Batholith	Domain	141
183	Naraku Batholith	Domain	96
184	Sybella Batholith	Domain	142
185	Weberra Batholith	Domain	142
186	Williams Batholith	Domain	96
187	Wonga Batholith	Domain	141
188	Coen Subprovince	Sub-province	22
189	Georgetown Inlier	Sub-province	37
190	Cape York Peninsula Batholith	Domain	211
191	Cape York Plutonic Belt	Province	
192	Broken River Province	Province	
193	North Queensland Igneous Province	Province	
195	Drummond Carboniferous-Permian Subprovince	Sub-province	193
196	Broken River Carboniferous-Permian Subprovince	Sub-province	193

PROVNO	PROVNAME	RANKNAME	PARENT
197	Hodgkinson Carboniferous-Permian Subprovince	Sub-province	193
198	Ravenswood Carboniferous-Permian Subprovince	Sub-province	193
200	Connors Arch Subprovince	Sub-province	60
201	Croydon Block	Sub-province	37
202	Dargalong Inlier	Sub-province	37
203	Greenvale Subprovince	Sub-province	192
204	Lolworth-Ravenswood Block	Province	
205	Einasleigh Siluro-Devonian Subprovince	Sub-province	191
207	Georgetown Carboniferous-Permian Subprovince	Sub-province	193
208	Croydon Cauldron	Domain	207
209	Featherbed Cauldron Complex	Domain	197
210	Woolgar Inlier	Domain	207
211	Coen Siluro-Devonian Subprovince	Sub-province	191
212	Georgetown Siluro-Devonian Subprovince	Sub-province	191
213	Coen Carboniferous-Permian Subprovince	Sub-province	193
214	Einasleigh Carboniferous-Permian Subprovince	Sub-province	193
215	Einasleigh Region	Sub-province	37
216	Darling Range Batholith	Domain	121
217	Mount Sterling Batholith	Domain	94
218	Raeside Batholith	Domain	94
219	Lolworth Subprovince	Sub-province	220
220	Thompson Fold Belt	Province	
221	Ravenswood (Ordovician) Subprovince	Sub-province	220
222	Ravenswood Siluro-Devonian Subprovince	Sub-province	191
224	Coolgarra Batholith	Domain	197
225	Copperfield Batholith	Domain	212
226	Esmeralda Batholith	Domain	201
227	Forsayth Batholith	Domain	189
228	Glenmore Batholith	Domain	215
229	Lolworth Batholith	Domain	219
230	Mossman Batholith	Domain	197
231	Mount Storth Batholith	Domain	200
232	Northern Tate Batholith	Domain	197
233	Ravenswood Batholith	Domain	198
234	Robin Hood Batholith	Domain	212
235	Urannah Batholith	Domain	200
236	White Springs Batholith	Domain	212
238	Burnside Batholith	Domain	3
239	Chiratta Batholith	Domain	70
240	Mount Edgar Batholith	Domain	70
241	Cullen Batholith	Domain	71
242	Litchfield Batholith	Domain	71
243	Landor Batholith	Domain	111
244	Minnie Creek Batholith	Domain	111
245	Mount Marquis Batholith	Domain	111
246	Dido Batholith	Domain	205
266	Dumbano Batholith	Domain	37
267	Cumbana Batholith	Domain	37
268	Ingham Batholith	Domain	43
269	Tully Batholith	Domain	43
270	Malbon-Thompson Batholith	Domain	43
271	Tinaroo Batholith	Domain	43
272	Mareeba Batholith	Domain	43
273	Windsor Batholith	Domain	43
274	Thornton Batholith	Domain	43
275	Finlayson Batholith	Domain	43
276	Tate Batholith	Domain	43
277	Kelly Saint George Batholith	Domain	43
278	Bellenden Ker Batholith	Domain	43

3.4 GEOTIME AUTHORITY TABLE

This authority table is for geological time.

Age Number (AGENO) - A mandatory integer of up to 4 digits automatically allocated by the system.

Age Name (AGENAME) - Mandatory field of 32 characters for the name of the geological age or time term - e.g. 'Permian'.

Rank (RANKNAME) - Mandatory character field indicating the Rank of the time term. The current rank terms are as follows-

Name
Eon
Erathem
Period
Epoch
Series
Stage
Substage

Scope (SCOPE) - Mandatory character field indicating the Scope of the time term - i.e., to what regions does the term apply. For example, the Australian Ordovician Stage names are also used in new Zealand, so the Scope Description is given as Australasian. The following values are currently valid timescopes -

Description
International
Australia
Australasia
New Zealand
United Kingdom
North America
China

Status (STATUSNAME) -Mandatory chatacter field pointing to the Status of a time term. There are only three Time status descriptions at present-

Description
Current
Obsolete
Deleted

Parent (PARENT) - An integer of up to 4 digits that points to the Age Number of the term next higher in Rank in the GEOTIME table. For example, the parent age for the Ordovician Period is the Palaeozoic Era.

Youngest Absolute Age Boundary (YNGBOUND) - Absolute youngest age of the geologic time term.

Oldest Absolute Age Boundaries (OLDBND) - Absolute oldest age of the geologic time term.

Comments (COMMENTS) - Optional field for entering any additional comments.

GEODX Reference ID (GEODID) - Up to 6 characters for the GEODX Reference ID of the primary reference to the time term. This is usually the most authoritative reference to the absolute age boundaries of the unit.

Last Altered (LASTALT) -Date field in which the current date is automatically inserted whenever a new record is entered or an old one updated.

3.5 HMAPS AUTHORITY TABLE

The HMAPS table is an authority table for 1:100 000 Map sheet areas.

Description of fields (actual field names are listed in brackets).

1:100 000 Map Number (HMAPNO) - The unique four digit number for any 1:100 000 map sheet from Australia.

1:000 000 Map ID (MMAPID) - The 1:1 000 000 map sheet in which the 1:100 000 sheet lies. This is identified by two capital letters followed by two numbers, e.g., 'SF54'. The two digits are the UTM zone, which is needed to convert metric references to latitude and longitude.

1:250 000 Map Number (QMAPNO) - Up to 2 digits identifying the 1:250 000 map sheet from 16 covering each 1:1 000 000 map area. The full 1:250 000 map ID is obtained by joining the 1:1 000 000 map ID to this number, e.g., SF54-12, which is the Winton 1:250 000 map sheet in Queensland. Note that the 1:250 000 map sheets in Tasmania are the theoretical ones, not the shifted ones actually published.

1:100 000 Map Name (HMAPNAME) - up to 22 upper case characters for the name of the 1:100 000 map sheet identified by the 1:100 000 Map Number. There are many offshore sheets which are named 'UNNAMED'.

1:100 000 Map NW Corner Latitude (N_LAT) - The decimal latitude of the northwest corner of the 1:100 000 map sheet.

1:100 000 Map NW Corner Longitude (W_LONG) - The decimal longitude of the northwest corner of the 1:100 000 map sheet.

1:100 000 AMG Grid Reference SW Corner Easting (MEAST) - The metric easting of the southeast corner of the 1:100 000 map sheet.

1:100 000 AMG Grid Reference SW Corner Northing (MNORTH) - The metric northing of the southeast corner of the 1:100 000 map sheet.

3.6 LANDF AUTHORITY TABLE

This is the authority table for landforms.

L_CODE	L_DESC
CO00	coastal lands
CO01	beach ridge plain
CO02	chenier plain
CO03	coral reef
CO04	marine plain
CO05	tidal flat
CO06	coastal dunes
DE00	delta
DU00	dunefield
ER00	erosional landforms
ER10	erosional plain
ER11	pediment
ER12	pediplain
ER13	peneplain
ER20	rises
ER30	low hills
ER40	hills
FA00	fan
FA01	alluvial fan
FA02	colluvial fan
FA03	sheet-flood fan
PL00	plain
PL01	depositional plain
PL02	lacustrine plain
PL03	playa plain
AL00	alluvial landforms
AL10	alluvial plain
AL11	flood plain
AL12	anastomatic plain
AL13	bar plain
AL14	covered plain
AL30	stagnant alluvial plain
AL40	terraced land
AL20	alluvial terrace
VO00	volcano
VO01	caldera
VO02	cone (volcanic)
VO03	lava plain
VO04	ash plain
PT00	plateau
KA00	karst
MA00	made land
ME00	meteor crater
ER50	mountains
ER60	escarpment
ER70	badlands
AL15	meander plain
ER14	etchplain
PL04	sand plain
AL50	alluvial swamp
DU01	longitudinal dune field
ER80	drainage depression
ER21	residual rise
ER31	residual low hill
PT01	plateau edge
PT02	plateau surface
CO07	coastal plain
AL16	floodout
VO05	lava flow
VO05	lava plateau

3.7 LITHDATATYPES AUTHORITY TABLE

This is the authority table for lithdatatypes. Note only datatypes are listed. Each data type has many subtypes.

DATATYPE	TYPEDESC
ALT	Alteration
BED	Bedding Thickness
CM	Common Mineral
COH	Coherence
COL	Colour
FOS	Fossil
GS	Grain Size
IS	Internal Stratification
ITX	Igneous Texture
MAG	Magnetic sus. (SI Units x 10^{-5})
MET	Metamorphic Grade
MI	Mineral
MTX	Metamorphic Texture
RAD	Gamma Ray Spectrometry (cps)
SEQ	Sequence Types
SOR	Sorting
SP	Sample Provenance
SPH	Sphericity
SS	Sedimentary Structures
ST	Sample Type
STX	Sedimentary Texture
TEC	Tectonic Features
WEA	Weathering

3.8 LITHNAME AUTHORITY TABLE

This is the authority table on lithological names. Note only data types are listed. Each data type has many subtypes.

LITHID	Q	LITHNAME	PARENT
IGNEOUS ROCKS			
ADS	**I**	**adakite**	
ANT	**I**	**andesite**	
BAD	I	basaltic andesite	ANT
BTA	I	basaltic trachyandesite	ANT
BMT	I	benmoreite	ANT
MUG	I	mugearite	ANT
SHT	I	shoshonite	ANT
TYA	I	trachyandesite	ANT
ANS	**I**	**anorthosite**	
FAN	I	foid-bearing anorthosite	ANS
QZA	I	quartz anorthosite	ANS
APL	**I**	**aplite**	
ASH	**I**	**ash**	
XLA	I	crystal ash	ASH
LAS	I	lithic ash	ASH

VAS	I	vitric ash	ASH
BLT	**I**	**basalt**	
HWT	I	hawaiite	BLT
PBT	I	picrobasalt	BLT
PTB	I	potassic trachybasalt	BLT
TYB	I	trachybasalt	BLT
BSN	I	basanite	
LBG	I	limburgite	BSN
PBS	I	phonolitic basanite	BSN
BON	I	boninite	
CBT	**I**	**carbonatite**	
CCT	I	calciocarbonatite	CBT
FCT	I	ferrocarbonatite	CBT
MCT	I	magnesiocarbonatite	CBT
CHR	**I**	**charnockite**	
OFG	I	opx alkali feldspar granite	CHR
OFS	I	opx alkali feldspar syenite	CHR
ODT	I	opx diorite = norite	CHR
OGT	I	opx granite = charnockite	CHR
OGD	I	opx granodiorite = opdalite	CHR
OMZ	I	opx monzonite = mangerite	CHR
OST	I	opx syenite	CHR
OTT	I	opx tonalite = enderbite	CHR
CHT	**I**	**chromitite**	
DAC	**I**	**dacite**	
RHD	I	rhyodacite	DAC
TYD	I	trachydacite	DAC
DRT	**I**	**diorite**	
FDR	I	foid-bearing diorite	DRT
FDI	I	foid-diorite	DRT
QZD	**I**	**quartz diorite**	DRT
EPC	**I**	**epiclastic**	
VBX	I	volcanic breccia	EPC
VCG	I	volcanic conglomerate	EPC
VMD	I	volcanic mudstone, shale	EPC
VSD	I	volcanic sandstone	EPC
VST	I	volcanic siltstone	EPC
FNT	**I**	**fenite**	
FDT	**I**	**foidite**	
ANL	I	analcimite	FDT
FGS	I	fergusite	FDT
LCT	I	leucitite	FDT
MLG	I	melteigite	FDT
NPH	I	nephelinite	FDT
PFD	I	phonolitic foidite	FDT
SDT	I	sodalitite	FDT
TFD	I	tephritic foidite	FDT
FDL	**I**	**foidolite**	
IJL	I	ijolite	FDL

MSS	I	missourite	FDL
NLL	I	nephelinolite	FDL
URT	I	urtite	FDL
GAB	**I**	**gabbro**	
AGB	I	analcime gabbro = teschenite	GAB
CPN	I	clinopyroxene norite	GAB
DLT	I	dolerite	GAB
FGB	I	foid gabbro	GAB
FBG	I	foid-bearing gabbro	GAB
GBN	I	gabbronorite	GAB
HDG	I	hornblende gabbro	GAB
NGB	I	nepheline gabbro = theralite	GAB
NRT	I	norite	GAB
OPN	I	orthopyroxene norite	GAB
QGB	I	quartz gabbro	GAB
TTL	I	troctolite	GAB
GRT	**I**	**granite**	
AFG	I	alkali feldspar granite	GRT
MZG	I	monzogranite	GRT
SYG	I	syenogranite	GRT
GRD	**I**	**granodiorite**	
HBT	**I**	**hornblendite**	
OHT	I	olivine hornblendite	HBT
PHD	I	plagioclase-bearing hornblendite	HBT
PHT	I	pyroxene hornblendite	HBT
KBL	**I**	**kimberlite**	
KTT	**I**	**komatiite**	
LPR	**I**	**lamproite**	
LPY	**I**	**lamprophyre**	
ALN	I	alnoite	LPY
CMP	I	camptonite	LPY
KZT	I	kerzantite	LPY
MNT	I	minette	LPY
MCQ	I	monchiquite	LPY
PLZ	I	polzenite	LPY
SAN	I	sannaite	LPY
SPT	I	spessartite	LPY
VGT	I	vogesite	LPY
LTT	**I**	**latite**	
FLT	I	foid-bearing latite	LTT
QZL	I	quartz latite	LTT
MCH	**I**	**meimechite**	
MLT	**I**	**melilitite**	
MPD	I	melilite-bearing peridotite	MLT
MPT	I	melilite-bearing pyroxenite	MLT
MUV	I	melilite-bearing ultramafic volc	MLT
OMT	I	olivine melilitite	MLT

MLL	**I**	**melilitolite**	
OML	I	olivine melilitolite	MLL
PML	I	pyroxene melilitolite	MLL
POM	I	pyroxene olivine melilitolite	MLL
MZB	**I**	**monzogabbro**	
FMB	I	foid monzogabbro	MZB
FMG	I	foid-bearing monzogabbro	MZB
NMG	I	nepheline monzogabbro = essexite	MZB
MZD	**I**	**monzodiorite**	
FMZ	I	foid monzodiorite	MZD
FMD	I	foid-bearing monzodiorite	MZD
MSK	I	miaskite	MZD
NMD	I	nepheline monzodiorite = essexit	MZD
SMD	I	sodalite monzodiorite	MZD
MZT	**I**	**monzonite**	
FBM	I	oid-bearing monzonite	MZT
QZM	I	quartz monzonite	MZT
OBS	**I**	**obsidian**	
OPL	**I**	**ophiolite**	
PER	**I**	**peridotite**	
DUN	I	dunite	PER
HZB	I	harzburgite	PER
LHZ	I	lherzolite	PER
PHP	I	pyroxene hornblende peridotite	PER
PPD	I	pyroxene peridotite	PER
WHL	I	wehrlite	PER
PNT	**I**	**phonolite**	
TPL	I	tephritic phonolite	PNT
PCT	**I**	**picrite**	
PHY	**I**	**porphyry**	
PRX	**I**	**pyroxenite**	
CPT	I	clinopyroxenite	PRX
OCP	I	olivine clinopyroxenite	PRX
OHP	I	olivine hornblende pyroxenite	PRX
OOP	I	olivine orthopyroxenite	PRX
OWT	I	olivine websterite	PRX
OPT	I	orthopyroxenite	PRX
PPX	I	plagioclase-bearing pyroxenite	PRX
WEB	I	websterite	PRX
PYC	**I**	**pyroclastic**	
AGL	I	agglomerate	PYC
PBX	I	pyroclastic breccia	PYC
TBX	I	tuffaceous breccia	PYC
TCG	I	tuffaceous conglomerate	PYC
SMS	I	tuffaceous mudstone	PYC
TSS	I	tuffaceous sandstone	PYC
TST	I	tuffaceous siltstone	PYC
TFT	I	tuffite	PYC

QZG	**I**	**quartz-rich granitoid**	
QTE	I	quartzolite	QZG
RHY	**I**	**rhyolite**	
AFR	I	alkali feldspar rhyolite	RHY
COM	I	comendite	RHY
PTT	I	pantellerite	RHY
PKR	I	peralkaline rhyolite	RHY
SPL	**I**	**spilite**	
SYN	**I**	**syenite**	
AFS	I	alkali feldspar syenite	SYN
FFS	I	foid-bearing alkali feldspar sye	SYN
FSY	I	foid-bearing syenite	SYN
NSY	I	nepheline syenite	SYN
QAS	I	quartz alkali feldspar syenite	SYN
QZS	I	quartz syenite	SYN
SHK	I	honkinite	SYN
SSY	I	sodalite syenite	SYN
TPH	**I**	**tephra**	
BTH	I	bomb, block tephra	TPH
CAS	I	coarse ash	TPH
FAS	I	fine ash	TPH
LPH	I	lapilli tephra	TPH
TPT	**I**	**tephrite**	
PTR	I	phonolitic tephrite	TPT
TNL	**I**	**tonalite**	
TDJ	I	trondhjemite	TNL
TRC	**I**	**trachyte**	
AFT	I	alkali feldspar trachyte	TRC
ATR	I	alkali trachyte	TRC
FAT	I	foid-bearing alkali feldspar tra	TRC
FTR	I	foid-bearing trachyte	TRC
QTY	I	quartz trachyte	TRC
TUF	**I**	**tuff**	
XLT	I	crystal tuff	TUF
IGM	I	ignimbrite	TUF
LPT	I	lapilli tuff	TUF
LTF	I	lithic tuff	TUF
VTF	I	vitric tuff	TUF

METAMORPHIC ROCKS

AMP	M	amphibolite
EGL	M	eclogite
GNS	M	gneiss
GFL	M	granofels
GRN	M	granulite
GST	M	greenstone
GRS	M	greisen
HFL	M	hornfels

MBL	M	marble	
MTS	M	metasomatite	
MIG	M	migmatite	
MYL	M	mylonite	
PHL	M	phyllite	
QZT	M	quartzite	
SCH	M	schist	
SKN	M	skarn	
SLA	M	slate	

SEDIMENTARY ROCKS

CBNR	**S**	**carbonaceous rock**	
CBRK	**S**	**carbonate rock**	
AGLS	S	algal limestone	CBRK
BIOC	S	biocarbonate	CBRK
BIOM	S	biomicrite	CBRK
BIOS	S	biosparite	CBRK
BDST	S	boundstone	CBRK
CRNL	S	carnieule	CBRK
CHLK	S	chalk	CBRK
CQNA	S	coquina	CBRK
DOLL	S	dolomitic limestone	CBRK
DLST	S	dolostone	CBRK
GNST	S	grainstone	CBRK
GPST	S	grapestone	CBRK
LMST	S	limestone	CBRK
MCRT	S	micriteCBRK	
MXLL	S	microcrystalline limestone	CBRK
OLTL	S	oolitic limestone	CBRK
TRVN	S	travertine	CBRK
CHRK	**S**	**chemical rock**	
BNBD	S	bone bed	CHRK
CHRT	S	chert	CHRK
EVPT	S	evaporite	CHRK
FLNT	S	flint	CHRK
GYST	S	geyserite	CHRK
IRFM	S	iron formation	CHRK
IRST	S	ironstone	CHRK
PHSP	S	phosphorite	CHRK
CLRK	**S**	**clastic rock**	
ARNT	S	arenite	CLRK
AGLT	S	argillite	CLRK
ARKS	S	arkose	CLRK
BHRK	S	beachrock	CLRK
BX	S	breccia	CLRK
CLST	S	claystone	CLRK
CNGL	S	conglomerate	CLRK
DMCT	S	diamictite	CLRK
DTMT	S	diatomite	CLRK
FGLT	S	fanglomerate	CLRK
GYWK	S	greywacke	CLRK
MARL	S	marl	CLRK
MDST	S	mudstone	CLRK
NVLT	S	novaculite	CLRK

PELT	S	pelite	CLRK
PCLN	S	porcellanite	CLRK
PSMT	S	psammite	CLRK
RDLT	S	radiolarite	CLRK
SDST	S	sandstone	CLRK
SHLE	S	shale	CLRK
SLST	S	siltstone	CLRK
SPGT	S	sparagmite	CLRK
TLLT	S	tillite	CLRK
TLLD	S	tilloid	CLRK
TBDT	S	turbidite	CLRK
SDMT	**S**	**clastic sediment**	
BLD	S	boulder	SDMT
CLY	S	clay	SDMT
DST	S	dust	SDMT
GVL	S	gravel	SDMT
GRU	S	grus	SDMT
LOM	S	loam	SDMT
LOS	S	loess	SDMT
MUD	S	mud	SDMT
OOZ	S	ooze	SDMT
PBL	S	pebble	SDMT
RCL	S	residual clay	SDMT
SND	S	sand	SDMT
SHG	S	shingle	SDMT
SLT	S	silt	SDMT
TLL	S	till	SDMT
ORSD	**S**	**organic sediment**	
GUN	S	guano	ORSD
GYT	S	gyttja	ORSD

QUALIFIERS

ADC	Q	adcumulate
ALK	Q	alkali
AMG	Q	amygdaloidal
ARE	Q	arenaceous
ARG	Q	argillic
BAS	Q	basic
BD	Q	bouldery
BXD	Q	brecciated
CS	Q	calc-silicate
CAL	Q	calcareous
CLC	Q	calcic
CAR	Q	carbonaceous
CHY	Q	cherty
CLT	Q	chloritic
CGC	Q	conglomeratic
XL	Q	crystal
CUM	Q	cumulate
DIA	Q	diapiric
DMT	Q	dolomitic
EUT	Q	eutaxitic
EXV	Q	extrusive = includes volcanic
FEL	Q	feldspathic
FOI	Q	feldspathoidal
FLS	Q	felsic

FER	Q	ferruginous
FIA	Q	fiamme
GSY	Q	glassy
GPT	Q	graphitic
GTY	Q	gritty
HK	Q	high-K
HM	Q	high-Mg
ITM	Q	intermediate
ITV	Q	intrusive = includes plutonic
LMN	Q	laminated
LPL	Q	lapilli
LAY	Q	layered
LCC	Q	leucocratic
LTH	Q	lithic
LK	Q	low-K
MAF	Q	mafic
MGS	Q	magnesian
MAG	Q	magnetite
MK	Q	medium-K
MCC	Q	melanocratic
MCL	Q	mesocumulate
MET	Q	meta
MIC	Q	micaceous
MDY	Q	muddy
ORT	Q	ortho
OCL	Q	orthocumulate
PAR	Q	para
PBY	Q	pebbly
PEL	Q	pelitic
PHC	Q	phosphatic
PCR	Q	picro
POIK	Q	poikilitic
PLY	Q	polymict
PRS	Q	poorly sorted
POR	Q	porous
PORP	Q	porphyritic
POT	Q	potassic
PYR	Q	pyritic
QF	Q	quartzo-feldspathic
RYM	Q	rhythmic-layered
SDY	Q	sandy
SER	Q	sericitic
SIL	Q	siliceous
SLY	Q	silty
SDC	Q	sodic
ST	Q	staurolite
SUL	Q	sulphidic
TPI	Q	tephri
THL	Q	tholeiitic
TCY	Q	trachy
TFC	Q	tuffaceous
UB	Q	ultrabasic
UM	Q	ultramafic
UNW	Q	unwelded
VTR	Q	vitric
WEL	Q	welded

3.9 LOCMETHODS AUTHORITY TABLE

Note: This table is for the method by which the locality of a sample was determined.

Locmethno	Locmethod
0	unknown
1	GPS
10	non-standard topographic map
11	1:25 000 topographic map
12	1:50 000 topographic map
13	1:100 000 topographic map
14	1:250 000 topographic map
15	1:500 000 topographic map
16	1:1 000 000 topographic map
20	non-standard geological map
21	1:25 000 geological map
22	1:50 000 geological map
23	1:100 000 geological map
24	1:250 000 geological map
25	1:500 000 geological map
26	1:1 000 000 geological map

3.10 ORIGINATORS AUTHORITY TABLE

Note: this table referes to the collector of the sample in the field. With some AGSO authors, it is possible to refer to original sample note books which are stored within AGSO so as to obtain more precise location descriptions of any samples that are of interest.

ORIGNO	ORIGINATOR
1	unknown
2	Blake, D.H.
3	Branch, C.D.
4	Bultitude, R.J.
5	Gardner, C.
6	Croxford, W.
7	Cruikshank, B.I.
8	Hoatson, D.M.
10	Dallwitz, W.B.
11	Derrick, G.M.
12	Duff, B.
13	Ellis, D.J.
14	England, R.N.
15	Ewers, G.R.
16	Warren, R.G.
17	Glikson, A.Y.
18	Tanaka, H.
19	Hill, R.M.
20	Holmes, R.D.
21	Hutton, L.J.
22	Lambert, I.
23	Knutson, J.
24	Jaques, A.L.
25	Chapple, K.
27	Lewis, J.D.
28	Etheridge, M.

29 Mackenzie, D.E.
30 McNaughton, N.J.
31 Mitchell, J.M.
32 Mock, C.M.
33 Higgins, N.C.
34 Oversby, B.S.
35 Cook, P.
36 Stuart-Smith, P.G.
37 Page, R.W.
38 Plumb, K.A.
39 Valenta, R.
40 Needham, R.S.
41 Santul, J.
42 Sheraton, J.W.
43 Smith, S.E.
44 Tunks, A.
45 Wallace, D.A.
46 Willmott, W.F.
47 Wilson, I.H.
48 Withnall, I.W.
49 Wyborn, D.
50 Wyborn, L.A.I.
51 Bain, J.H.C.
52 Johnson, R.W.
53 Williams, P.R.
54 Miller, A.
55 Bettenay, L.
56 Black, L.P.
57 Pederson, C.P.
58 Ferguson, J.
59 Hegge, M.R.
60 Wilkes, P.G.
61 Roberts, W.M.B.
62 Walpole, B.
63 Joplin, G.
64 Crick, I.
65 Hills, J.
66 Rhodes, J.
67 Smart, P.
68 Sweet, I.P
69 Shaw, R.D.
70 Stewart, A.J.
71 Wyche, S.
72 Watchman, A.
73 Stuart, J.E.
74 Stratton, J.
75 Duggan, M.B.
76 Yeates, A.N.
77 ANU RSES
78 Allen, A.R.
79 Bofinger, V.M.
80 Gee, R.D.
81 De Laeter, J.R.
82 Cooper, J.A.
83 Williams, S.J.
84 Windrim, D.P.
85 Gray, C.M.

86 Ludwig, K.R.
87 Currie, K.L.
88 Chin, R.J.
89 Mortimer, G.E.
90 Marjoribanks, R.W.
91 Webb, A.W.
92 Langworthy, A.P.
93 SADME
94 Jagodzinski, E.A.
95 Compston, W.
96 Freeman, M.J.
97 Offe, L.A.
98 Bagas, L.
99 Joklik, G.F.
100 Korsch, R.
101 Dobos, S.K.
102 Foden, J.D.
103 Roarty, M.J.
104 Pidgeon, R.T.
105 W.A. Geological Survey
106 Southgate, P.N.
107 Kralik, M.
108 Richards, J.R.
109 McDougall, I.
110 Turek, A.
111 Collins, W.J.
112 Kinny, P.D.
113 Heinrich, C.A.
114 Hill, R.I.
115 Henderson, G.A.M.
116 Johnston, C.
117 Richards, D.
118 Bailey, J.
119 Blewett, R.S.
120 Chappell, B.W.C.
121 Adams, C.J.
122 Turner, N.J.
123 Pearson, P.J.
124 Rao, C.P.
125 McCulloch, M.T.
126 Vanderhor, F.
127 Rattenbury, M.S.
128 Young, D.N.
129 Arriens, P.A.
130 Grew, E.S.
131 Shibata, K.
132 Barton, J.M.
133 Sandiford, M.
134 Edgoose, C.
135 O'Beirne, W.
136 Wakelin-King, G.
137 Cassidy, K.F.
138 Ogasawara, M.
139 Fletcher, I.R.
140 Perring, C.S.
142 Compston, D.M.
144 Maas, R.

145 CSIRO-Yilgarn data
146 Netherway, N.M.
147 Price, R.
149 Giles, C.W.
150 Tyler, I.M.
151 Griffin, T.J.
152 Ojala, J.
153 Taylor, W.R.
154 Connors, K.A.
155 Hancock, S.L.
156 Pieters, P.E.
157 Creaser, R.A.
158 Whalen, J.B.
159 Hamlyn, P.R.
160 Hine, R.
161 Mason, D.R.
162 Kjolle, I.
163 Lanyon, R.
164 Trail, D.S.
165 Johnson, J.P.
166 Knight, J.
167 Gunther, M.
168 Rienks, I.P.
170 Champion, D.
171 Zhao, J.-X.
172 Raymond, O.L.
173 Schiotte, L.
174 Bennett, V.C.
175 NPD (Nat Petrol Dbase)
176 Wilford, J.
177 Kamprad, J.
179 Ryburn, R.J.
180 GSQ (Geol Surv of Qld)
181 Chan, R.A.
182 Craig, M.A.
183 Churchward, M.
184 Dohrenwend, J.C.
185 Gozzard, R.
186 Grimes, K.
187 Hazell, M.
188 Ollier, C.D.
189 Pain, C.F.
190 Gibson, D.L.
191 Fleming, C.
192 Peljo, M.
193 Shaw, S.E.
194 Wall, V.J.
195 Krassay, A.
196 Campbell, I.D.
197 Clarke, G.
198 Witt, W.K.
199 Pollard, P.
200 Cranfild, L.
201 Donchak, P.
202 Halfpenny, R.
203 Goldrick, G.
204 Harris, D.

3.11 QMAPS AUTHORITY TABLE

The QMAPS table is an authority table for 1:250 000 Map sheet areas.

Description of fields (actual field names are listed in brackets).

1:250 000 Map Number (MAPNO) - Up to 6 characters identifying the 1:250 000 map sheet e.g., SF5412, is the Winton 1:250 000 map sheet in Queensland. Note that the 1:250 000 map sheets in Tasmania are the theoretical ones, not the shifted ones actually published.

1:250 000 Map Name (MAPNAME) - up to 22 upper case characters for the name of the 1:250 000 map sheet identified by the 1:250 000 Map Number.

1:250 000 Map NW Corner Latitiude (N_LAT) - The decimal latitude of the northwest corner of the 1:250 000 map sheet.

1:250 000 Map NW Corner Longitude (W_LONG) - The decimal longitude of the northwest corner of the 1:250 000 map sheet.

3.12 REFERENCES TABLE

The REFERENCES authority table is for bibliographic references on either the source of the original numerical data or else the reference which describes the resulant age determinations from that data. The authors and the year fields are spanned by a concatenated unique index. This means that no two references can have the same value in the author(s) and year fields. The REFERENCES table is shared by all AGSO databases.

Description of fields (actual field names are listed in brackets).

Reference Number (REFNO) - Mandatory field of up to 5 digits. A monotonically increasing primary key field assigned by the system.

Other Identification (OTHERID) - Optional field of up to 16 characters. Any other identifing sequence that the user may care to apply.

User name (USERNAME) - The group or data base that has entered the data.

Authors (AUTHORS) - The name(s) of the author(s) of the reference.

Year (YEAR) - Year of publication of the reference.

Title (TITLE) - Title of the reference.

Source (SOURCE) - The full bibliographic reference which includes the journal name, volume and page number.

3.13 ROCKTYPES AUTHORITY TABLE

Note: this table provides a basic subdivision of samples based on rocktypes. It was initiated primarily for database management and block retrieval.

Number	Rock Type
1	unknown
2	felsic intrusive
3	intermediate intrusive
4	mafic intrusive
5	felsic extrusive
6	intermediate extrusive
7	mafic extrusive
8	ultramafite
9	alkaline igneous
10	clastic sediment
11	chemical sediment
12	metabasite
13	felsic gneiss
14	metasediment
15	metasomatite
16	ore
17	regolith

3.14 STRATLEX AUTHORITY TABLE

The STRATLEX authority table is derived from the AGSO stratigraphic lexicon which is derived from the existing GEODX database of stratigraphic names, administered by Stratigraphic Index Group of AGSO.

Description of fields (actual field names are listed in brackets)

Unit Number (UNITNO) - System-supplied integer of up to 6 digits.

Unit Name (UNITNAME) - Mandatory field of 64 characters for the name of the stratigraphic unit, including any rank term that may be part of the name, e.g., 'Soldiers Cap Group' (where 'Group' is the rank term).

State (STATE) - Mandatory 3-capital character field for state abbreviation, e.g., 'QLD'. Only the abbreviations already in the AGSOSTATES table may be entered. Where the same stratigraphic unit outcrops or underlies adjacent states the record will be duplicated, with only this field having a different value.

Rank (RANKNAME) - A character field to indicate stratigraphic rank, e.g., Group, Formation, Member, etc.

Status (STATUSNAME) - A mandatory character field for the status of the unit.

GEODX ID (GEODXID) - An integer of up to 5 digits that identifies the stratigraphic unit in AGSO's GEODX Stratigraphic Index database. Informal units in STRATLEX that have not come from GEODX do not have an entry in this field.

Age From (AGE1) - An integer of up to 4 digits pointing to the older age limit of the

stratigraphic unit. This integer corresponds to a term from the GEOTIME Authority Table. Where no youner age limit is given, the 'Age From' term is taken to be a general age for the unit as a whole.

Age To (AGE2) - As for the 'Age From' pointer, but referring to a younger age limit for the unit, if known.

Geological Province (GEOPROV) - An integer of up to 4 digits pointing to the geological province in the GEOPROVS table.

Comments (COMMENTS) - A field of 240 characters for comments on the unit, particularly those on any synonymy and the history of definition and nomenclature. Any conflicts with other stratigraphic names in STRATLEX should also be noted.

Type Area Data

State (STATE) - A three-capital character field for the State in which the type area lies. In most cases this will be the same as the State field at the top of the form, but in a small number of records (currently) the state is different. This is the field that can be used to subdivide the database if custodianship is distributed amongst the States.

Latitude (DLAT) - A numeric field with up to 2 digits in front of the decimal point, and up to 6 digits after the decimal point. All latitudes and longitudes must be entered in decimal degrees and must not be negative. They should mark the centroid of the type area or the centre of the type section. The southern hemisphere and longitudes east of Greenwich are implicit.

Longitude (DLONG) - A numeric field with up to 3 digits in front of the decimal point and up to 6 digits after the decimal point. Otherwise as for latitude.

Map Symbol (SYMBOL) - A 24 character field for the unit's map symbol in the type area. The map symbol should come from the most recently published 1:100 000 geological map, or from the most recent 1:250 000 sheet if no 1:100 000 map exists. Non-ASCII symbols should be represented according to the following table -

Description	Symbol	Comment
Precambrian 'P'	P_	
Archaen-Precambrian 'AP'	AP	used in Western Australia
Cambrian slashed 'C'	C_	
Ordovician slashed 'O'	O_	no longer used in AGSO
Triassic 'TR'	TR	
Superscript	^	e.g. 'Ta^c'
Subscript	/	e.g. 'Pkc/br'

The map symbol entered here is the prevailing symbol at the time of data entry, and need be unique only for the map from which it was obtained.

Parent Unit (PARENT) - An integer of up to 6 digits. The unit number of the parent stratigraphic unit, i.e., the related unit that is higher in rank. For example, the parent unit for a Member would always be a Formation, while the parent unit for a Formation could be a Group or a Subgroup.

Overlying Unit (OVERLYING) - An integer of up to 6 digits. The Unit Number of the stratigraphically overlying unit.

Boundary Relations (OVEREL) - Character fields indicating boundary relationships to the overlying units. Valid numbers and terms are stored in the STRATRELS authority table.

Underlying Unit (UNDERLYING) - An integer of up to 6 digits. The unit number of the stratigraphically underlying unit.

Boundary Relations (UNDEREL) - Character fields indicating boundary relationships to the underlying units. Valid numbers and terms are stored in the STRATRELS authority table.

Defining Reference (DEFREF) - An 8 character field pointing to a reference publication in GEODX

3.15 THE STRATRELS AUTHORITY TABLE

The STRATRELS authority table is for indicating stratigraphic relationships to overlying and underlying stratigraphic units. Valid numbers and terms are -

number	name
1	unknown
2	not exposed
3	conformity
4	unconformity
5	disconformity
6	nonconformity
7	paraconformity
8	diastem

3.16 VEGTYPES AUTHORITY TABLE

This table is for describing vegetation types.

V_CODE	V_DESCRIPTION
F1	sparse open herbfield
G1	sparse open tussock grassland
G2	open tussock grassland
G3	tussock grassland or sedgeland
G4	closed tussock grassland or sedgeland
H2	hummock grassland
L1	low open woodland with no significant lower stratum
L1F	low open woodland with other herbaceous plants
L1G	low open woodland with tussock grasses
L1H	low open woodland with hummock grasses
L1S	low open woodland with tall shrubs
L1Z	low open woodland with low shrubs
L2	low woodland with no significant lower stratum
L2G	low woodland with tussock grasses
L2H	low woodland with hummock grasses
L2S	low woodland with tall shrubs
L2Z	low woodland with low shrubs
L3	low open forest with no significant lower stratum
L3G	low open forest with tussock grasses

L3S	low open forest with tall shrubs
L3Z	low open forest with low shrubs
L4	low closed forest
M1G	woodland with tussock grasses
M1H	woodland with hummock grasses
M1L	woodland with low trees
M1S	woodland with tall shrubs
M2G	woodland with tussock grasses
M2H	woodland with hummock grasses
M2L	woodland with low trees
M2S	woodland with tall shrubs
M2Z	woodland with low shrubs
M3	open forest with no significant lower stratum
M3G	open forest with tussock grasses and graminoids
M3L	open forest with low trees
M3S	open forest with tall shrubs
M3Z	open forest with low shrubs
M4	closed forest
NIL	no significant vegitation
S1G	tall open shrubland with tussock grasses
S1H	tall open shrubland with hummock grasses
S1Z	tall open shrubland with low shrubs
S2F	tall shrubland with other herbaceous plants
S2G	tall shrubland with tussock grasses
S2H	tall shrubland with hummock grasses
S2Z	tall shrubland with low shrubs
S3G	open scrub with tussock grasses or graminoids
S3H	open scrub with hummock grasses
S3Z	open scrub with low shrubs
T3L	tall open forest with low trees
T3M	tall open forest with medium trees
T3S	tall open forest with tall shrubs
T4	tall closed forest
Z1	low open shrubland with no significant lower stratum
Z1F	low open shrubland with other herbaceous plants
Z1G	low open shrubland with tussock grasses
Z1H	low open shrubland with hummock grasses
Z2	low shrubland with no significant lower stratum
Z2F	low shrubland with other herbaceous plants
Z2G	low shrubland with tussock grasses and graminoids
Z3	open heath
Z3G	open heath with tussock grasses
Z4	closed heath

Section 4—Data Dictionary

4.1 SITES table data dictionary

Note: the SITES table is for location data for each sample site.

```
CREATE TABLE SITES (
       ORIGNO          NUMBER (5)    NOT NULL  REFERENCES ORIGINATORS,
       SITEID          CHAR   (16)   NOT NULL,
       FIELDID         CHAR   (16),
       OBSDATE         DATE,
       OBSTIME         NUMBER (4,2),
       COUNTRYID       CHAR   (3)    NOT NULL  REFERENCES AGSOCOUNTIES,
       STATE           CHAR   (3)              REFERENCES AGSOSTATES,
       GEOPROVNO       NUMBER (5)              REFERENCES GEOPROVS,
       SUBPROVNO       NUMBER (5)              REFERENCES GEOPROVS,
       DOMAINNO        NUMBER (5)              REFERENCES GEOPROVS,
       GEOGAREA        CHAR   (64),
       LOCDESC         CHAR   (64),
       HMAPNO          NUMBER (4)              REFERENCES HMAPS,
       QMAPID          CHAR   (6)              REFERENCES QMAPS,
       EASTING         NUMBER (6),
       NORTHING        NUMBER (7),
       ACCURACY        NUMBER (4)    NOT NULL,
       HEIGHT          NUMBER (5,0),
       HEIGHTACC       NUMBER (3,0),
       DLAT            NUMBER (8,6),
       NS              CHAR   (1),
       DLONG           NUMBER (9,6),
       EW              CHAR   (1),
       METHOD          NUMBER (3)    NOT NULL  REFERENCES LOCMETHODS,
       MAPID           CHAR   (10)             REFERENCES MAPREFS,
       AIRPHOTO        CHAR   (36),
       OC              CHAR   (1),             REM OUTCROP      TABLE
       ST              CHAR   (1),             REM STRUCTURE    TABLE
       RO              CHAR   (1),             REM ROCKS        TABLE
       TS              CHAR   (1),             REM PETROGRAPHY DATABASE
       RC              CHAR   (1),             REM ROCKCHEM     DATABASE
       OZ              CHAR   (1),             REM OZCHRON      DATABASE
       MD              CHAR   (1),             REM MINDEP       DATABASE
       SC              CHAR   (1),             REM STREAMCHEM   DATABASE
       RT              CHAR   (1),             REM REGOLITH     DATABASE
       RP              CHAR   (1),             REM ROCKPROPS    DATABASE
       ENTRYDATE       DATE          NOT NULL,
       PRIMARY KEY (ORIGNO,SITEID) );

CREATE UNIQUE INDEX SITEUNIQUE   ON SITES ( ORIGNO, SITEID );
CREATE        INDEX SITEIDS      ON SITES ( SITEID );
CREATE        INDEX SITEGEOPROVS ON SITES ( GEOPROVNO );
CREATE        INDEX SITESUBPROVS ON SITES ( SUBPROVNO );
CREATE        INDEX SITEHMAPS    ON SITES ( HMAPNO );
CREATE        INDEX SITEQMAPS    ON SITES ( QMAPID );
CREATE        INDEX SITEDLATS    ON SITES ( DLAT );
CREATE        INDEX SITEDLONGS   ON SITES ( DLONG );
CREATE        INDEX SITESST      ON SITES ( ST );
CREATE        INDEX SITESRT      ON SITES ( RT );
```

4.2 OUTCROPS table data dictionary

Note: the OUTCROPS table is for outcrop-scale data or drill-hole identification, i.e., it is for sites from which more than one sample is collected.

```
CREATE TABLE OUTCROPS (
        ORIGNO          NUMBER (5,0)  NOT NULL  REFERENCES ORIGINATORS,
        SITEID          CHAR   (16)   NOT NULL,
        ROCKRELS        CHAR   (128),
        SKETCH          CHAR   (64),
        PHOTO           CHAR   (64),
        DHCOMPNY        CHAR   (48),
        DRILLHOLEID     CHAR   (48),
        DHAZIMUTH       NUMBER (3,0),
        DHINCLIN        NUMBER (2,0),
        VEGCODE         CHAR   (4)              REFERENCES VEGTYPES,
        VEGETATION      CHAR   (64),
        LANDCODE        CHAR   (4)              REFERENCES LANDF,
        LANDFORM        CHAR   (64),
        ENTRYDATE       DATE           NOT NULL,
        PRIMARY KEY (ORIGNO,SITEID)
        FOREIGN KEY (ORIGNO,SITEID)             REFERENCES SITES
                                                (ORIGNO,SITEID));

CREATE UNIQUE INDEX OCORIGSITES ON OUTCROPS ( ORIGNO, SITEID );
CREATE        INDEX OCSITEIDS   ON OUTCROPS ( SITEID );
```

4.3 ROCKS table data dictionary

Note: ROCKS is for data on stratigraphy and lithology for individual samples.

```
CREATE TABLE ROCKS (
        ROCKNO          NUMBER (6)    NOT NULL  PRIMARY KEY,
        ORIGNO          NUMBER (5,0)  NOT NULL  REFERENCES ORIGINATORS
        SITEID          CHAR   (16)   NOT NULL,
        SAMPLEID        CHAR   (16),
        ROCKTYPE        NUMBER (2,0)            REFERENCES ROCKTYPES
        QUALIFIER       CHAR   (20)             REFERENCES LITHNAMES
        LITHNAME        CHAR   (20)             REFERENCES LITHNAMES
        GROUPING        CHAR   (22),
        STRATNO         NUMBER (5,0)            REFERENCES STRATLEX
        INFORMAL        CHAR   (64),
        AGE             CHAR   (54),
        STRATHEIGHT     NUMBER (8),
        HOLEDEPTH       NUMBER (8),
        HOLEDEPTH2      NUMBER (8),
        DESCRIPTION     CHAR   (64),
        OTHERINFO       CHAR   (64),
        ENTRYDATE       DATE           NOT NULL,
        FOREIGN KEY (ORIGNO,SITEID)             REFERENCES SITES
                                                (ORIGNO,SITEID));

CREATE UNIQUE INDEX ROCKROCKNOS   ON ROCKS ( ROCKNO );
CREATE        INDEX ROCKORIGSITES ON ROCKS ( ORIGNO, SITEID );
CREATE        INDEX ROCKSITES     ON ROCKS ( SITEID );
CREATE        INDEX ROCKORIGSAMPS ON ROCKS ( ORIGNO, SAMPLEID );
```

4.4 LITHDATA table data dictionary

Note: the LITHDATA is the extendable lithological attributes table for rocks.

```
CREATE TABLE LITHDATA (
     ROCKNO          NUMBER (5,0)  NOT NULL  REFERENCES ROCKS,
     DATATYPE        CHAR   (4)    NOT NULL  REFERENCES
                                              LITHDATATYPES (DATATYPE),
     SUBTYPE         CHAR   (4)              REFERENCES
                                              LITHDATATYPES(SUBTYPE),
     DESCRIPTION     CHAR   (64),
     ENTRYDATE       DATE           NOT NULL  );

CREATE INDEX LDLITHNO ON LITHDATA ( ROCKNO );
```

4.5 ORIGINATORS authority table data dictionary

Note: ORIGINATORS is the AGSO authority table for originators.

```
CREATE TABLE ORIGINATORS (
        ORIGNO          NUMBER (5,0)   NOT NULL,
        ORIGINATOR      CHAR   (22)    NOT NULL );

CREATE UNIQUE INDEX ORIGNOS ON ORIGINATORS ( ORIGNO );
```

4.6 AGSOCOUNTRIES authority table data dictionary

Note: AGSOCOUNTRIES is the AGSO authority table for countries.

```
CREATE TABLE AGSOCOUNTRIES (
        COUNTRYID       CHAR   (3)     NOT NULL  PRIMARY KEY,
        COUNTRYNAME     CHAR   (32)    NOT NULL  );
```

4.7 AGSOSTATES authority table data dictionary

Note: AGSOSTATES is the AGSO authority table for Australian states.

```
CREATE TABLE AGSOSTATES (
        STATEID         CHAR   (3)     NOT NULL  PRIMARY KEY,
        STATENAME       CHAR   (32)    NOT NULL  );
```

4.8 GEOPROVS authority table data dictionary

Note: GEOPROVS is the AGSO authority table for geological provinces, subprovinces and domains.

```
CREATE TABLE GEOPROVS (
        PROVNO          NUMBER (3,0)  NOT NULL  PRIMARY KEY,
        PROVNAME        CHAR   (64)   NOT NULL
        PROVLETS        CHAR   (4),
        TYPE            CHAR   (16),
```

```
        RANKNAME        CHAR    (20),
        STATUSNAME      CHAR    (20),
        PARENT          NUMBER (3,0)            REFERENCES GEOPROVS,
        GEODX_REF       CHAR    (9,0),          REM  GEODX REFERENCE
        COMMENTS        CHAR    (64),
        USERID          CHAR    (8),
        LASTCHANGED     DATE,
        ELON            NUMBER (5,2),
        WLON            NUMBER (5,2),
        TLAT            NUMBER (5,2),
        BLAT            NUMBER (5,2),
        COORDS          LONG RAW );

CREATE UNIQUE INDEX GEOPROVNOS  ON GEOPROVS ( PROVNO );
CREATE        INDEX GEOPROVNAME ON GEOPROVS ( PROVNAME );
```

4.9 QMAPS authority table data dictionary

Note: QMAPS is the AGSO authority table for 1:250 000 map sheet areas.

```
CREATE TABLE QMAPS (
        MAPNO           CHAR    (6,0)  NOT NULL  PRIMARY KEY,
        MAPNAME         CHAR    (22),
        N_LAT           NUMBER (3,1),
        W_LONG          NUMBER (4,1) );

CREATE UNIQUE INDEX QMAPNOS   ON QMAPS( MAPNO );
CREATE        INDEX QMAPNAMES ON QMAPS ( MAPNAME);
```

4.10 HMAPS authority table data dictionary

Note: HMAPS is the AGSO authority table for 1:100 000 map sheet areas.

```
CREATE TABLE HMAPS (
        HMAPNO          NUMBER (4,0)  NOT NULL  PRIMARY KEY,
        MMAPID          CHAR    (4),
        QMAPNO          NUMBER (2,0),
        HMAPNAME        CHAR    (22),
        N_LAT           NUMBER (3,1),
        W_LONG          NUMBER (4,1),
        MEAST           NUMBER (6),
        MNORTH          NUMBER (7)  );

CREATE UNIQUE INDEX HMAPNOS   ON HMAPS ( HMAPNO );
CREATE        INDEX HMAPNAMES ON HMAPS ( HMAPNAME );
```

4.11 LOCMETHODS authority table data dictionary

Note: LOCMETHODS is the AGSO authority table for location methods.

```
CREATE TABLE LOCMETHODS (
        LOCMETHNO       NUMBER (3,0)    NOT NULL  PRIMARY KEY,
        LOCMETHOD       CHAR    (64)    NOT NULL  )
```

4.12 MAPREFS authority table data dictionary

Note: MAPREFS is the AGSO authority table for bibliographic references of non-standard maps that are used for locating field sites.

```
CREATE TABLE MAPREFS (
 MAPID                          NOT NULL CHAR(10),
 NAME                                    CHAR(35),
 SCALE                                   CHAR(11),
 TYPE                                    CHAR(12),
 EDITION                                 CHAR(17),
 TITLE                                   CHAR(240),
 AUTHORS                                 CHAR(240),
 YEAR                           NOT NULL NUMBER(4),
 PUBLICATION                             CHAR(100),
 VOLPART                                 CHAR(20),
 PAGE                                    CHAR(20),
 MINLAT                                  NUMBER(8,6),
 MAXLAT                                  NUMBER(8,6),
 MINLONG                                 NUMBER(9,6),
 MAXLONG                                 NUMBER(9,6),
 ENTEREDBY                               CHAR(16),
 ENTRYDATE                               DATE  );
```

4.13 LANDF authority table data dictionary

Note: LANDF is the AGSO authority table which describes landform classes.

```
CREATE TABLE LANDF (
        L_CODE          CHAR    (4)     NOT NULL  PRIMARY KEY,
        L_DESC          CHAR    (4)     NOT NULL );
```

4.14 VEGTYPES authority table data dictionary

Note: VEGTYPES is the AGSO authority table which describes vegetation classes.

```
CREATE TABLE VEGTYPES (
        V_CODE          CHAR    (4)     NOT NULL  PRIMARY KEY,
        V_DESC          CHAR    (64)    NOT NULL );
```

4.15 STRATLEX authority table data dictionary

Note: STRATLEX is an AGSO authority table for stratigraphic nomenclature derived from the Australian Stratigraphic Lexicon.

```
CREATE TABLE STRATLEX (
    UNITNO          NUMBER (5,0)  NOT NULL  PRIMARY KEY,
    UNITNAME        CHAR   (64)   NOT NULL,
    STATE           CHAR   (3)    NOT NULL  REFERENCES AGSOSTATES,
    RANKNAME        CHAR   (16),
    STATUSNAME      CHAR   (20),
    GEODXID         NUMBER (5,0),
```

```
    AGE1            NUMBER (4,0)            REFERENCES GEOTIME,
    AGE2            NUMBER (4,0)            REFERENCES GEOTIME,
    GEOLPROV        NUMBER (3,0)            REFERENCES GEOPROVS,
    COMMENTS        CHAR   (240),
    TYPESTATE       CHAR   (3)              REFERENCES AGSOSTATES,
    DLAT            NUMBER (8,6),
    DLONG           NUMBER (9,6),
    SYMBOL          CHAR   (16),
    PARENT          NUMBER (5)              REFERENCES STRATLEX,
    OVERLYING       NUMBER (5)              REFERENCES STRATLEX,
    OVEREL          NUMBER (2,0)            REFERENCES STRATRELS,
    UNDERLYING      NUMBER (5)              REFERENCES STRATLEX,
    UNDEREL         NUMBER (2,0)            REFERENCES STRATRELS,
    DEFREF          CHAR   (8)              REM GEODX REFERENCE DEFINING UNIT
    ENTRYDATE       DATE          NOT NULL,
    LASTUPDATE      DATE                          );

CREATE UNIQUE INDEX STRATLEXNOS   ON STRATLEX ( UNITNO );
CREATE        INDEX STRATLEXNAMES ON STRATLEX ( UNITNAME );
```

4.16 GEOTIME Authority table data dictionary

Note: GEOTIME is the AGSO authority table on ages. It is used by the STRATLEX table.

```
CREATE TABLE GEOTIME (
        AGENO           NUMBER (4)      NOT NULL,
        AGENAME         CHAR   (24)     NOT NULL,
        SCOPE           CHAR   (15)      NOT NULL,
        RANKNAME        CHAR   (8)     NOT NULL,
        STATUSNAME      CHAR   (8)     NOT NULL,
        PARENT          NUMBER (4),
        YNGBOUND        NUMBER (8,3),
        OLDBOUND        NUMBER (8,3),
        COMMENTS        CHAR   (64),
        GEODXID         NUMBER (5),
        LASTALT         DATE );
```

4.17 STRATRELS Authority table data dictionary

Note: STRATRELS is the AGSO authority table on stratigraphic relationships.

```
CREATE TABLE STRATRELS (
        RELNO           NUMBER (1),
        RELNAME         CHAR   (32) );
```

4.18 ROCKTYPES authority table data dictionary

Note: ROCKTYPES is an AGSOauthority table which is a coarse classification of all rocks into 17 basic rock types.

```
CREATE TABLE ROCKTYPES (
        ROCKNO          NUMBER (2,0)    NOT NULL  PRIMARY KEY,
        ROCKTYPE        CHAR   (32)     NOT NULL );
```

4.19 LITHNAMES authority table data dictionary

Note: the LITHNAMES authority table contains the AGSO detailed lithological nomenclature table - including qualifiers.

```
CREATE TABLE LITHNAMES (
        LITHID          CHAR    (4)     NOT NULL  PRIMARY KEY,
        QUALIFIER       CHAR    (1)     NOT NULL,
        LITHNAME        CHAR    (32)    NOT NULL );

CREATE UNIQUE INDEX LNABBREVIATIONS ON LITHNAMES ( LITHID );
CREATE UNIQUE INDEX LNNAMES         ON LITHNAMES ( LITHNAME );
```

4.20 LITHDATATYPES authority table data dictionary

Note: LITHDATATYPES in an authority table for extendable attributes for the lithdatatypes table.

```
CREATE TABLE LITHDATATYPES (
        DATATYPE        CHAR    (4)     NOT NULL,
        TYPEDESC        CHAR    (16)    NOT NULL,
        SUBTYPE         CHAR    (4),
        SUBDESC         CHAR    (16) );

CREATE UNIQUE INDEX LITHTYPESUB     ON LITHDATATYPES ( DATATYPE, SUBTYPE );
CREATE UNIQUE INDEX LITHTYPESUBDESC ON LITHDATATYPES ( SUBTYPE, SUBDESC );
```

4.21 RB_SR table data dictionary

Note: the RB_SR table records the Rb-Sr analytical data on individual samples or separates.

```
CREATE TABLE RB_SR (
        AGE_POINTER     NUMBER  (8,2)   NOT NULL,
        ANALNO          NUMBER  (6,0)   NOT NULL,
        ORDERNO         NUMBER  (2,0),
        ORIGNO          NUMBER  (5,0)   NOT NULL,
        SAMPNO          CHAR    (16)    NOT NULL,
        REFNO           NUMBER  (6,0),
        METHODNO        NUMBER  (6,0),
        MINERAL         CHAR    (16),
        RB_PPM          NUMBER  (9,4),
        SR_PPM          NUMBER  (9,4),
        RB87SR86        NUMBER  (10,5),
        SR87SR86        NUMBER  (10,5),
        COMMENTS        CHAR    (240) );

CREATE UNIQUE INDEX RBSRANALNOS   ON RB_SR ( ANALNO );
CREATE        INDEX RBSRAGEPOINTS ON RB_SR ( AGE_POINTER );
CREATE        INDEX RBSRORIGSAMPS ON RB_SR ( ORIGNO, SAMPNO );
```

4.22 RBSR_AGES table data dictionary

Note: the RBSR_AGES table gives the 'pooled results' for the age information derived from combined analytical results stored in the RB_SR table.

```
CREATE TABLE RBSR_AGES  (
        RECNO           NUMBER  (8,2)   NOT NULL,
        MSWD            NUMBER  (6,2),
        AGE             NUMBER  (6,2),
        STD_DEVA        NUMBER  (6,2),
        INIT_RATIO      NUMBER  (7,6),
        STD_DEVI        NUMBER  (7,6),
        COMMENTS        CHAR    (240) );

CREATE UNIQUE INDEX RBSRARECNOS ON RBSR_AGES ( RECNO );
```

4.23 U_PB table data dictionary

Note: the U_PB table is for conventional U-Pb results on individual mineral fractions within a sample.

```
CREATE TABLE U_PB (
        RECNO           NUMBER  (5,0)   NOT NULL,
        ANALNO          NUMBER  (6,0)   NOT NULL,
        ORIGNO          NUMBER  (5,0)   NOT NULL,
        SAMPNO          CHAR    (16)    NOT NULL,
        ORDERNO         NUMBER  (3,0),
        FRACTION        CHAR    (16),
        REFNO           NUMBER  (6,0),
        METHODNO        NUMBER  (6,0),
        U_PPM           NUMBER  (8,2),
        PB_PPM          NUMBER  (8,2),
        PBRAD_PPM       NUMBER  (8,2),
        PB206PB204      NUMBER  (8,2),
        PB206RAD        NUMBER  (8,2),
        PB207RAD        NUMBER  (8,2),
        PB208RAD        NUMBER  (6,2),
        PB207PB206      NUMBER  (6,5),
        PB206U238       NUMBER  (6,5),
        PB207U235       NUMBER  (7,5),
        MIN76_AGE       NUMBER  (4,0),
        STD_DEV1        NUMBER  (3,0),
        APP206_238      NUMBER  (4,0),
        STD_DEV2        NUMBER  (3,0),
        APP207_235      NUMBER  (4,0),
        STD_DEV3        NUMBER  (3,0),
        APP208_232      NUMBER  (4,0),
        STD_DEV4        NUMBER  (3,0),
        WEIGHT          NUMBER  (6,4),
        COMMENTS        CHAR    (240) );

CREATE UNIQUE INDEX ZIRCONANALNOS   ON ZIRCON ( ANALNO );
CREATE        INDEX ZIRCONRECPTRS   ON ZIRCON ( RECNO );
CREATE        INDEX ZIRCONORIGSAMPS ON ZIRCON ( ORIGNO, SAMPNO );
```

4.24 UPB_AGES table data dictionary

Note: the UPB_AGES table is for age information derived from the combined analytical results derived by the conventional U-Pb analytical method which are stored in the U_PB table.

```
CREATE TABLE UPB_AGES  (
        RECNO           NUMBER  (6,0)   NOT NULL,
        MSWD            NUMBER  (6,2),
        AGE             NUMBER  (6,2),
        STD_DEVA        NUMBER  (6,2),
        LI_AGE          NUMBER  (6,2),
        STD_DEVI        NUMBER  (6,2),
        COMMENTS        CHAR    (240) );

CREATE UNIQUE INDEX UPBAGERECS ON UPB_AGES ( RECNO );
```

4.25 SHRIMP table data dictionary

Note: the SHRIMP table is for U-Pb data on individual grains from a sample, and on individual spots within a grain, that have been measured on the high-resolution ion microprobe mass spectrometer.

```
CREATE TABLE SHRIMP (
        RECNO           NUMBER  (6,0)   NOT NULL,
        ANALNO          NUMBER  (6,0)   NOT NULL,
        LABNO           CHAR    (16),
        GRAINO          CHAR    (16),
        SPOTNO          CHAR    (16),
        ORDERNO         NUMBER  (3,0),
        REFNO           NUMBER  (6,0),
        WEIGHT          NUMBER  (5,3),
        U_PPM           NUMBER  (7,2),
        TH_PPM          NUMBER  (6,2),
        TH_OVER_U       NUMBER  (5,2),
        PB204_PPM       NUMBER  (6,2),
        PB206PB204      NUMBER  (8,1),
        F_PCT           NUMBER  (6,3),
        PB207PB206      NUMBER  (6,5),
        STD_DEV1        NUMBER  (6,5),
        PB208PB206      NUMBER  (6,5),
        STD_DEV2        NUMBER  (4,4),
        PB206U238RAD    NUMBER  (6,5),
        STD_DEV3        NUMBER  (6,5),
        PB207U235RAD    NUMBER  (5,3),
        STD_DEV4        NUMBER  (5,3),
        PB208TH232RAD   NUMBER  (5,4),
        STD_DEV5        NUMBER  (5,4),
        MIN76_AGE       NUMBER  (4,0),
        STD_DEV6        NUMBER  (3,0),
        AGE206_238      NUMBER  (4,0),
        AGE207_235      NUMBER  (4,0),
        AGE208_232      NUMBER  (4,0),
        COMMENTS        CHAR    (240) );

CREATE UNIQUE INDEX SHRIMPANALNOS   ON SHRIMP ( ANALNO );
CREATE        INDEX SHRIMPRECPTRS   ON SHRIMP ( RECNO );
```

4.26 SHRIMP_AGES table data dictionary

Note: the SHRIMP_AGES table is for age information derived from the combined analytical results listed in the SHRIMP table.

```
CREATE TABLE SHRIMP_AGES (
        RECNO           NUMBER  (6,0)   NOT NULL,
        ORIGNO          NUMBER  (5,0)   NOT NULL,
        SAMPNO          CHAR    (16)    NOT NULL,
        AGE             NUMBER  (6,2),
        STD_DEVA        NUMBER  (6,2),
        LI_AGE          NUMBER  (6,2),
        STD_DEVI        NUMBER  (6,2),
        COMMENTS        CHAR    (240) );

CREATE UNIQUE INDEX SHRIMPAGERECS      ON SHRIMP_AGES ( RECNO );
CREATE        INDEX SHRIMPAGEORIGSAMPS ON SHRIMP_AGES ( ORIGNO, SAMPNO );
```

4.27 REFERENCES table data dictionary

Note: the REFERENCES table is for references used in compiling the data.

```
CREATE TABLE REFERENCES (
        REFNO           NUMBER (5,0) NOT NULL,
        OTHERID         CHAR   (16),
        USERNAME        CHAR   (16),
        AUTHORS         CHAR   (128),
        YEAR            CHAR   (16),
        TITLE           CHAR   (240),
        SOURCE          CHAR   (240) );

CREATE UNIQUE INDEX REFNUMBER ON REFERENCES ( REFNO );
CREATE UNIQUE INDEX REFUNIQUE ON REFERENCES ( AUTHORS, YEAR );
```

4.28 MAXNOS table data dictionary

Note: the MAXNOS table generates sequence numbers for the OZCHRON tables.

```
CREATE TABLE MAXNOS  (
        IDMAXNO         CHAR   (16)     NOT NULL,
        MAXNO           NUMBER (6,0)    NOT NULL  );
```

Section 5—Proterozoic dataset – Release 1.0

This first OZCHRON release contains geochronological data from Australian Proterozoic provinces. This Proterozoic dataset lists 584 age determinations. These consist of 135 U-Pb zircon results (786 individual analyses), 52 U-Pb zircon SHRIMP results (1013 individual analyses), and 397 Rb-Sr results (2597 individual analyses) (Table 1). Figures 5.1, 5.2 and 5.3 show the distribution of sites at which ages have been measured by these various analytical methods.

During geochronological investigation in Australia, there has been considerable progress in analytical methods and in the geological diversity of application. The database, as it has been developed so far, has not endeavoured to cover all analytical techniques. The Proterozoic dataset principally contains U-Pb results (mainly using zircon), both by conventional and SHRIMP ion microprobe methods. These are the most geologically relevant dating methods in early to middle Proterozoic terranes in terms of defining ages for primary crustal events.

A significant amount of Rb-Sr work is also summarised in the Proterozoic dataset, but it is now recognised that most Rb-Sr ages in early to middle Proterozoic terranes reflect metamorphic overprinting or alteration. However, in some cases they may be very relevant to dating metamorphism and alteration events. The other most commonly used methods, K-Ar and Ar-Ar dating, can provide valuable insights into post-emplacement or post-depositional thermal histories. However, none of the few studies that have been undertaken on Australian Proterozoic rocks are incorporated in this release of OZCHRON. Results based on these and other methods (Pb-Pb, Sm-Nd) will be included in future releases.

All results are normalised to decay constants recommended by the IUGS Subcommission on Geochronology (Steiger and Jäger, Subcommission on Geochronology: Convention on the use of decay constants in geo- and cosmochronology. Earth and Planetary Science Letters, 36: 359-362).

Dominant State	Province	No. of complete age determinations					
		U-Pb SHRIMP		U-Pb		Rb-Sr	
Queensland	Georgetown Inlier	5	(110)	6	(34)	31	(115)
	Coen Inlier	1	(38)				
	NE Queensland	1	(14)			12	(116)
	Cape York Plutonic Belt					1	(1)
	Mount Isa Inlier	11	(257)	48	(264)	73	(428)
	South Nicholson Basin	1	(1)				
Northern Territory	Arunta Block	15	(71)	13	(47)	34	(339)
	McArthur Basin			3	(18)	9	(47)
	Pine Creek Inlier	7	(138)	24	(143)	50	(255)
	Tennant Creek Inlier			3	(24)	22	(131)
	Davenport Province			3	(17)	1	(12)
	Granites-Tanami Inlier					8	(74)
	Birrindudu Basin					1	(1)
	Amadeus Basin					2	(8)
South Australia	Stuart Shelf			7	(57)	7	(28)
	Gawler Craton			9	(66)	81	(601)
	Musgrave Block					19	(141)
	Denison Block			1	(7)	3	(17)
	Curnamona Craton			1	(6)		
West Australia	Albany-Fraser Province	6	(113)	3	(17)	10	(64)
	Gascoyne Province					6	(50)
	Halls Creek Inlier	1	(55)	3	(26)	5	(51)
	Kimberley Basin					2	(14)
	Paterson Province					6	(35)
	Bangemall Basin					1	(6)
	Northampton Block					2	(19)
New South Wales	Willyama Block	5	(217)	11	(60)	10	(43)

Table 5.1 List of samples from Australian Proterozoic provinces in OZCHRON

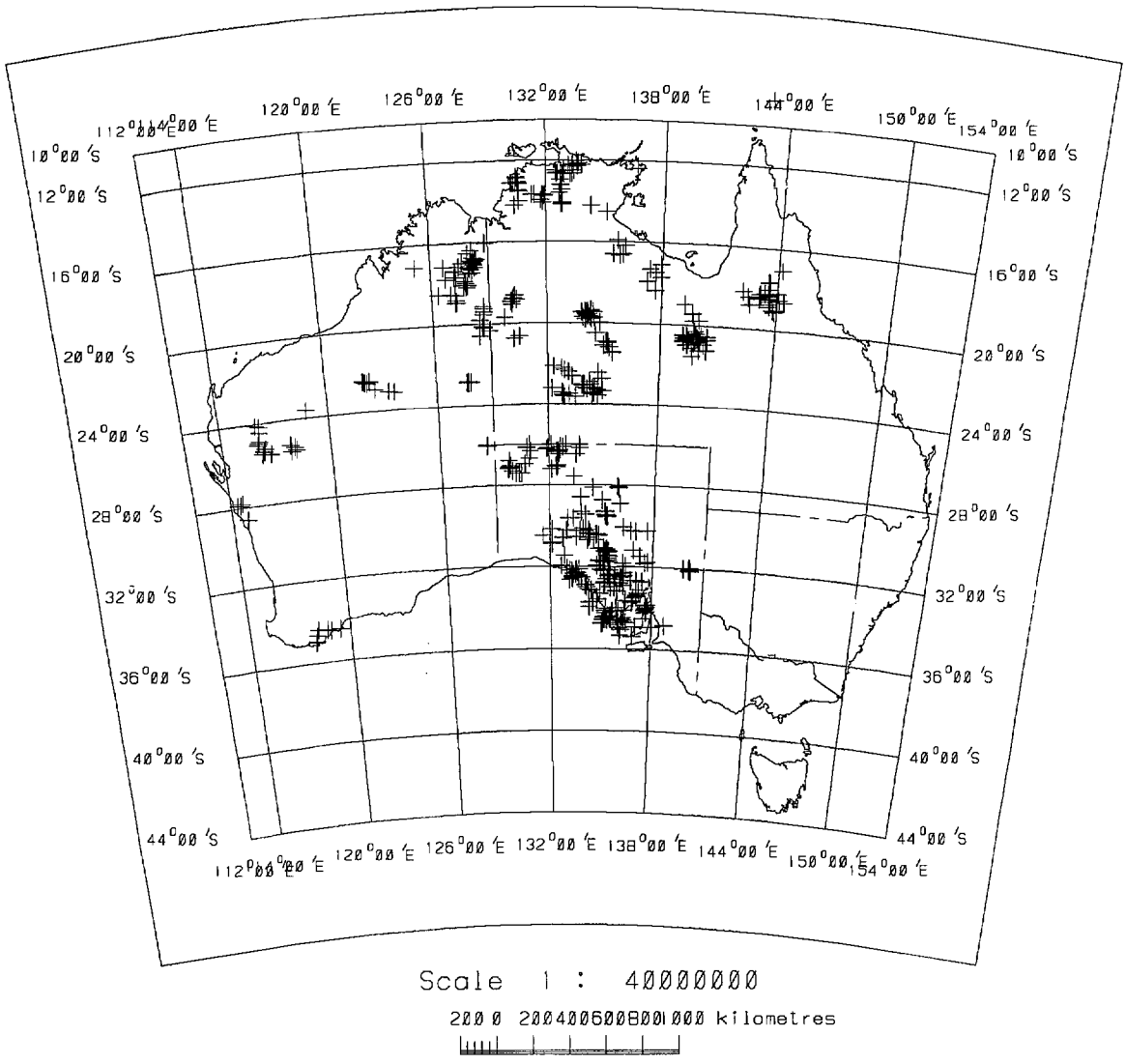

Fig. 5.1 Distribution of Rb-Sr results included in Proterozoic dataset Release 1.0

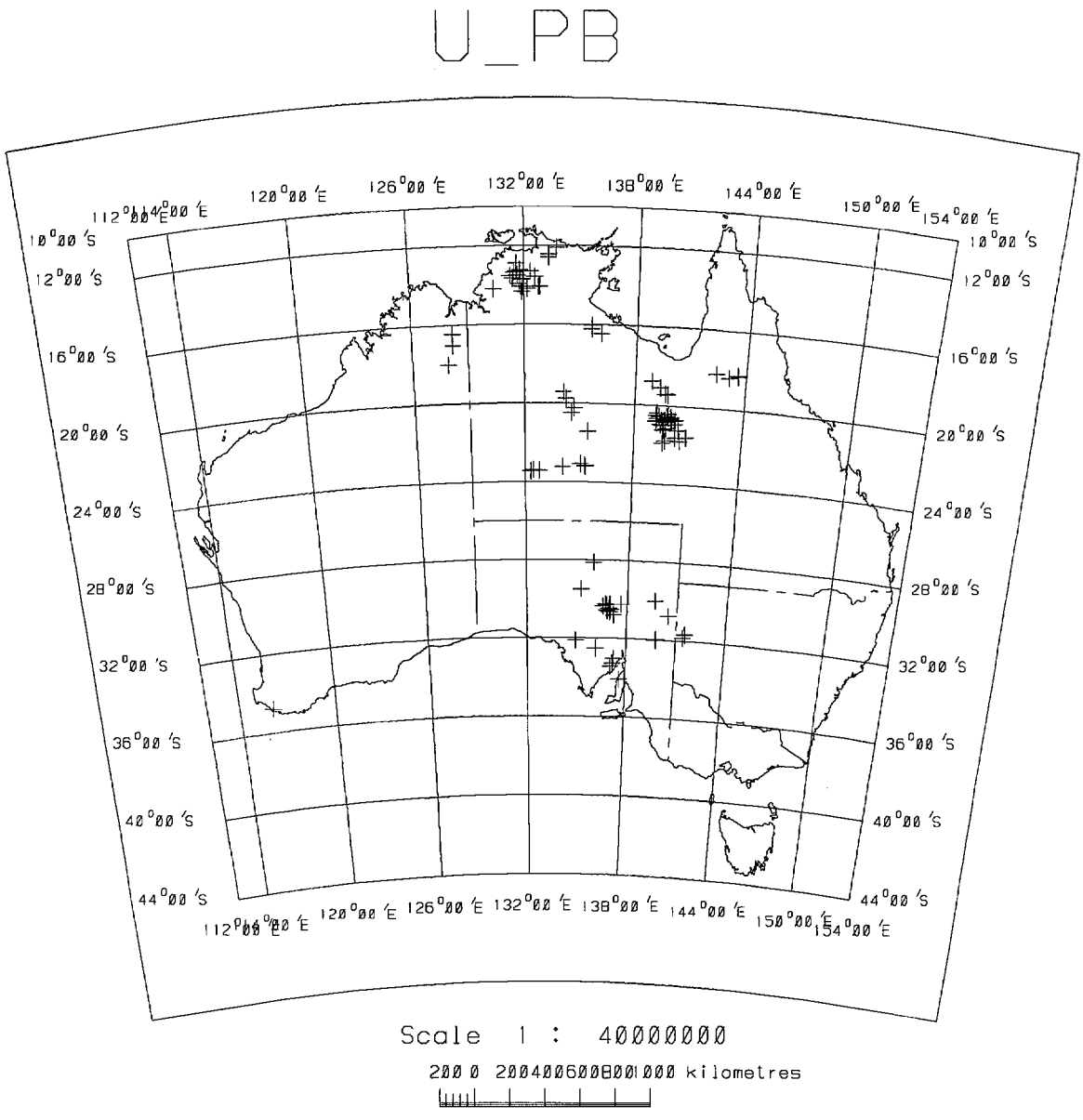

Fig. 5.2 Conventional U-Pb zircon results included in Proterozoic dataset Release 1.0

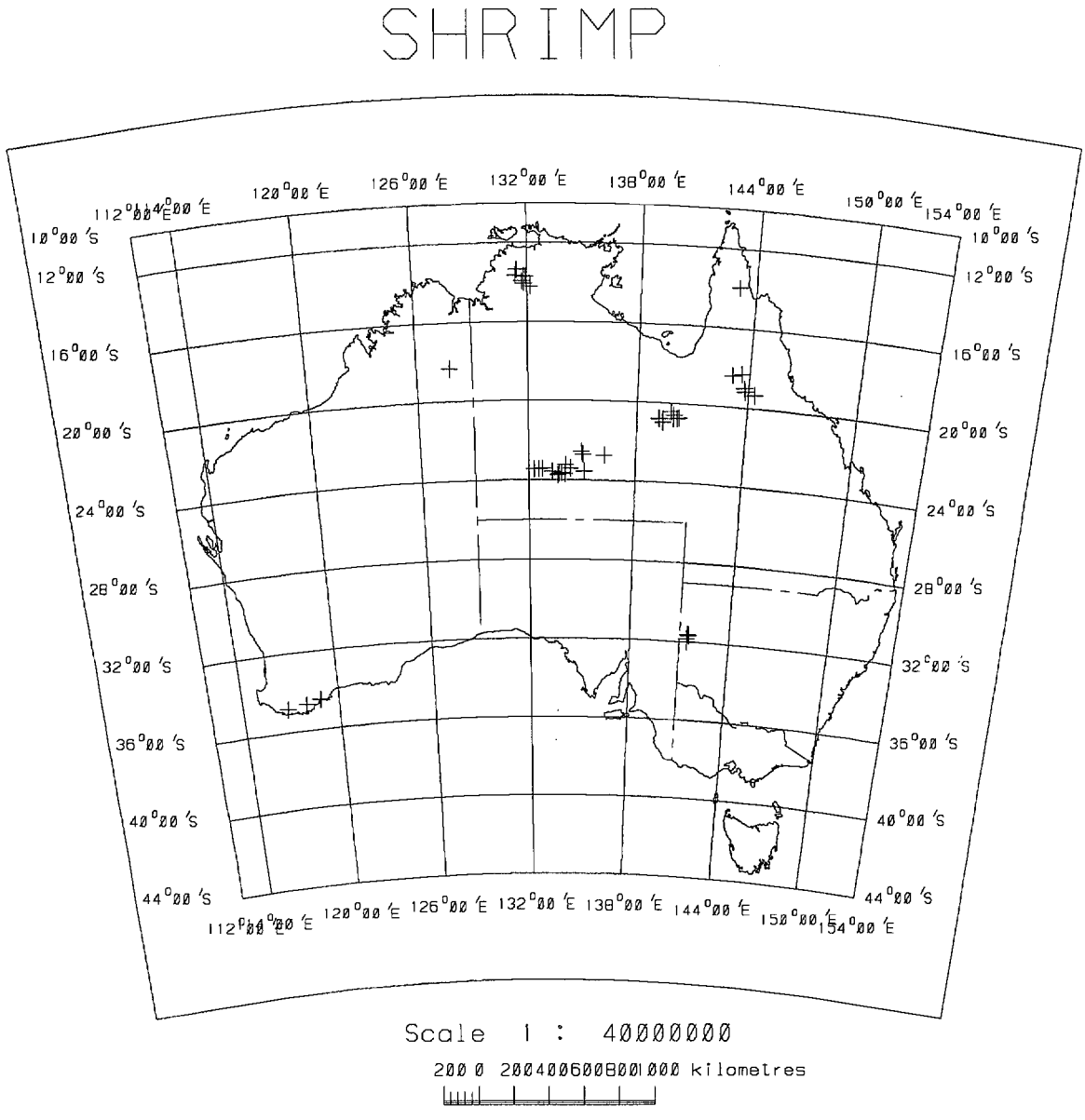

Fig. 5.3 Distribution of SHRIMP Ion-probe U-Pb zircon results included in Proterozoic dataset Release 1.0