

Using the StratDB / IGCP509 Database

Databases

IGCP 509 project participants will use data from two databases, both of which are available from the IGCP 509 [web site](#) and from the database page of the [Saskatchewan Isotope Laboratory \(SIL\)](#). These databases are:

- DateView geochronology database,
- IGCP509 lithostratigraphy, deformation and metamorphism database.

The latter is actually an age-restricted (Palaeoproterozoic) view of the StratDB database (also available at the SIL web site).

The IGCP509 database will form the principal mechanism to facilitate the construction of time-space correlation charts for the project. Details are provided elsewhere on this web site of how to [contribute data](#) and to [construct the time-space correlation charts](#), utilising information in IGCP509 and DateView.

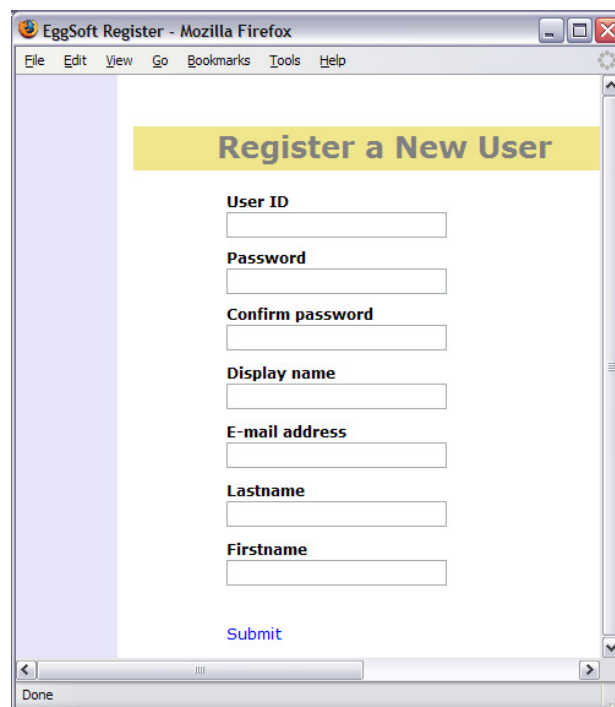
Log In or Register as a New User

If all has worked as it should, you will see the following window.



If you are a new user and have not previously used either DateView or IGCP509/StratDB, then you will need to register with the system. Registration and use of the database systems is free, but various levels of access permission are provided in the different database systems, depending on whether one will contribute data or not. For some databases, for instance in DateView, users may capture their own, confidential information. the database needs to know who you are to manage this process.

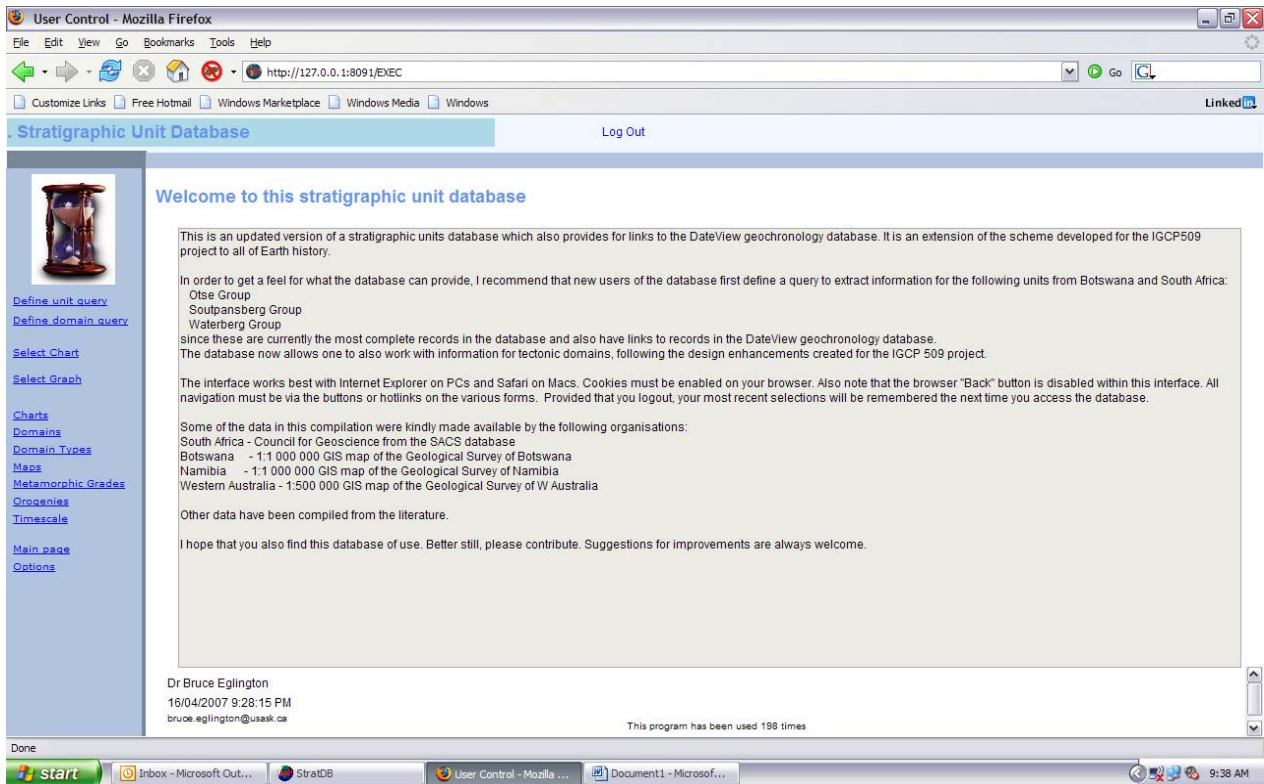
If you have forgotten your password, clicking on the appropriate link in the log-in screen will email the details to the email address provided during registration. If you change address, please update you details in the database.



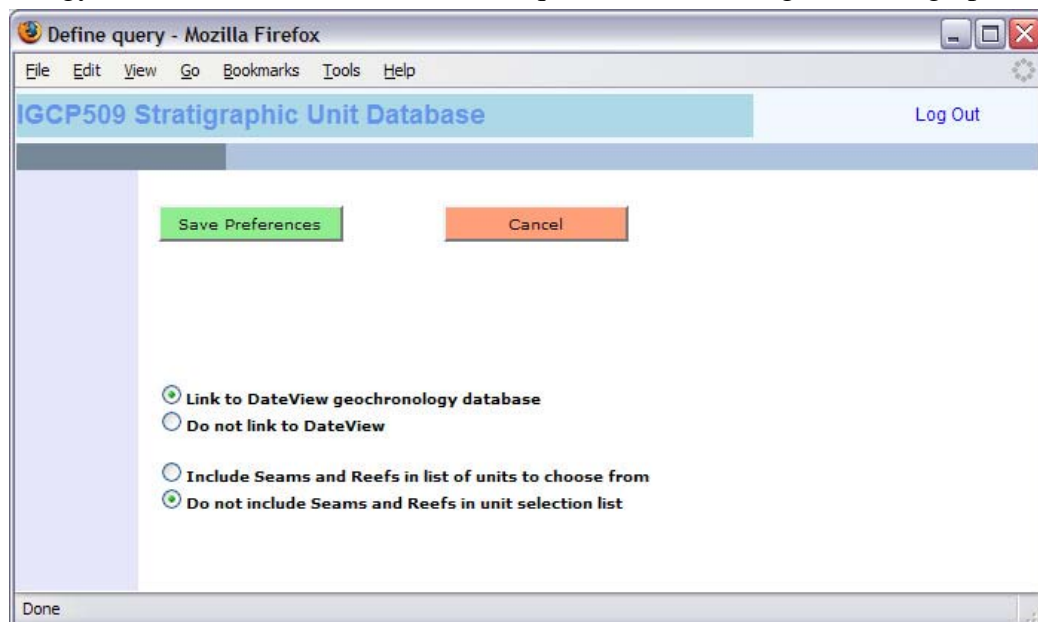
The screenshot shows a web browser window titled "EggSoft Register - Mozilla Firefox". The browser's menu bar includes "File", "Edit", "View", "Go", "Bookmarks", "Tools", and "Help". The main content area has a yellow header with the text "Register a New User". Below this header, there is a registration form with the following fields: "User ID", "Password", "Confirm password", "Display name", "E-mail address", "Lastname", and "Firstname". Each field is represented by a text input box. At the bottom of the form, there is a blue "Submit" button. The browser's status bar at the bottom shows "Done".

Once you have logged in to the database, you will see the Main Menu window (see below). Top-level hot-links to the various components of the database interface are provided on the left and a window with messages about the current state of the database appears on the right. Be sure to log out from the system, using the "Log Out" hot-link at the top of any screen if you want to save your query definitions for when you return another time.

Please note that browser navigation behaviour in this interface is somewhat different to that in most browsers. Specifically, the browser's "Back" button is disabled and all navigation needs to be performed using buttons or hot-links provided on the various forms. This is done to ensure that 'state' information is carried across from one form to another, which facilitates keeping track of the user's personal queries and preferences.



One of the first things to do when using the IGCP509/StratDB interface for the first time, is to set up your personal preferences. This is done by clicking on the "Options" hot-link. This will bring up a window in which you can specify whether you want to see linked data from the DateView geochronology database and the level of detail required when running lithostratigraphic queries.



Querying the Database

A number of types of query may be performed using the IGCP509/StratDB interface. Two will be of most relevance:

- select particular lithostratigraphic units;
- choose various structural domains

Querying in either of these is similar, so only one is illustrated here. After clicking on the "Define unit query" hot-link, you will be asked to select one or more continents from a list. Use standard 'click' or "Shift-Click" approaches to select the continents for which you wish to see information. Only continents for which data exist in the database will appear in the list. **You will notice a checkbox at the top left of the list of continents. Similar checkboxes appear in many other query definition forms. You must check this box if you want to include the field in a query.** this checkbox is provided to facilitate repeat queries in which users want to include/exclude particular fields without continually needing to search for and check all items in the list.

Please note that, a more refined query will take less time to execute than one which returns a huge amount of information. You, as user, will need to choose an optimum degree of detail to specify in your query. Many users tend to overspecify their queries with too much detail. Rather start broader, and then focus in by refining the query with additional search field constraints.

Define query - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

IGCP509 Stratigraphic Unit Database [Log Out](#)

☒ Include selection from Continents

Africa
Antarctica
Australia & Oceania
North America
Undefined

Select the Continents from which you wish to obtain data. Note that the values selected here will influence subsequent lists used to further refine search conditions and will also influence the final query.

Multiple Continents may be selected.

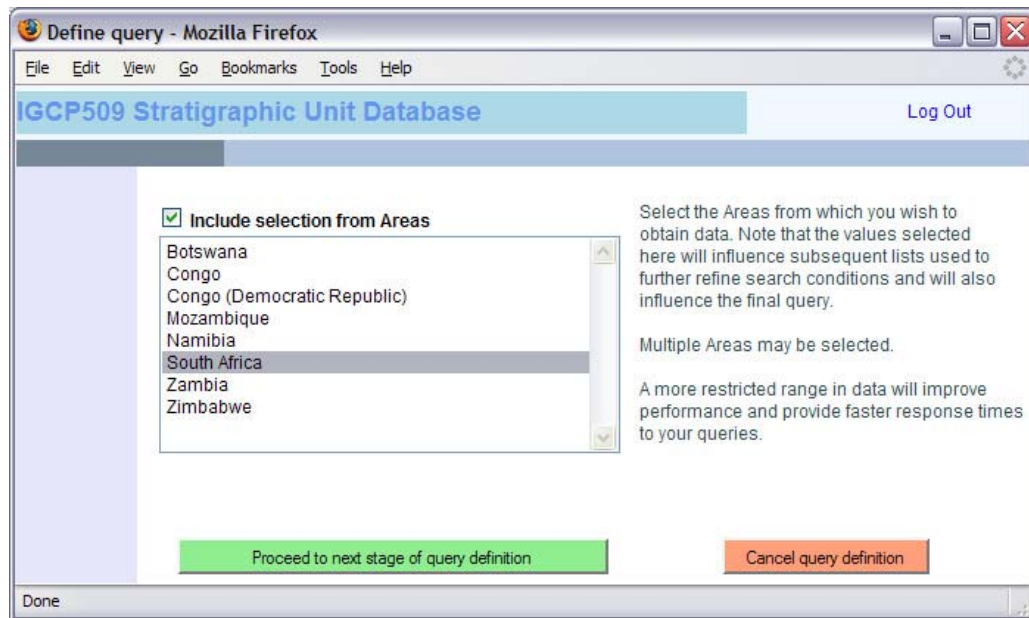
A more restricted range in data will improve performance and provide faster response times to your queries.

[Proceed to next stage of query definition](#) [Cancel query definition](#)

Done

You will now be prompted with a list of countries within the continents you selected. You may select one or more country or, in this case, none (do not check the checkbox if this is what you want). Omitting any countries from the selection will effectively select data from all the countries

in the selected continents.



Now, you need to select from a number of different options, such as:

- lithostratigraphic units from the selected countries
- minimum and maximum ages of the units
- sort order of the units
- references associated with particular lithostratigraphic units
- structural domains with which units are associated
- validation status of the units

All lithostratigraphic units are hierarchically linked to a 'parent unit'. One may thus also limit the results to those units at the top of the hierarchy. Finally, one may select from a number of options for sorting of the output data.

At this point, you will be provided with a list of lithostratigraphic units which matched your query conditions, arranged in pages of twenty results per page.

7 records match the query specified

1 of 1

Sorted as specified in query

ID	Area	Strat. Unit	Rank	Sort Order	Parent ID	Min. Age (Ma)	Max. Age (Ma)	Age Units	Approval Status
57	South Africa	Waterberg	Group	1750001024	0	0.00	4570.00	Ma	Approved by controlling body
52	South Africa	Brulpan	Group	1760000000	0	0.00	4570.00	Ma	Not yet approved
58	South Africa	Soutpansberg	Group	1760000000	0	1750.00	2021.00	Ma	Approved by controlling body
305	South Africa	Grobblershoop	Formation	1765000064	52	0.00	4570.00	Ma	Approved by controlling body
6	South Africa	Olifantshoek	Supergroup	1927000960	0	1915.00	2000.00	Ma	Approved by controlling body
318	South Africa	Hartley	Formation	1928000000	6	1926.00	1930.00	Ma	Approved by controlling body
10	South Africa	Transvaal	Supergroup	2100000000	0	2050.00	2700.00	Ma	Approved by controlling body

It is possible to change the sort order of the results by clicking on the heading of an appropriate column in the results grid. Alternatively, one may drill down to more detailed information for each selected unit by clicking on the hot-link unique UnitID at the left of the grid.

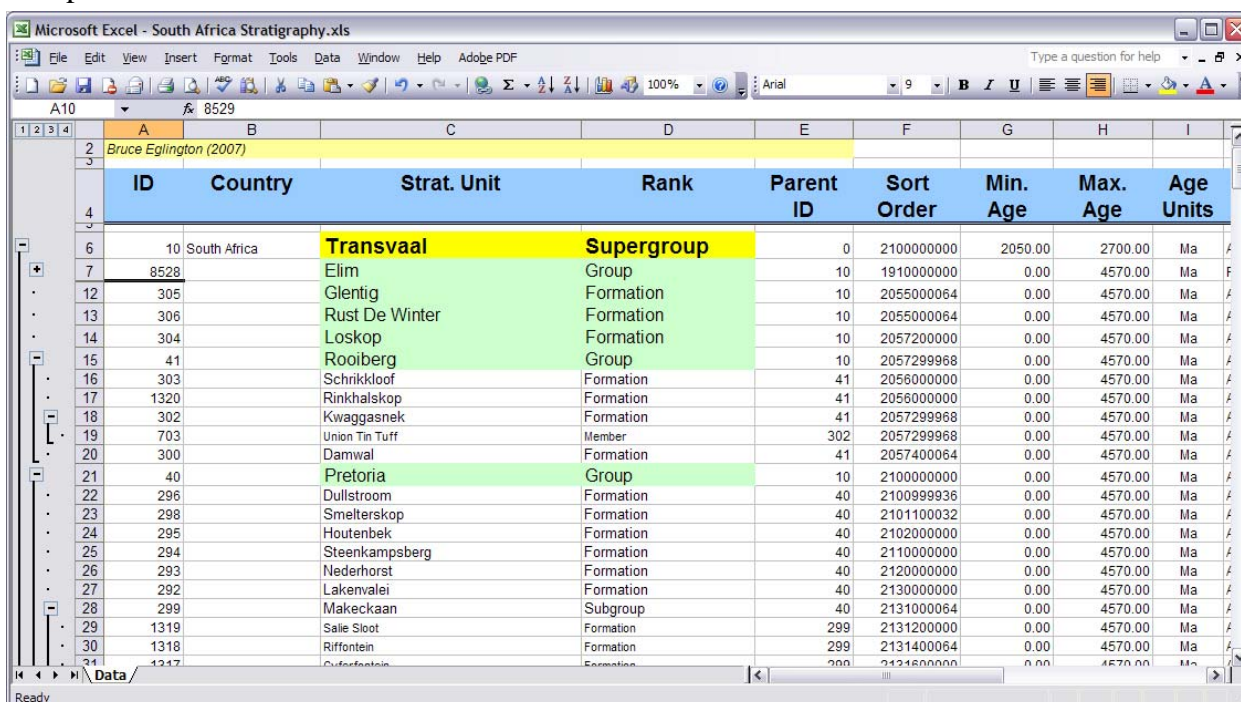
Once one has drilled down to a specific unit, one may navigate up and down the hierarchical relationships captured by clicking on appropriate hot-links or buttons.

A button also provides an Excel download of all the selected units and their hierarchically organised subordinate units. More details of this capability are provided elsewhere.

[illegible]

Download Hierarchical Information from the Database

Once you have defined and run a query, it is possible to download aspects of the results to an Excel spreadsheet. These include the hierarchical relationships between the various units, as illustrated below. Note that one can minimise 'parent' units so as to limit the hierarchical view in the spreadsheet.



The screenshot shows an Excel spreadsheet titled "Microsoft Excel - South Africa Stratigraphy.xls". The spreadsheet displays a hierarchical table of geological units. The columns are: ID, Country, Strat. Unit, Rank, Parent ID, Sort Order, Min. Age, Max. Age, and Age Units. The data is organized into a tree structure, with parent units expanded to show their sub-units. The units are color-coded: yellow for Supergroups (Transvaal, Pretoria), green for Groups (Elim, Rooiberg), and light blue for Formations and Members. The units are listed in descending order of age, from 2100000000 years ago to 2131400000 years ago.

ID	Country	Strat. Unit	Rank	Parent ID	Sort Order	Min. Age	Max. Age	Age Units
10	South Africa	Transvaal	Supergroup	0	2100000000	2050.00	2700.00	Ma
8528		Elim	Group	10	1910000000	0.00	4570.00	Ma
305		Glentig	Formation	10	2055000064	0.00	4570.00	Ma
306		Rust De Winter	Formation	10	2055000064	0.00	4570.00	Ma
304		Loskop	Formation	10	2057200000	0.00	4570.00	Ma
41		Rooiberg	Group	10	2057299968	0.00	4570.00	Ma
303		Schrikkloof	Formation	41	2056000000	0.00	4570.00	Ma
1320		Rinkhalskop	Formation	41	2056000000	0.00	4570.00	Ma
302		Kwaggasnek	Formation	41	2057299968	0.00	4570.00	Ma
703		Union Tin Tuff	Member	302	2057299968	0.00	4570.00	Ma
300		Damwal	Formation	41	2057400064	0.00	4570.00	Ma
40		Pretoria	Group	10	2100000000	0.00	4570.00	Ma
296		Dullstroom	Formation	40	2100999936	0.00	4570.00	Ma
298		Smelterskop	Formation	40	2101100032	0.00	4570.00	Ma
295		Houtenbek	Formation	40	2102000000	0.00	4570.00	Ma
294		Steenkampsberg	Formation	40	2110000000	0.00	4570.00	Ma
293		Nederhorst	Formation	40	2120000000	0.00	4570.00	Ma
292		Lakenvalei	Formation	40	2130000000	0.00	4570.00	Ma
299		Makeckaan	Subgroup	40	2131000064	0.00	4570.00	Ma
1319		Salie Sloot	Formation	299	2131200000	0.00	4570.00	Ma
1318		Riffontein	Formation	299	2131400064	0.00	4570.00	Ma
1317		Cufoerfontein	Formation	299	2131600000	0.00	4570.00	Ma

It is also possible to download equivalent Excel spreadsheet views of the hierarchical relationships between structural domains and of geological timescale subdivisions.

Modifying Information in the Database

Once one has drilled down to a specific unit, one may edit details of the unit if one has been given edit permission by the database administrator. This level of permission is not provided to everybody as there is an increased chance that database records may be corrupted as more users are permitted to change the contents of records.

Before you can edit information for a record, you will need to click on the "*Edit*" button. Once all changes have been made, the "*Apply updates*" button must be clicked before moving to another record or moving to another form. If this is not done, the changes will be lost. If a mistake is made, clicking on the "*Cancel updates*" button will return the database information for the current record to the same state it was in before editing commenced. **Please be very careful during editing as there is no way to reverse a change which has been saved!**

Raise an Objection Against Specific Record Information in the Database

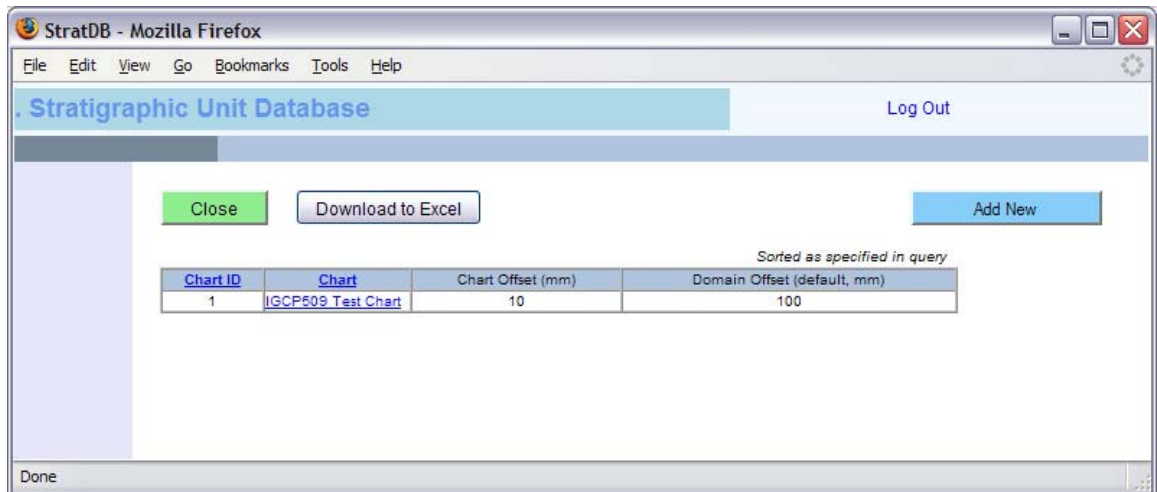
I have also implemented a system to facilitate moderation (termed 'Validation') in the database interface. Various regional coordinators will be assigned the role of checking that the contents of the database are correct in their areas of expertise. Any user may "raise an objection" to any aspect of the current contents and these objections will be adjudicated by the 'Validators' in an attempt to reach a compromise. In extreme cases, this might even entail adding new records to capture distinctly different views of the lithostratigraphy or metamorphic or deformation history of an area. If you feel that you have appropriate local knowledge and are prepared to take on the role of 'Validator', please contact [me](#).

Create a Time-Space Correlation Chart

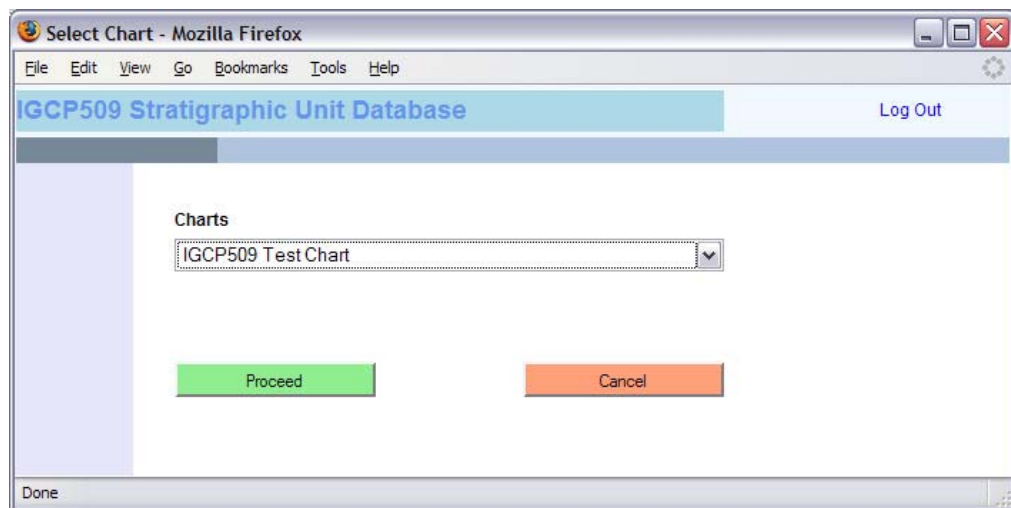
One of the major reasons for developing the IGCP509/StratDB database system was to facilitate the compilation of global time-space correlation charts for the IGCP 509 project.

Individual users may download information suitable for the construction of these charts. The details for each user's chart is stored individually so you cannot overwrite somebody else's chart.

First, one needs to define a chart name and some basic details. In this way, individuals may draw the information from the database so as to construct any number of charts for different parts of the world or for different domains. The following image shows the window which lists charts defined by a user.



You now need to assign various domains to a chart. First, one needs to limit the list of domains to a particular continent, as shown below.



Then one must select the domain.

Mozilla Firefox

File Edit View Go Bookmarks Tools Help

IGCP509 Stratigraphic Unit Database Log Out

[Return to Main page](#) [Edit this record](#)

Chart :

Chart name **IGCP509 Test Chart**

Unit ID **1** Chart Offset (mm) **10** Default Domain Offset (mm) **100**

Description
Test chart with some domains

Domains included :

[Add link](#) [Delete link](#)

Chart ID	Order	Offset (mm)	Domain ID	Cont.	Domain
1	1	100	1616	UND	Test domain 1
1	2	100	1617	UND	Test domain 2
1	3	100	1618	UND	Test domain 3

Done

Mozilla Firefox

File Edit View Go Bookmarks Tools Help

. Stratigraphic Unit Database Log Out

[Return](#) [Edit](#) [Save changes](#) [Cancel changes](#) [Delete link](#)

Chart ID	Order	Offset (mm)	ID	DOMAIN	Cont. ID
1	1	100	1616	Test domain 1	UND
1	2	100	1617	Test domain 2	UND
1	3	100	1618	Test domain 3	UND
1	4	100	-8	Temporary for AFR	AFR

Domain

Order

Offset (mm)

Done

Add all required domains in the order you want them (from left to right across the final time-

space correlation chart), by iterating through these selection steps for each required domain.

A legend has been designed for the IGCP 509 time-space correlation charts which will, hopefully, permit users to illustrate the fundamental aspects of the development of various regions. The current version of this legend is illustrated below. Please note that this legend may well yet be changed and is shown here to illustrate current thinking and to provide a better understanding of the database design and capabilities.

Legend

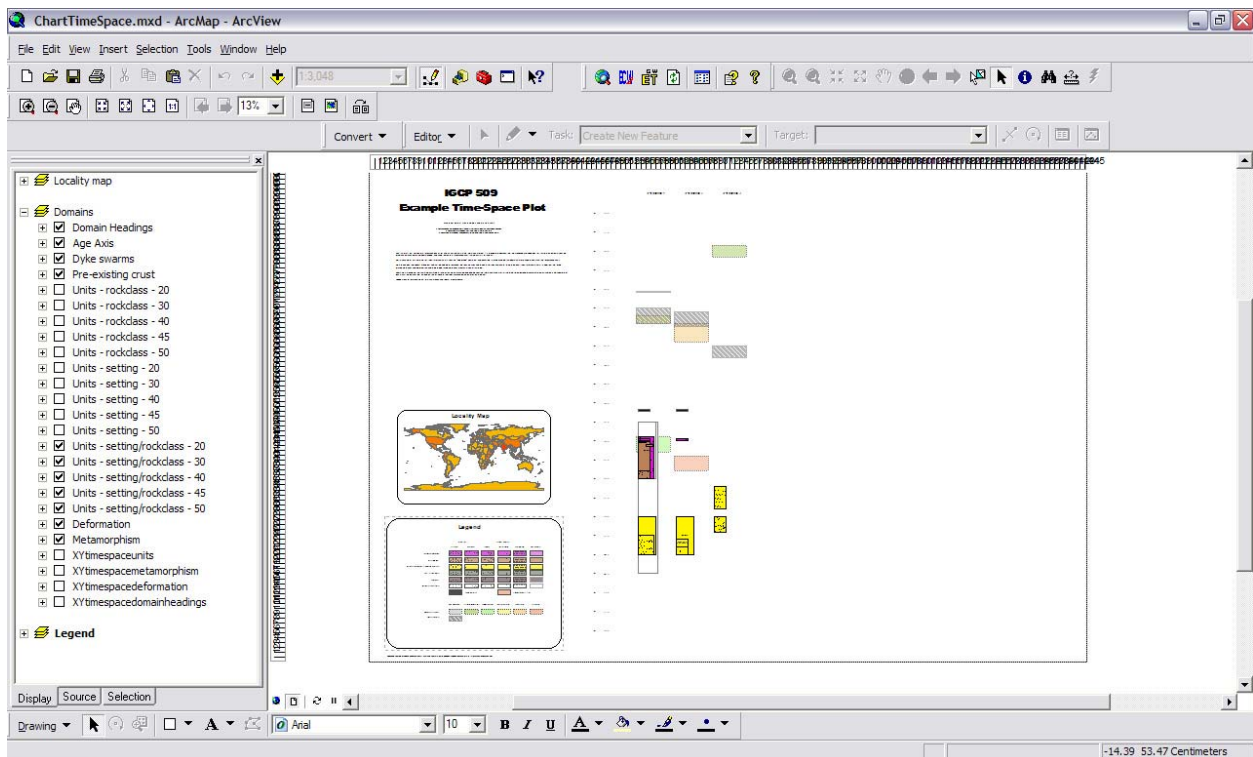
	IGNEOUS		SEDIMENTARY			
	Plutonic	Volcanic	Clastic	Carbonate	Ironstone	Not known
Collision-related						
Arc-related						
Intracontinental / Passive Margin						
Rift / Extension						
Oceanic						
Setting not known						
		Dyke swarm			Pre-existing crust	
	Not defined	Sub-greenschist	Greenschist	Amphibolite	Granulite	Eclogite
Metamorphism						
Deformation						

Once all domains have been added to a user's chart, all the information required to create the time-space correlation chart should be downloaded into four Excel spreadsheets, using the buttons at the bottom of the Chart Selection window. The details in these spreadsheets may then be imported into a GIS package, as described [here](#).

Please do not modify the spreadsheet contents before importing them to GIS. The layout of each spreadsheet is specifically designed to provide all necessary information for creating appropriately coloured rectangles (polygons) and correctly positioned text.

Once imported to a GIS package, such as ARCGIS, the time-space correlation chart will look something like the image shown below. here, information for a various hypothetical

lithostratigraphic units associated with three artificial structural domains have been used to test ideas for chart construction, layout, etc.



And here is an enlarged view of some of the polygons for various units and metamorphism episodes. In this case, unit polygons are colour coded according to their tectonic settings (see legend above).

