Meteorite impact structures of Western Australia

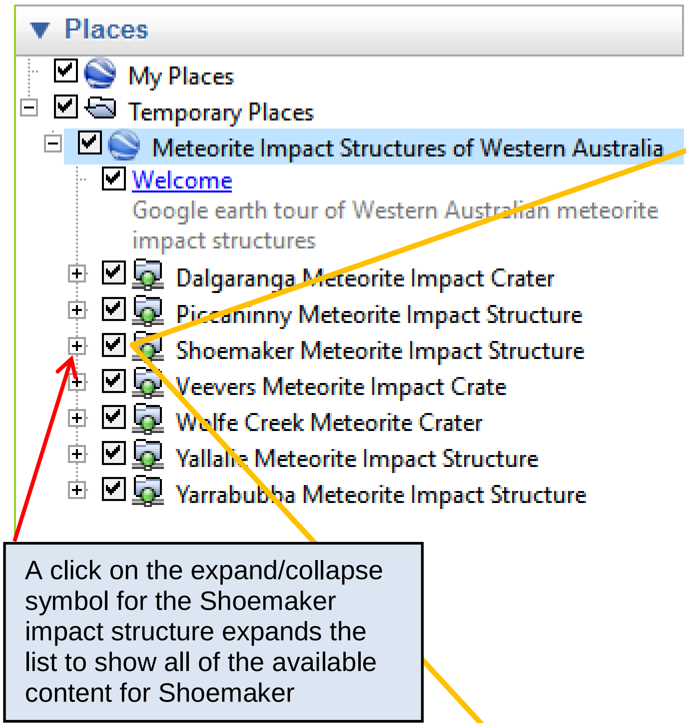
Features of the impact structures virtual tour

Impact structures in the virtual tour can be viewed in any order, and selected parts of the tour can be viewed at random.

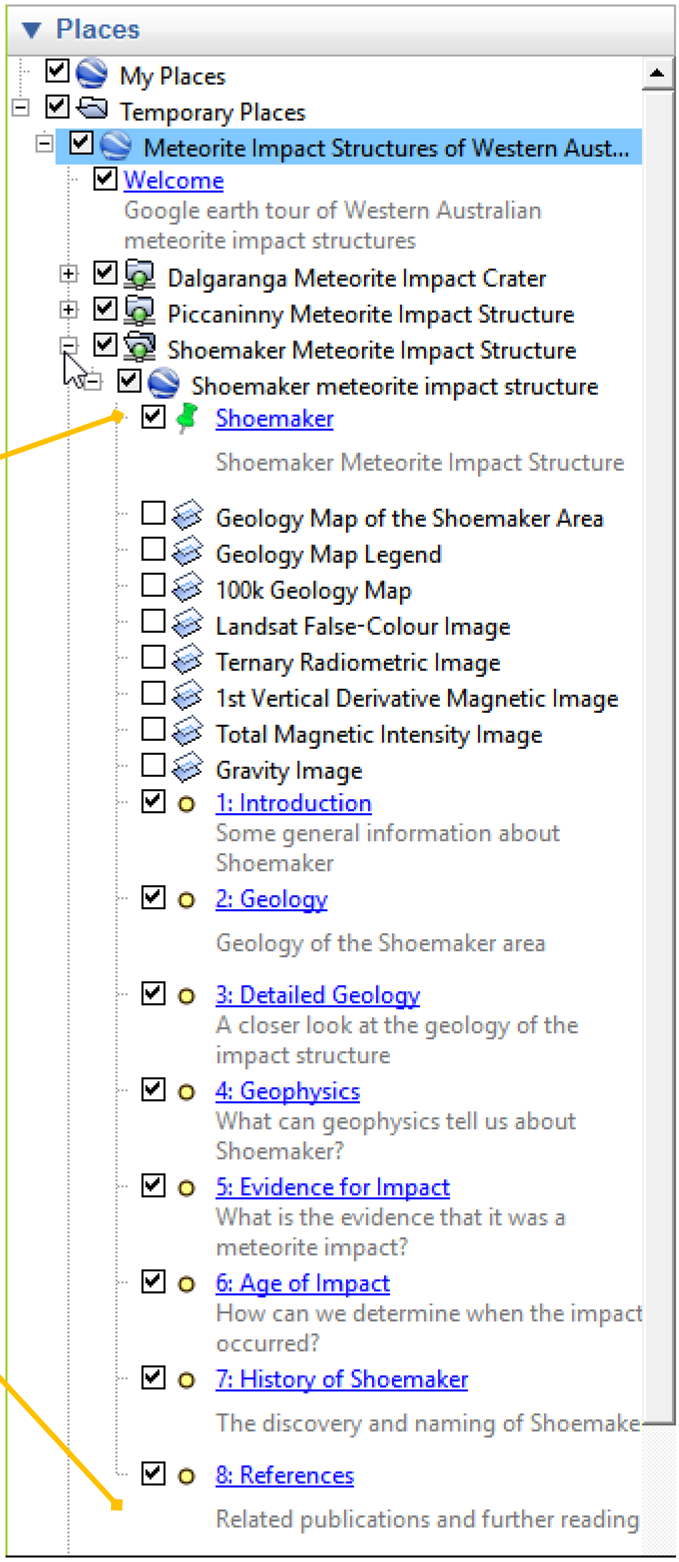
Please note: It is not possible to have more than one placemark window open at any time. In addition, opening an external figure via a hyperlink will cause the current placemark window to close. ***These are limitations of Google Earth.***

(1) Places panel

The places panel on the left hand side of the Google Earth window shows a folder-like list of all the impact structures in the tour and allows you to expand or collapse the individual parts of the tour. The list is collapsed when the tour is first opened:



The list of places can be expanded (or collapsed) by clicking on the expand/collapse controls (plus/minus, or rotating arrow symbols depending on the set-up of your computer). In addition, sections of the tour (placemarks, overlays, or even entire impact structures) can be turned on or off as desired using the check boxes.

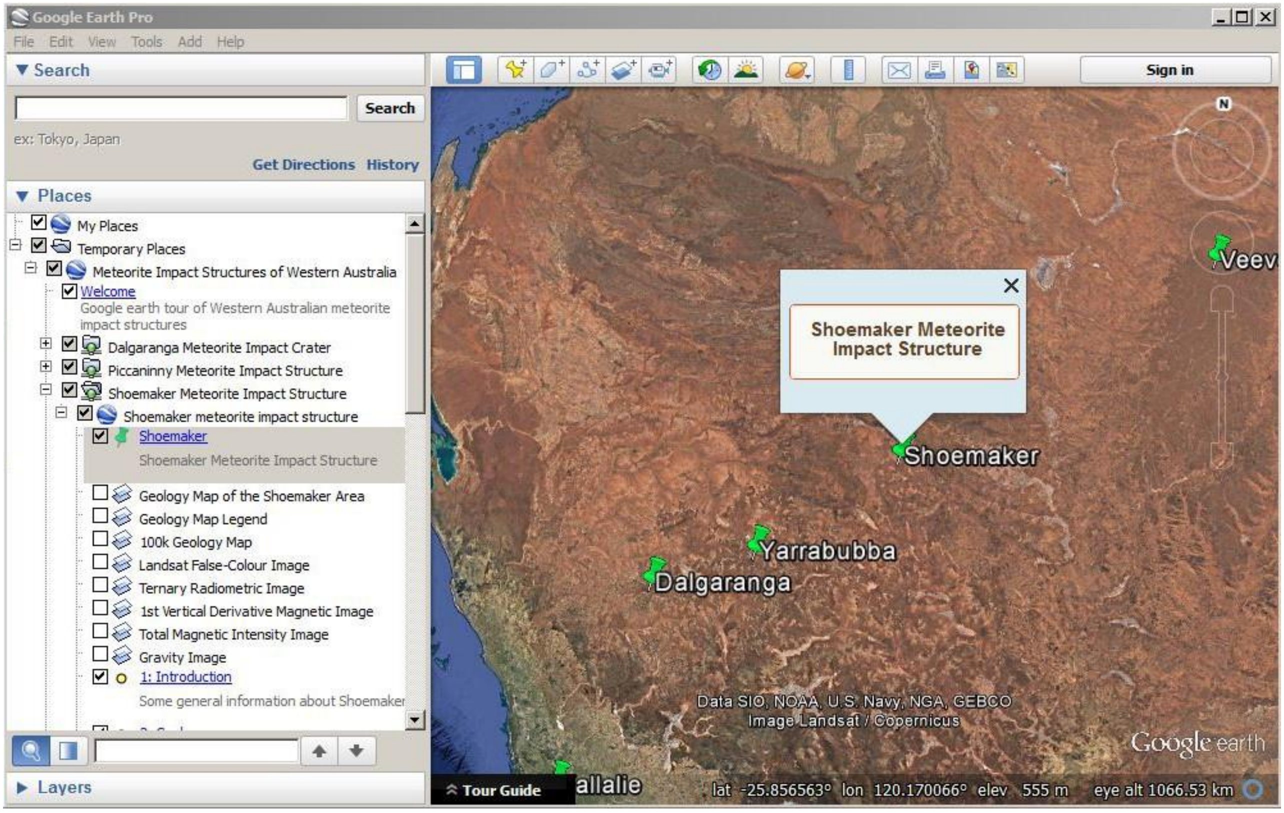


Click on the links (blue; underline) to view the placemark window for localities of interest. A double-click will make Google Earth 'fly' to the locality before opening the placemark window.

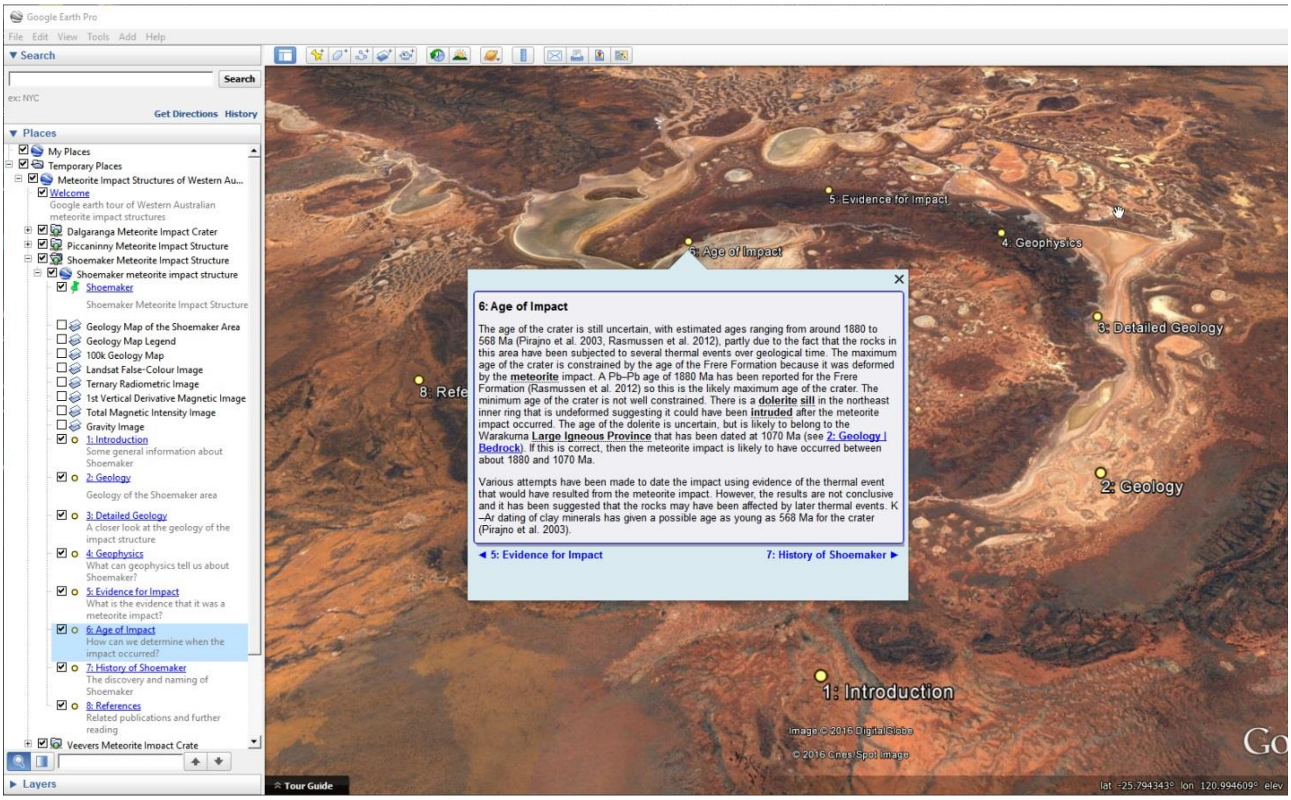
Map or image overlays for each crater (if available) are found near the top of the places list. They can be checked on or off as desired. By default they are semi-transparent when turned on and the terrain remains partly visible through the overlay. The transparency of the overlays can be adjusted through the overlay properties. Overlays are displayed in the order that they are turned on — the first overlay to be turned on is displayed on the bottom, and overlays turned on subsequent are displayed on top of any other visible overlays.

(2) Placemark windows

The placemark windows can be opened through the places panel, or by clicking on the placemark pins in the terrain view. There are two levels of placemark. The highest level, which is marked by a green push pin, is simply a location sign to indicate the name and location of a meteorite impact structure.

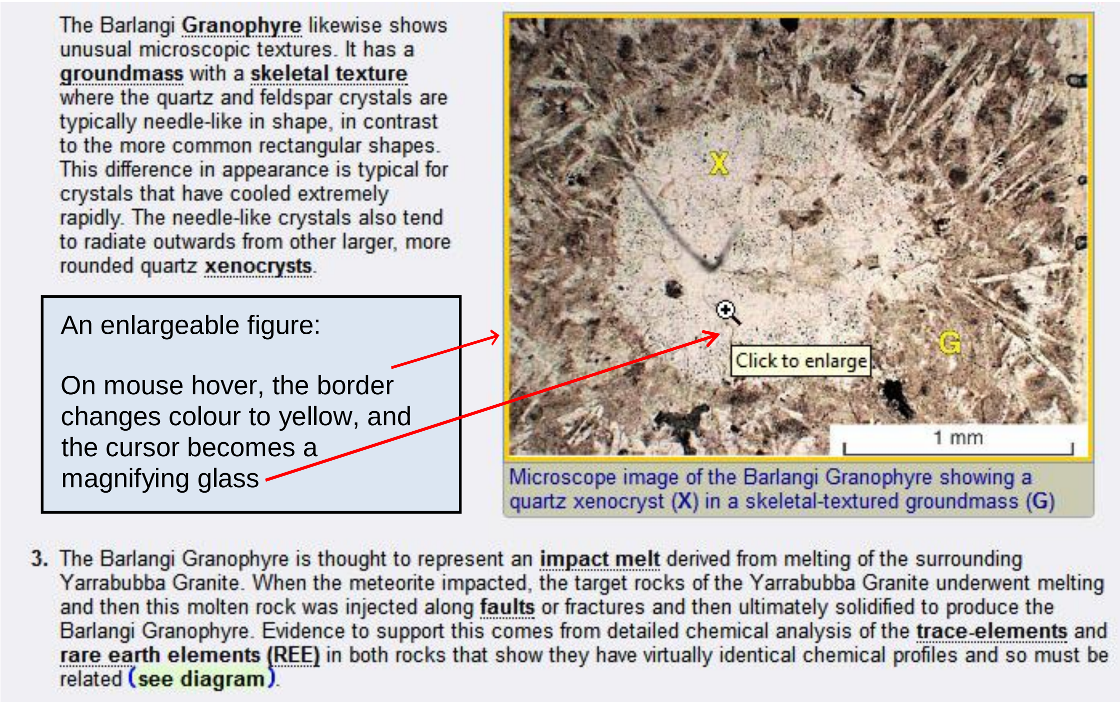


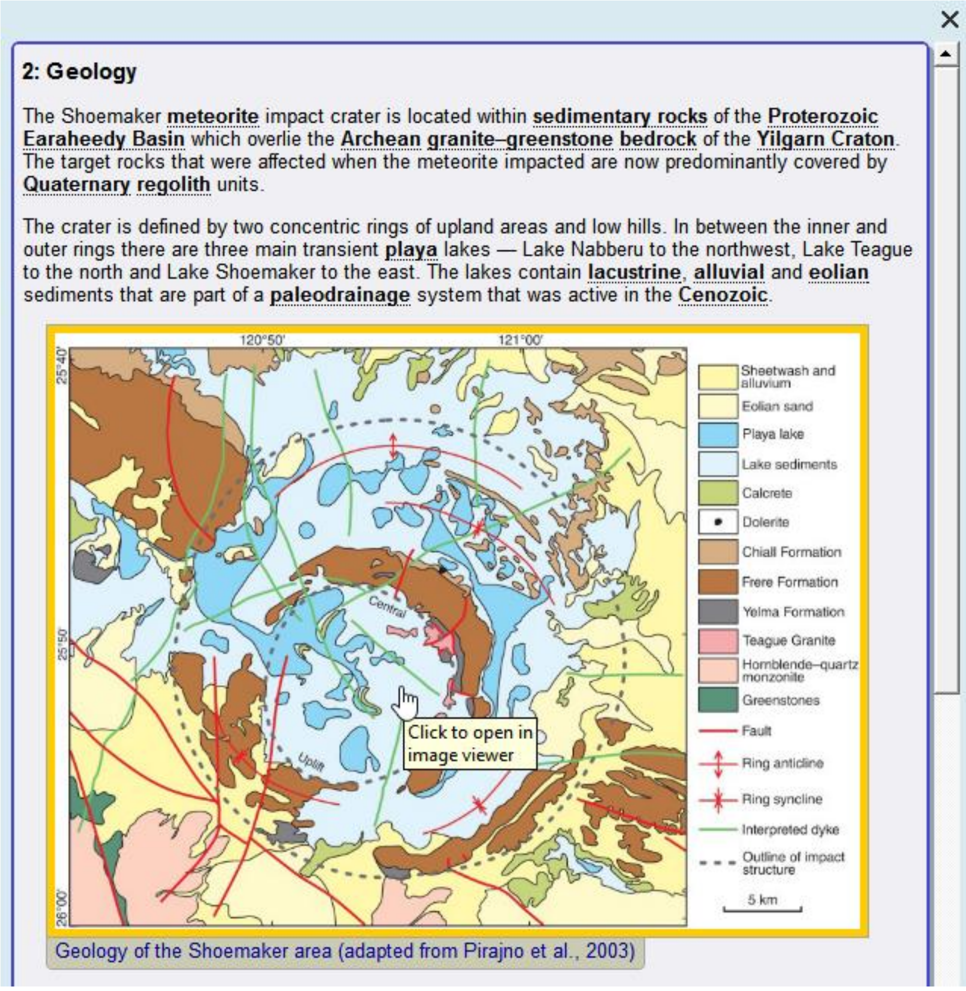
The lower level placemarks are shown by a yellow dot and are only visible when the view is zoomed-in close to an impact site. They contain information about the points of interest, images or diagrams to illustrate some of the interesting features, and links to relevant discussion points in other placemarks. Some placemarks also have links to external websites. On the bottom margin of the information window there are links that allow you to 'fly' to the next or previous window. They also show a change in colour and cursor shape as the mouse is moved over them.



(3) Figures

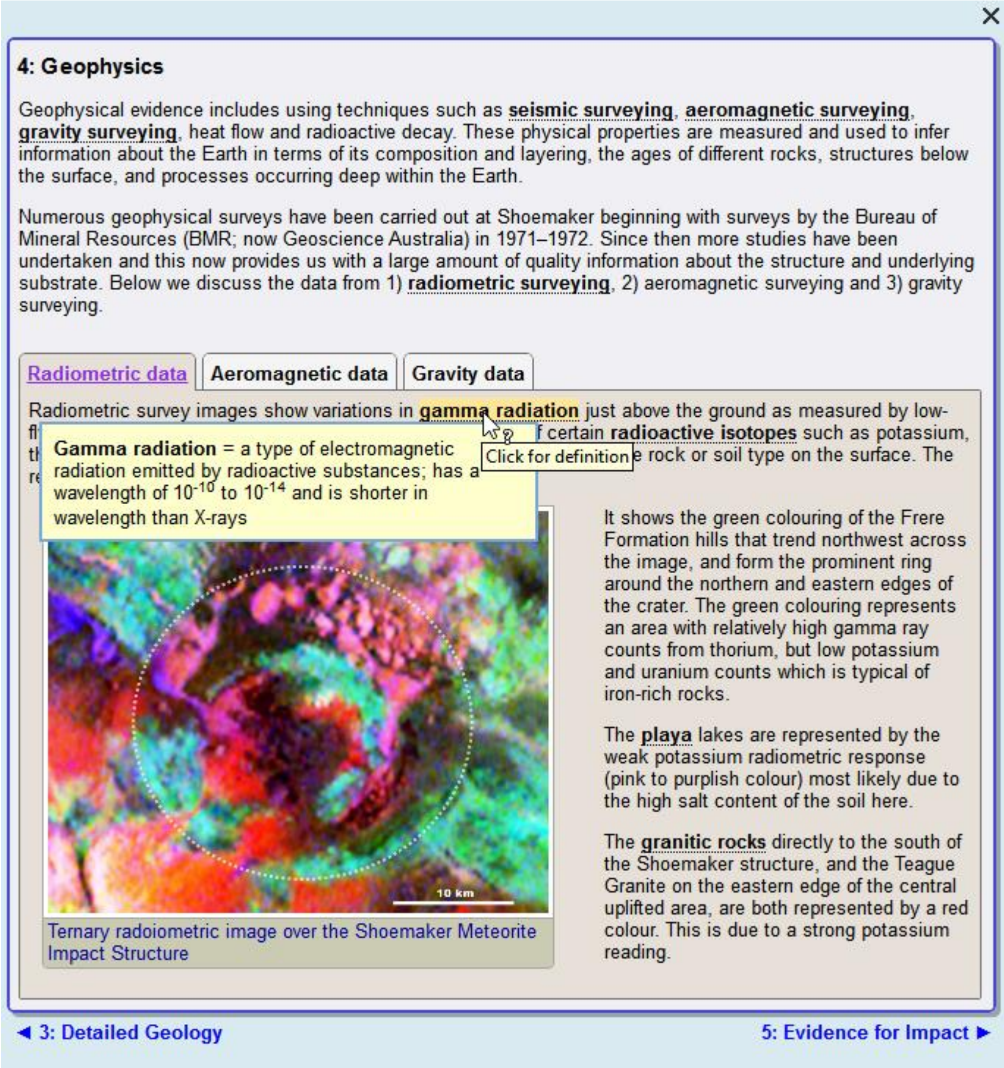
Most figures are embedded in the placemark windows and can be viewed together with the text. Some figures are responsive and can either be enlarged by a mouse click, or opened for viewing in an external window. Responsive figures react to mouse movement by showing a highlighted border and a change in the shape of the cursor. A tool tip indicates how the figures respond.



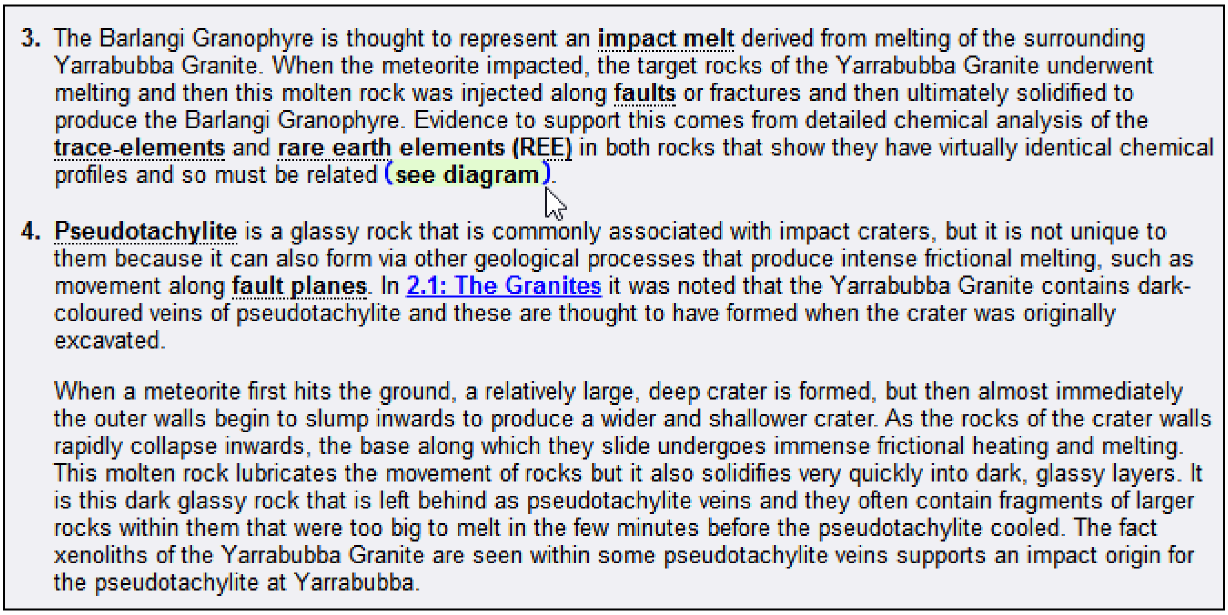


(4) Glossary definitions

Glossary terms are shown in bold black text with a dotted underline on the first occurrence of the term in a placemark. The terms are responsive. The background and mouse cursor shape will change when the mouse is moved over them. A definition of the glossary term can be viewed in a pop-up window by clicking on the glossary term. The definition window remains visible until the mouse is moved off the glossary term.

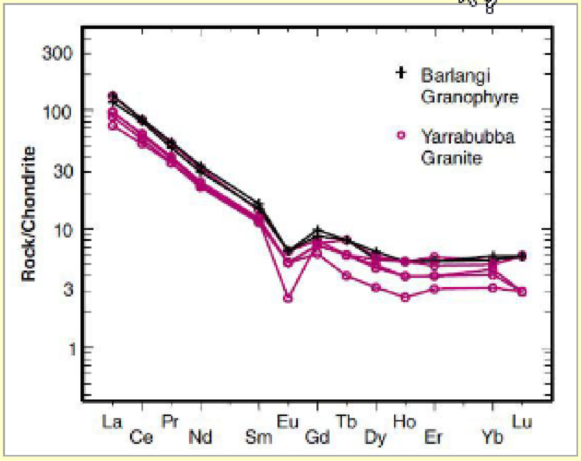


Pop-up diagrams and images are indicated by clickable buttons in the body of the text. They are shown with bold text on a green background. They respond by changing colour and cursor shape when the mouse moves over them.



Clicking on them brings up the associated diagram, which remains visible until the mouse is moved away.

3. The Barlangi Granophyre is thought to represent an **impact melt** derived from melting of the surrounding Yarrabubba Granite. When the meteorite impacted, the target rocks of the Yarrabubba Granite underwent melting and then this molten rock was injected along **faults** or fractures and then ultimately solidified to produce the Barlangi Granophyre. Evidence to support this comes from detailed chemical analysis of the **trace-elements** and **rare earth elements (REE)** in both rocks that show they have virtually identical chemical profiles and so must be related (**see diagram**).



A comparison of the REE profiles of the Yarrabubba Granite and the Barlangi Granophyre

4. ciated with impact craters, but it is not unique to
ses that produce intense frictional melting, such as
s noted that the Yarrabubba Granite contains dark-
have formed when the crater was originally

eep crater is formed, but then almost immediately
and shallower crater. As the rocks of the crater walls
undergoes immense frictional heating and melting.
lso solidifies very quickly into dark, glassy layers. It
lite veins and they often contain fragments of larger
ites before the pseudotachylite cooled. The fact
pseudotachylite veins supports an impact origin for

5. pact Breccia). This type of rock is composed of
nelt particles that later solidified into a rock. They are
the actual impact occurred.

The melt component is formed by the shock waves from the impact producing extremely high temperatures and pressures in the target rocks, causing them to melt. The angular fragments in the **breccia** are due to the target