

Heritage Matters

As mentioned in my December 2022 TAG column, in 2021, the International Union of Geological Sciences (IUGS) International Commission on Geoheritage began a project to list significant geological and geomorphological sites of global significance. The objective, in the first instance, was to list, describe and illustrate the first 100 sites of geoheritage significance drawn from across the globe, and publish the information in a book (Gonzalo & Asier [eds], 2022). *The First 100 IUGS Geological Heritage Sites* thus lists key places with geological elements or processes of scientific international relevance, to be used as a reference, or with a substantial contribution to the development of geological sciences through history.

An IUGS Geological Heritage Site would have to be a globally significant, key place — preferably a specific outcrop, landform or process — with a single geological feature or a group of geological features that characterise it as one of the best examples of its kind globally. All kind of typologies related to Earth Sciences can be considered, but it should preferably stand out by one specific typology. Iconic places for geological sciences can include noteworthy waterfalls, glaciers, columnar joints, fossil localities or structures, and ought to be recognised for their scientific value as well as their educational potential. Some examples of nominated sites include the Sugar Loaf Monolith of Rio de Janeiro, the Shilin Karst of South China Karst, the Grand Canyon in the USA, the Okavango Delta and Pamukkale in Turkey.

In this context, the Uluru Inselberg in the NT is listed as one of the First 100 IUGS Geological Heritage Sites. Uluru is also listed as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site. Geologically, it is a massive sandstone monolith or inselberg that with the Kata Tjuta domes, forms part of the traditional belief system of one of the oldest human societies in the world. Uluru is sacred to Indigenous Australians. Uluru and Kata Tjuta (the latter also known as the Olgas) are the two major features of the Uluru–Kata Tjuta National Park (Isaacs, 1980).

As a landform, Uluru is a prominent, isolated, residual knob that rises abruptly from and is surrounded by extensive flat lowlands. It stands some 348 m above the plains (Twidale & Campbell, 2005). The area around Uluru has an abundance of springs, waterholes, rock caves and ancient paintings. The remarkable feature of Uluru is its homogeneity and lack of jointing and parting at bedding surfaces, leading to the lack of scree slopes and soil. Uluru is dominantly composed of steeply dipping to vertical coarse-grained arkose (a sandstone characterised by abundant feldspar) and some conglomerate, and is Precambrian, some 550 million years old (Twidale & Campbell, 2005). The minerals present suggest derivation predominantly from granite source. Weathering of iron-bearing minerals gives the outer surface layer of rock a red–brown, rusty colour. Sedimentary features within the sandstone include cross-bedding and ripples, analysis of which indicates deposition from broad, shallow, high-energy fluvial channels and sheet flooding.

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REFERENCES

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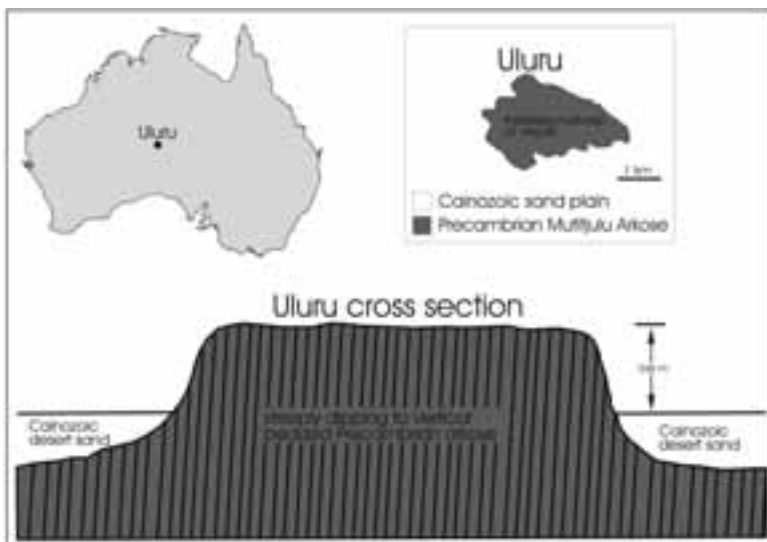
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The Uluru sandstone inselberg (a prominent isolated residual knob that rises abruptly from and surrounded by extensive flat lowlands). Image courtesy Andy Selinger and Alamy Stock Photo



Oblique aerial view of Uluru showing prominent vertically dipping strata. Image courtesy Nature Picture Library and Alamy Stock Photo



Uluru's location, its plan form, and geological cross-section of Precambrian arkose ordered by Cainozoic desert sand plain. Image courtesy Margaret Brocx