



Government of Western Australia
Department of Mines, Industry Regulation
and Safety

Calendar 2019



Geological Survey of
Western Australia





JANUARY

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	New Year's Day 1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	Australia Day 26	27
Australia Day holiday 28	29	30	31			



January 2019

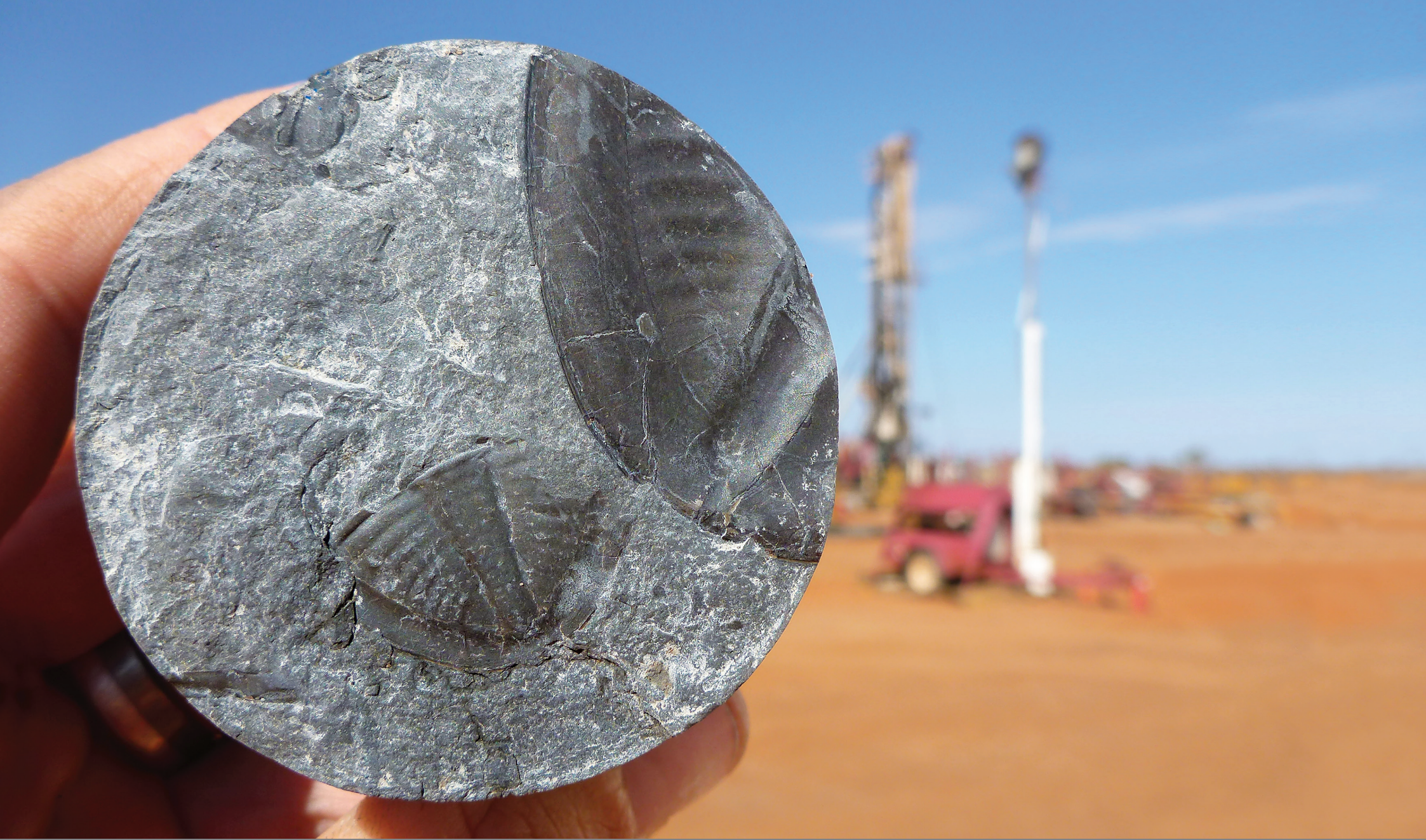
www.dmirs.wa.gov.au

A party of geologists in the Kimberley, with Mount Barnett in the background, painted by Edward Townley Hardman in the early 1880s. Hardman, an Irish geologist, arrived in Western Australia in 1883 on a Colonial Office contract. He was held in high regard by local explorers and miners, and his observations helped fuel the gold rush of that time

The Geological Survey of Western Australia (GSWA) was established in 1888 partly as a result of Hardman's successes.

GSWA's first logo is shown on the left of this page

Image held by DMIRS library



FEBRUARY

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	GSWA Open Day 22	23	24
25	26	27	28			



**Geological Survey of
Western Australia**



February 2019

www.dmirs.wa.gov.au

The broken end of drillcore reveals two pygidia – fused plates at the tail end of a trilobite belonging to the order Asaphida. These were recovered from a depth of 1333.47 m in petroleum exploration well Theia 1, seen in the background, on the Broome Platform, Canning Basin

Results from Theia 1 and other deep holes in the Canning Basin are published by GSWA as Digital Core Atlases, <www.dmp.wa.gov.au/GSWApublications>

Photo by Leon Normore



MARCH

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
Labour Day (WA) 4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



**Geological Survey of
Western Australia**



March 2019

www.dmirs.wa.gov.au

Dense, reticular joint pattern crosscutting planar laminated, thin-bedded, fine-grained sandstone to siltstone in the c. 1100 Ma Mesoproterozoic Collier Basin. The joints are filled by Fe–Mn oxides and stand out in strong relief against the softer host rock. Location: Mount Vernon 1:100 000 Geological Series map sheet

Photo by Olga Blay



APRIL

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	Geologists' Day 7
8	9	10	11	12	13	14
15	16	17	18	Good Friday 19	Easter Saturday 20	Easter Sunday 21
Easter Monday 22	23	24	Anzac Day 25	26	27	28
29	30					



**Geological Survey of
Western Australia**



April 2019

www.dmirs.wa.gov.au

Like a natural menhir, a wedge of c. 2660 million-year-old granite gneiss points a finger towards the blue outback sky, approximately 10 km north of Meekatharra.

This example of the evocatively named Chunderloo Monzogranite is part of the Jungar Suite granitic intrusions that postdate amalgamation of the Youanmi Terrane of the Yilgarn Craton

Photo by Ivan Zibra



MAY

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



**Geological Survey of
Western Australia**

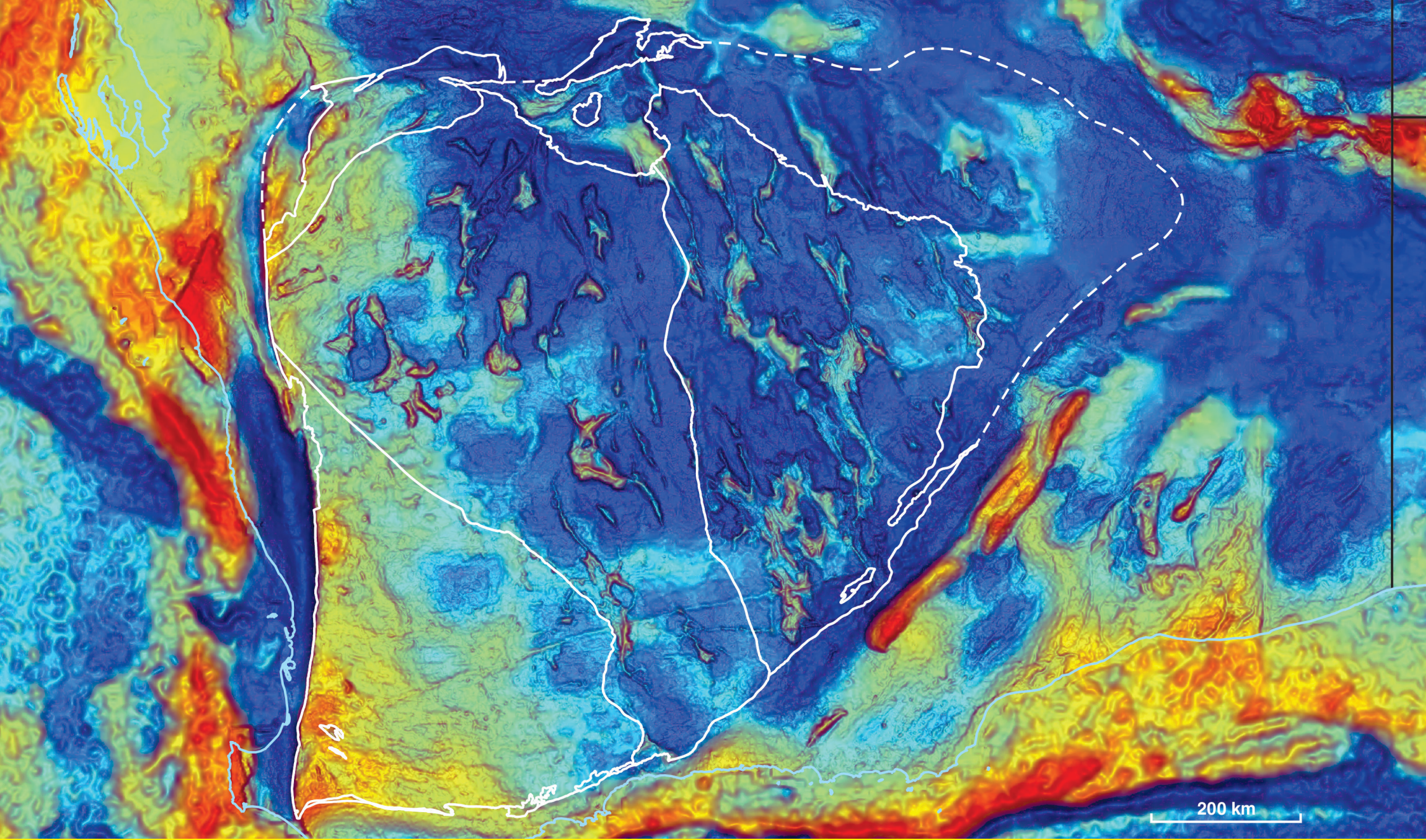


May 2019

www.dmirs.wa.gov.au

A synformal anticline exposed in an opencut mine near the abandoned mining town of Lennonville, Murchison goldfields. Metachert in the eastern fold limb is sheared along a ~20 m-thick ultracataclasite (white-weathered zone left of the fold hinge) of the Lennonville shear zone system. These structures feature on the Austin (2011) and Mount Magnet (2017) 1:100 000-scale Geological Series maps

Photo by Ivan Zibra



JUNE

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
					1	2
Western Australia Day 3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30



**Geological Survey of
Western Australia**



June 2019

www.dmirs.wa.gov.au

Combined onshore Bouguer and offshore free-air gravity anomalies for Western Australia. Ground data over the continental region have been extracted from the Australian National Gravity Database and merged with airborne gravity and gradiometry. Satellite data over the marine region are sourced from Geoscience Australia

White lines show the extent of the Archean Yilgarn Craton, dashed where uncertain, and major terrane subdivisions. Search for gravity grid at <www.dmp.wa.gov.au/geophysics>

Image processed by John Brett



JULY

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



**Geological Survey of
Western Australia**



July 2019

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Looking west across a tessellated pavement to glacio-fluvial channel deposits (cliff on the left) belonging to the Lower Permian Grant Group, southwestern Poole Range, Canning Basin. Fieldwork in this area is part of an ongoing project to resolve the stratigraphy and petroleum potential of underexplored regions of Western Australia

Photo by Arthur Mory



AUGUST

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	



**Geological Survey of
Western Australia**



August 2019

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A series of large, east-dipping slabs of granite gneiss mark the granite–greenstone contact along the Chunderloo shear zone dated at c. 2660 million years, approximately 10 km south of Meekatharra, in the Murchison Goldfields. Mapping in the Murchison region is compiled and annually updated in GSWA Geological Information Series digital data releases
Photo by Ivan Zibra



SEPTEMBER

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Queen's Birthday (WA) 30						1
2	3	4	5	6	7	8
9	10	11	12	WA Petroleum Day 13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29



**Geological Survey of
Western Australia**



September 2019

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A drone's-eye view of vibroseis trucks during the Kidson Sub-basin deep crustal 2D reflection seismic survey, June to August 2018. This collaborative project between Geoscience Australia and DMIRS aims to identify the internal architecture of the southern Canning Basin and its basement. Our geoscientists are now using drone technology to map areas of poor exposure or difficult access at scales between outcrop and traditional orthophoto

Photo by Leon Normore



OCTOBER

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31		Earth Science Week 13–19 October	



Geological Survey of
Western Australia



October 2019

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Colours of the Australian outback in the afternoon sun: view east from the historic 'Island' gold mining centre on Lake Austin after spring showers. This ephemeral lake and the homonymous historical town located on an island are named after Robert Austin, who described the area as 'very indifferent' but whose '...geological features indicate rich goldfields' (Murchison region)

Photo by Michael Wingate



NOVEMBER

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6	7	8	9	10
Remembrance Day 11	12	GIS Day 13	Kalgoorlie Open Day* 14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	*date TBC



**Geological Survey of
Western Australia**



November 2019

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An angular unconformity defines the boundary between the steeply dipping, cyclical dolomitic sandstones of the Ordovician Gap Creek Formation, and the overlying basal succession of the Devonian Reef Complex. Near Prices Hill, eastern Canning Basin. Visit the DMIRS eBookshop to find related publications on petroleum source potential in the Canning Basin <www.dmp.wa.gov.au/GSWApublications>

Photo by Leon Normore



DECEMBER

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
30	31					1
2	3	St Barbara's Day* 4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	Christmas Day 25	Boxing Day 26	27	28	29



**Geological Survey of
Western Australia**



December 2019

www.dmirs.wa.gov.au

Shaped uncannily like Australia, including the northwest continental shelf, this 30 cm-wide limestone slab is studded with ammonoids and other fossils – a lucky find during mapping of the Upper Devonian Virgin Hills Formation, South Lawford Range, Canning Basin. Geologists love finding curiosities like this!

Photo by Peter Haines

*St Barbara is the patron saint of miners

MINISTER FOR MINES AND PETROLEUM
Hon. Bill Johnston MLA

DIRECTOR GENERAL
DEPARTMENT OF MINES, INDUSTRY REGULATION AND SAFETY
David Smith

EXECUTIVE DIRECTOR
GEOSCIENCE AND RESOURCE STRATEGY
Jeff Haworth

The Department of Mines, Industry Regulation and Safety (DMIRS) carries out geoscientific studies that reveal the geological framework of Western Australia and the potential for mineral and energy resources. Our aim is to make Western Australia the preferred destination for local, national, and multinational explorers.

DMIRS manages the Exploration Incentive Scheme (EIS), a State Government initiative to encourage exploration in Western Australia for the long-term sustainability of the State's resources sector. For more information on EIS go to <www.dmp.wa.gov.au/EIS>.

The Geological Survey of Western Australia (GSWA) publishes a vast amount of pre-competitive geoscience information on the State, contributing to billions of dollars' worth of resources for exploration and development

The photographs for this calendar were taken by DMIRS staff (rather than professional photographers) during our field activities that take us to remote and beautiful locations throughout the State.

Front cover image: Rocks protruding from the rusty soil at Peace Gorge a few kilometres west of Meekatharra belong to the Chunderloo Monzogranite. Dated at 2665–2640 million years, the rock is characterized by abundant K-feldspar phenocrysts wrapped by gneissic foliation.
Photo by Ivan Zibra

Back cover image: Tyre tracks leading into the sunset in the dry bed of Lake Dennis, Lucas Outlier, interpreted as a Paleozoic basal component of the eastern Canning Basin. Mapping in this remote and poorly exposed region relies heavily on geophysics and remote sensing.
Photo by Louisa Dent



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This calendar is also published in PDF format available online at
<www.dmp.wa.gov.au/GSWApublications>.

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