Australian Government
Geoscience Australia

AUSTRALIAN ARCHEAN MAFIC-ULTRAMAFIC MAGMATIC EVENTS

Archean Mafic-Ultramafic Magmatic Events

Archean Magmatic Events (AME) are defined from the published ages of mafic and ultramafic rocks in each province and their temporal and spatial relationships are summarised in the 'Time–Space–Event' Chart. Time-equivalent magmatism in different provinces does not necessarily imply cogenetic magmatism. The informal event names are taken from dated examples

Dominantly mafic-ultramafic rock units are shown with bold colours

Subordinate mafic-ultramafic rocks of the same age within a regional rock package are shown with pale colours

Note that the presence of mafic and ultramafic rocks in some areas is interpreted only from geophysical data. Further occurrences of these rocks may exist under cover

In the period ~2820 Ma to ~2660 Ma there is an apparent ~160 Ma continuum of Archean magmatic ages which may not be accurately resolved into distinct magmatic episodes by available geochronology. 'Magmatic Events' are named at 10 Ma intervals within this period

Dominant	Subordinate	
		AME 26 (mu): ~2520 Ma *(Lake Harris Event)*
		AME 25 (mu): ~2560 Ma *(Devils Playground Event)*
		AME 24 (m): ~2625 Ma *(Kaluweerie Event)*
		AME 23 (m): ~2665 Ma *(Coates Siding Event)*
		AME 22 (m): ~2675 Ma *(Golden Mile Event)*
		AME 21 (mu): ~2685 Ma *(Mount Pleasant Event)*
		AME 20 (mu): ~2695 Ma *(Williamstown Event)*
		AME 19 (mu): ~2705 Ma *(Kambalda Event)*
		AME 18 (m): ~2715 Ma *(Maddina Event)*
		AME 17 (m): ~2725 Ma *(Gidley Event)*
		AME 16 (mu): ~2735 Ma *(Kathleen Valley Event)*
		AME 15 (m): ~2745 Ma *(Sylvania Event)*
		AME 14 (mu): ~2755 Ma *(Mount Warren Event)*
		AME 13 (m): ~2770 Ma *(Black Range Event)*
		AME 12 (m): ~2790 Ma *(Little Gap Event)*
		AME 11 (mu): ~2800 Ma *(Narndee Event)*
		AME 10 (m): ~2810 Ma *(Mount Sefton Event)*
		AME 9 (mu): ~2820 Ma *(Lady Alma Event)*
		AME 8 (mu): ~2925 Ma *(Munni Munni Event)*
		AME 7 (m): ~2960 Ma *(Lake Wells Event)*
		AME 6 (mu): ~3115 Ma *(Bradley Event)*
		AME 5 (mu): ~3175 Ma *(Honeyeater Event)*
		AME 4 (mu): ~3350 Ma *(Euro Event)*
		AME 3 (mu): ~3470 Ma *(Mount Ada Event)*
		AME 2 (mu): ~3490 Ma *(North Star Event)*
		AME 1 (mu): ~3730 Ma *(Manfred Event)*
		Undefined Event (magmatic age unknown)

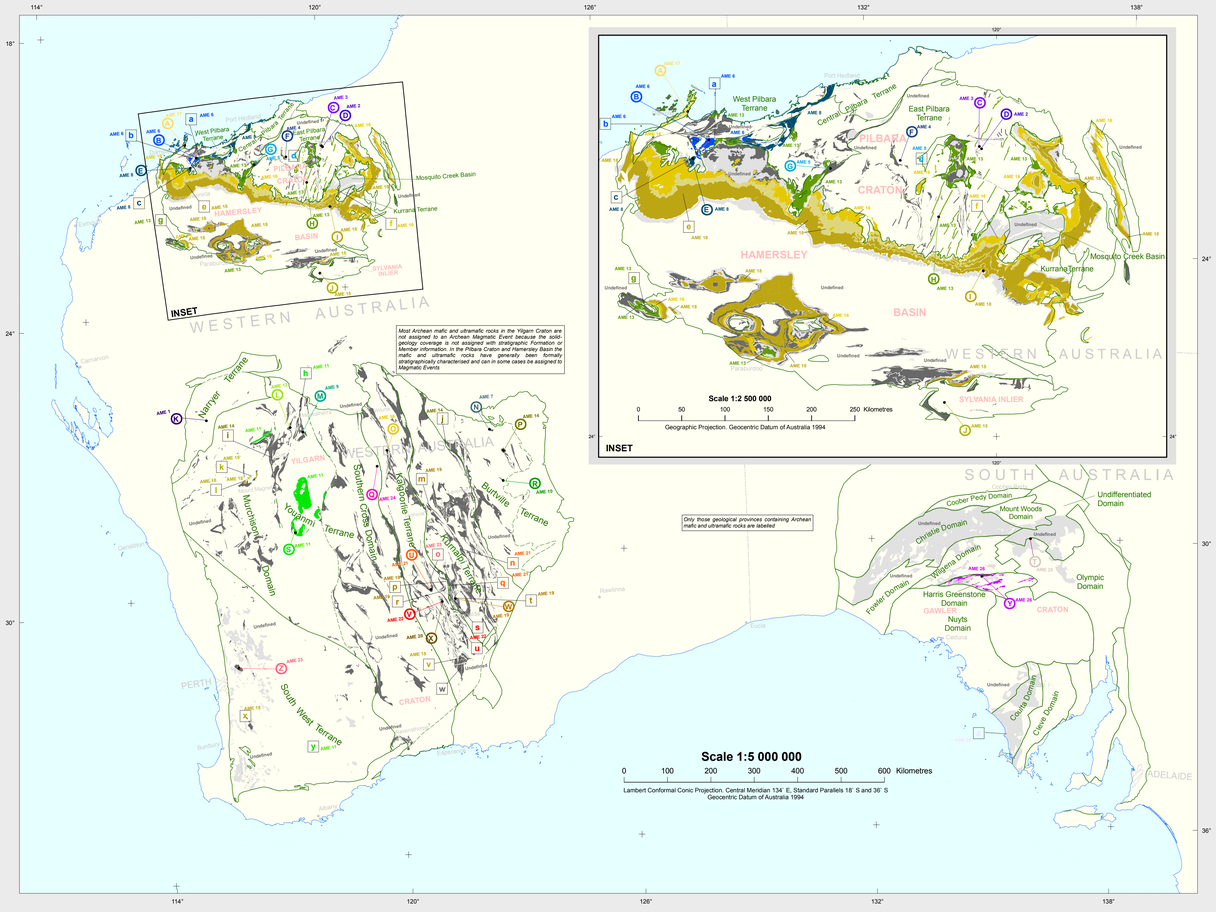
(m) *mafic rocks only*
(mu) *mafic and ultramafic rocks*

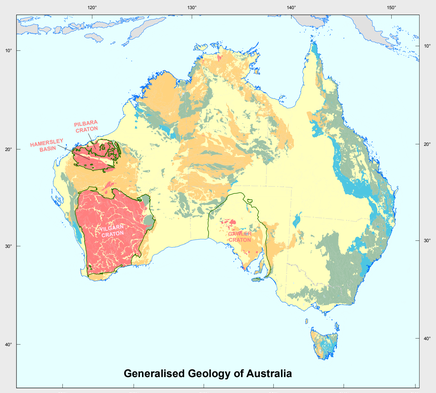
AME 21 *Archean Magmatic Event 21*

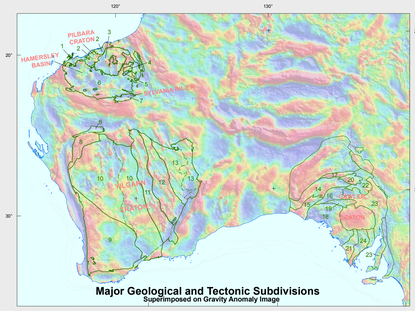
(A) *Type example of dated Archean Magmatic Event at location 'A'*

(p) *Additional age and/or data at location 'p'. These information points are not linked to the 'Type example of dated Archean Magmatic Event' points*

Domains, Terrane, Basin, and Craton boundary (dashed for internal subdivision of Terrane)







PILBARA CRATON	HAMERSLEY BASIN	YILGARN CRATON	GAWLER CRATON	
1. West Pilbara Terrane	6. Hamersley Basin	8. Narryer Terrane	14. Christie Domain	20. Mount Woods Domain
2. Central Pilbara Terrane		9. South West Terrane	15. Fowler Domain	21. Coulta Domain
3. East Pilbara Terrane	SYLVANIA INLIER	10. Youanmi Terrane	16. Wilgena Domain	22. Undifferentiated Domain
4. Mosquito Creek Basin	7. Sylvania Inlier	11. Kalgoorlie Terrane	17. Coober Pedy Domain	23. Olympic Domain
5. Kurrana Terrane		12. Kurnalpi Terrane	18. Nuyts Domain	24. Cleve Domain
		13. Burtville Terrane	19. Harris Greenstone Domain	

Sheet 1: Map of Australian Archean Mafic-Ultramafic Magmatic Events, Time–Space–Event Chart
Sheet 2: Maps of Interpreted Distribution, Characterisation, and Nickel Resources of Archean Mafic-Ultramafic Rocks in the Yilgarn Craton

Locations of additional ages and other geological data

(arranged on 1:5 000 000 map from north to north)

a Bradley Event AME 6 (mu): ~3115 Ma;
3117 ± 3 Ma (SHRIMP U-Pb zircon) tuff interbedded with basalt of Woodbrook Formation, Woodbrook Homestead, Pilbara Craton

b Bradley Event AME 6 (mu): ~3115 Ma;
(1) 3125 ± 4 Ma (SHRIMP U-Pb zircon) felsic tuff from top of Nallana Formation that underlies the Bradley Basalt, Mount Sholl, and (2) 3116 ± 3 Ma (SHRIMP U-Pb zircon) rhyodacite interbedded with metabasalt of Bradley Basalt, Mount Fisher, Pilbara Craton

c Munni Munni Event AME 8 (mu): ~2925 Ma;
(1) 2927 ± 13 Ma (Sm-Nd mineral isochron) PGE-bearing porphyritic websterite; (2) 2925 ± 2 Ma (SHRIMP U-Pb zircon-baddeleyite) pegmatitic gabbro; and (3) 2924 ± 5 Ma (SHRIMP U-Pb zircon) monzonite dyke cutting Munni Munni Intrusion, Pilbara Craton

d Honeyeater Event AME 5 (mu): ~3175 Ma;
3182 ± 2 Ma (SHRIMP U-Pb zircon) unnamed subvolcanic sill of Dalton Suite that intrudes Soanesville Group sedimentary rocks, Sulphur Springs, Pilbara Craton

e Maddina Event AME 18 (m): ~2715 Ma;
2717 ± 2 Ma dacite interlayered with basalt and shoshonitic rocks of Maddina Formation, Bodloomba Pool, Hamersley Basin

f Kathleen Valley Event AME 16 (mu): ~2735 Ma;
2741 ± 3 Ma (SHRIMP U-Pb zircon) tuff directly underlying and chemically related to overlying basalt of Kylena Basalt, Nullagine, Hamersley Basin

g Black Range Event AME 13 (m): ~2770 Ma;
2775 ± 10 Ma (SHRIMP U-Pb zircon) felsic volcanic rock near base of Mount Roe Basalt, Wyloo Dome, Hamersley Basin

h Narndee Event AME 11 (mu): ~2800 Ma;
2799 ± 2 Ma (SHRIMP U-Pb zircon) volcaniclastic unit conformably underlying komatiite, Lordy Bore, Mekkatharra, Yilgarn Craton. Greenstones in the Meekatharra to Cue area of the Murchison Domain range in age from ~2820 Ma to ~2720 Ma and have been divided into three groups by GSWA, each containing basaltic and komatiitic basaltic rocks. To the south and southwest, at Yalgoo and at Mount Gibson, mafic to ultramafic volcanic rocks are overlain by felsic volcanic rocks, and/or intruded by granitic rocks in the range 2935 Ma to 2919 Ma, and are thus older than these ages

i Mount Warren Event AME 14 (mu): ~2755 Ma;
2761 ± 1 Ma (TIMS U-Pb zircon) rhyolitic tuff associated with high-Mg basalt and komatiite, Emily Well, Cue, Yilgarn Craton

j Mount Warren Event AME 14 (mu): ~2755 Ma;
2755 ± 5 Ma (SHRIMP U-Pb zircon) hornblende plagiogranite interpreted to be fractionate of layered gabbro intrusion, Hootanui Well, Duketon, Yilgarn Craton

k Sylvania Event AME 15 (m): ~2745 Ma;
2745 ± 4 Ma (TIMS U-Pb zircon) felsic tuff associated with high-Mg basalt and komatiite, Dalgaranga Homestead, Yilgarn Craton

l Maddina Event AME 18 (m): ~2715 Ma;
2719 ± 6 Ma (SHRIMP U-Pb zircon) granophyric unit of Dalgaranga Gabbro, Dalgaranga Homestead, Yilgarn Craton

m Kambalda Event AME 19 (mu): ~2705 Ma or Williamstown Event AME 20 (mu): ~2695 Ma;
2698 ± 5 Ma (SHRIMP U-Pb zircon) volcaniclastic dacite interlayered with komatiite, Murrin Murrin, Yilgarn Craton

n Mount Pleasant Event AME 21 (mu): ~2685 Ma;
2684 ± 3 Ma (SHRIMP U-Pb zircon) felsic volcanic rock intercalated with tholeiitic basalt, Jump Up Dam, Lake Rebecca, Yilgarn Craton

o Coates Siding Event AME 23 (m): ~2665 Ma;
2661 ± 3 Ma (SHRIMP U-Pb zircon) Mount Vetters granophyric dolerite, Mount Vetters Homestead, Yilgarn Craton

p Kambalda Event AME 19 (mu): ~2705 Ma;
2706 ± 5 Ma, and 2704 ± 4 Ma (SHRIMP U-Pb zircon) rhyolitic rocks intercalated with komatiite of Kambalda Komatiite, Black Swan nickel mine, Yilgarn Craton

q Mount Pleasant Event AME 21 (mu): ~2685 Ma;
2683 ± 3 Ma (SHRIMP U-Pb zircon) felsic tuff associated with basalt, Reidy Swamp, Kanowna, Yilgarn Craton

r Kambalda Event AME 19 (mu): ~2705 Ma;
2708 ± 7 Ma (SHRIMP U-Pb zircon) dacite coeval with komatiite, Ballarat-Last Chance mine, Kalgoorlie, Yilgarn Craton

s Golden Mile Event AME 22 (m): ~2675 Ma;
2675 ± 3 Ma (SHRIMP U-Pb zircon) felsic volcanic breccia associated with basalt of Black Flag Beds, Harry Dam, Perkoliilli, Kanowna, Yilgarn Craton

t Kambalda Event AME 19 (mu): ~2705 Ma;
2708 ± 5 Ma (SHRIMP U-Pb zircon) volcaniclastic unit intercalated with komatiite, Bulong, Yilgarn Craton

u Golden Mile Event AME 22 (m): ~2675 Ma or Mount Pleasant Event AME 21 (mu): ~2685 Ma;
(1) 2681 ± 5 Ma (SHRIMP U-Pb zircon) felsic volcanic rock intercalated with basalt of Black Flag Beds, drillhole NFD–003, 168–169 m, Nelson's Fleet, Yilgarn Craton; and (2) 2680 ± 9 Ma (SHRIMP U-Pb zirconolite) Golden Mile Dolerite, Mount Charlotte gold mine, Yilgarn Craton

v Maddina Event AME 18 (m): ~2715 Ma;
2714 ± 5 Ma (SHRIMP U-Pb zircon) gabbroic sill, feeder to overlying basaltic flows, cuts lower part of Woolyeenyer Formation, Norseman, Yilgarn Craton

w Maximum ages of komatiitic rocks in the Yilgarn Craton:
(1) komatiitic basalt of Woolyeenyer Formation overlies 2930 ± 4 Ma (SHRIMP U-Pb zircon) rhyolite of the Upper Penneshaw Formation near Norseman;
(2) komatiites younger than ~2870 Ma (SHRIMP U-Pb zircon) in the Mount Windarra region; and
(3) komatiites that cut 2921 ± 4 Ma (SHRIMP U-Pb zircon) felsic volcanic rocks and a 2903 ± 5 Ma (SHRIMP U-Pb zircon) hangingwall felsic volcanic unit of the Hoxman Formation at the Maggie Hays nickel mine 'constrain' the age of the komatiites between ~2920 Ma and ~2900 Ma. The ultramafic-felsic rock relationships at the Maggie Hays mine are controversial, thus a new Archean Magmatic Event at ~2910 Ma has not been defined using these ages

x Multiple Archean Magmatic Events near Boddington—Maddina Event AME 18 (m): ~2715 Ma, Kambalda Event AME 19 (mu): ~2705 Ma, Williamstown Event AME 20 (mu): ~2695 Ma, Golden Mile Event AME 22 (m): ~2675 Ma; *basalts with associated intermediate volcanics and volcaniclastic rocks emplaced between 2714 Ma and 2696 Ma and at ~2675 Ma, Boddington gold mine region, Yilgarn Craton*

y Narndee Event AME 11 (mu): ~2800 Ma;
2798 ± 16 Ma (SHRIMP U-Pb zircon) interpreted protolith age of unnamed two-pyroxene mafic granulite, Katanning, Yilgarn Craton

Lake Harris Event AME 26 (mu): ~2520 Ma;
2520 ± 7 Ma (SHRIMP U-Pb zircon) felsic volcanic rocks intercalated with subordinate mafic rocks, Hall Bay Volcanics, Mount Hope, Eyre Peninsula, Gawler Craton. Drilling has also intersected komatiitic rocks in the Mount Hope—Moorlands region

Locations of type examples of dated Archean Magmatic Events

(arranged on 1:5 000 000 map from north to north)

A Gidley Event AME 17 (m): ~2725 Ma;
2725 ± 3 Ma (SHRIMP U-Pb baddeleyite) gabbro from Gidley Granophyre, Pilbara Craton

B Bradley Event AME 6 (mu): ~3115 Ma;
3115 ± 5 Ma (SHRIMP U-Pb zircon) felsic tuff interbedded with Bradley Basalt, Pilbara Craton

C Mount Ada Event AME 3 (mu): ~3470 Ma;
3492 ± 3 Ma (SHRIMP U-Pb zircon) tuff interbedded with Mount Ada Basalt, Pilbara Craton

D North Star Event AME 2 (mu): ~3490 Ma;
3490 ± 15 Ma ($^{40}Ar/^{39}Ar$ hornblende) pyroxenite lens intercalated in North Star Basalt, Pilbara Craton

E Munni Munni Event AME 8 (mu): ~2925 Ma;
2925 ± 16 Ma (SHRIMP U-Pb zircon) ferrogabbro pegmatite, Munni Munni Intrusion, Pilbara Craton

F Euro Event AME 4 (mu): ~3350 Ma;
3350 ± 3 Ma (SHRIMP U-Pb zircon) volcaniclastic unit interbedded with Euro Basalt, Pilbara Craton

G Honeyeater Event AME 5 (mu): ~3175 Ma;
3176 ± 3 Ma (SHRIMP U-Pb zircon) tuff interbedded with Honeyeater Basalt, Pilbara Craton

H Black Range Event AME 13 (m): ~2770 Ma;
2772 ± 2 Ma (SHRIMP U-Pb baddeleyite) dolerite from Black Range Dolerite Suite, Pilbara Craton

I Maddina Event AME 18 (m): ~2715 Ma;
2715 ± 2 Ma (SHRIMP U-Pb zircon) felsic tuff interbedded with Maddina Basalt, Hamersley Basin

J Sylvania Event AME 15 (m): ~2745 Ma;
2747 ± 4 Ma (SHRIMP U-Pb zircon) dolerite from Sylvania Dyke Swarm, Sylvania Inlier

K Manfred Event AME 1 (mu): ~3730 Ma;
3730 ± 6 Ma (SHRIMP U-Pb zircon) leucogabbro and meta-anorthosite from Manfred Complex, Yilgarn Craton

L Little Gap Event AME 12 (m): ~2790 Ma;
2792 ± 5 Ma (SHRIMP U-Pb zircon) unnamed dolerite, Little Gap, Yilgarn Craton

M Lady Alma Event AME 9 (mu): ~2820 Ma;
2821 ± 5 Ma (SHRIMP U-Pb zircon) gabbro from Lady Alma Intrusion, Yilgarn Craton*

N Lake Wells Event AME 7 (m): ~2960 Ma;
2961 ± 5 Ma (SHRIMP U-Pb zircon) felsic volcaniclastic rock interbedded with Lake Wells basalt, Yilgarn Craton

O Kathleen Valley Event AME 16 (mu): ~2735 Ma;
2736 ± 3 Ma (SHRIMP U-Pb zircon) quartz gabbro from Kathleen Valley Gabbro, Yilgarn Craton

P Mount Warren Event AME 14 (mu): ~2755 Ma;
2755 ± 5 Ma (SHRIMP U-Pb zircon) leucogabbro from unnamed layered mafic intrusion, Mount Warren, Yilgarn Craton

Q Kaluweerie Event AME 24 (m): ~2625 Ma;
2627 ± 6 Ma (SHRIMP U-Pb zircon) granophyric dolerite, Kaluweerie, Yilgarn Craton*

R Mount Sefton Event AME 10 (m): ~2810 Ma;
2812 ± 5 Ma (SHRIMP U-Pb zircon) pegmatoidal leucogabbro, Mount Sefton, Yilgarn Craton

S Narndee Event AME 11 (mu): ~2800 Ma;
2800 ± 6 Ma (SHRIMP U-Pb zircon and baddeleyite) gabbronorite from Narndee Intrusion, Yilgarn Craton

T Devils Playground Event AME 25 (mu): ~2560 Ma;
2558 ± 6 Ma (U-Pb TIMS zircon) rhyodacite interbedded with andesite and basalt from near Devils Playground, Gawler Craton

U Mount Pleasant Event AME 21 (mu): ~2685 Ma;
2687 ± 5 Ma (U-Pb zircon), Mount Pleasant Sill, Yilgarn Craton

V Golden Mile Event AME 22 (m): ~2675 Ma;
2675 ± 2 Ma (SHRIMP U-Pb zircon) granophyre from Unit 8 of Golden Mile Dolerite, Yilgarn Craton

W Kambalda Event AME 19 (mu): ~2705 Ma;
2705 ± 4 Ma (SHRIMP U-Pb zircon) felsic tuff interbedded with Kambalda Komatiite, Yilgarn Craton

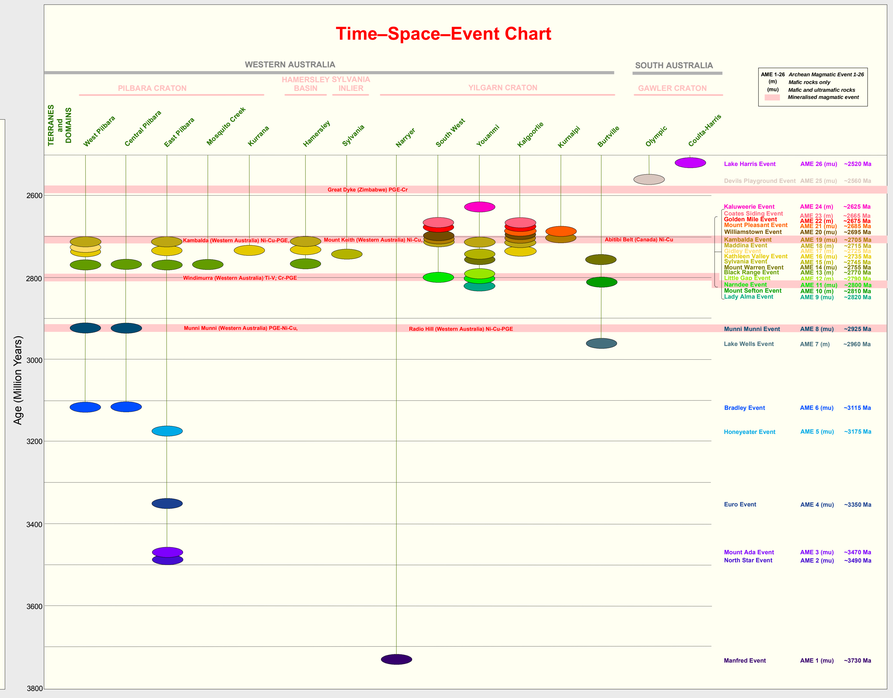
X Williamstown Event AME 20 (mu): ~2695 Ma;
2696 ± 5 Ma (SHRIMP U-Pb zircon) granophyric quartz gabbro from Williamstown Peridotite, Yilgarn Craton

Y Lake Harris Event AME 26 (mu): ~2520 Ma;
2522 ± 8 Ma (SHRIMP U-Pb zircon) volcaniclastic rock interbedded with Lake Harris Komatiite, Gawler Craton

Z Coates Siding Event AME 23 (m): ~2665 Ma;
2696 ± 5 Ma (SHRIMP U-Pb zircon) gabbro from Coates Siding gabbro, Yilgarn Craton*

** These ages have been interpreted by the original author/geochronologist to represent magmatic crystallisation ages; however, later evidence (e.g., field relationships) obtained by the Geological Survey of Western Australia indicate that the analysed zircons may be of either magmatic or xenocrystic origin*

Time–Space–Event Chart



MAP LOCALITY

Compiled by D.M. Hoatson, S. Jaireth, A.J. Whitaker, D.C. Champion, and J.C. Claoué-Long
Cartography by G.A. Young

Acknowledgements:
The authors acknowledge the information, comments, and suggestions on this map provided by colleagues in Geoscience Australia, and by various State and Northern Territory geological surveys. In particular, Charlotte Hall, Martin Van Kranendonk, Paul Morris, Michael Wingate, Stephen Wyche (all Geological Survey of Western Australia: GSWA); Wayne Cowley, Martin Fairclough, Anthony Reid (Primary Industries and Resources, South Australia: PIRSA); and Julie Hollis and Ian Scrimgeour (Northern Territory Geological Survey) are acknowledged for their valuable contributions. The two map sheets were reviewed by Michael Huleatt, Lynton Jaques, Yanis Micitis, Alastair Stewart (all Geoscience Australia) and by colleagues at GSWA and PIRSA

Other maps in this series:
This map is part of a Geoscience Australia series showing the geographic extent and time-space relationships of Archean and Proterozoic mafic-ultramafic magmatism and associated mineral deposits across the Australian continent

Part 1: Western Australia was published in October 2006 and documents 15 Proterozoic mafic-ultramafic magmatic events
Part 2: Northern Territory–South Australia was published in July 2007 and documents 19 Proterozoic mafic-ultramafic magmatic events
The Australian Proterozoic map which comprises two sheets, was published in August 2008 and documents 30 Proterozoic mafic-ultramafic magmatic events across the continent

The geological and geochronological information accompanying the Proterozoic map series is summarised in Geoscience Australia Record 2008/15 (GeoCat Number: 66624) Guide to using the 1:5 000 000 map of Australian Proterozoic mafic-ultramafic magmatic events by Hoatson, Claoué-Long, and Jaireth. A Geoscience Australia Record summarising the Archean mafic-ultramafic magmatic events is planned for release in 2009. Two map sheets by Claoué-Long and Hoatson (GeoCat Number: 69213) showing the distribution of Proterozoic Large Igneous Provinces in Australia are also to be released in 2009
Copies of the maps (in pdf and jpg formats) and Geoscience Australia Record 2008/15 are available free online in a resource package at:
http://www.ga.gov.au/map/index.jsp#mum

References for digital geological and geophysical datasets:
• Geological base maps and solid-geology rock polygons (Sheet 1)
Western Australia
Distribution of Precambrian mafic and ultramafic rocks in Western Australia: 1:500 000 Interpreted Bedrock Geology Map of Western Australia, Geological Survey of Western Australia (2008)

South Australia
Cowley, W.M. (Compiler), 2006. Solid geology of South Australia. Department of Primary Industries and Resources, South Australia. Mineral Exploration Data Package 15 (version 1.1.)

• Geological and tectonic province boundaries (Sheets 1 and 2)
Yilgarn Craton
Cassidy, K.F., Champion, D.C., Krapez, B., Barley, M.E., Brown, S.J.A., Blewett, R.S., Groenewald, P.B. and Tyler, I.M., 2006. A revised geological framework for the Yilgarn Craton, Western Australia. Geological Survey of Western Australia, Record 2006/8, 8 pp

Pilbara Craton
1:2 500 000 Tectonic Units of Western Australia, June 2001, Geological Survey of Western Australia

Gawler Craton
Fairclough, M.C., Schwarz, M.P. and Ferris, G.M., 2003. Interpreted crystalline basement geology of the Gawler Craton, South Australia, Geological Survey, Special map, 1:1 000 000 scale

• Distribution of Archean dolerite dykes and sills in Western Australia (Sheet 1)
Thorne, A.M. and Trendall, A.F., 2001. Geology of the Fortescue Group, Pilbara Craton, Western Australia. Geological Survey of Western Australia, Bulletin 144, 249 pp

• Geological and geophysical datasets (Sheets 1 and 2)
Interpreted distribution of Archean mafic and ultramafic rocks
Whitaker, A.J. and Bastrakova, I.V., 2002. Yilgarn Craton aeromagnetic interpretation (1:1 500 000 scale map), Geoscience Australia

Geochronology of Archean mafic and ultramafic rocks
Hoatson, D.M., Jaireth, S. and Jaques, A.L., 2006. Nickel sulphide deposits in Australia: Characteristics, resources, and potential. Ore Geology Reviews, 29, 177–241
Van Kranendonk, M.J. and Ivanic, T.J., 2009. A new lithostratigraphic scheme for the northeastern Murchison Domain, Yilgarn Craton. Geological Survey of Western Australia Annual Review 2007–08, 35–53
Van Kranendonk, M.J., Hickman, A.H., Smithies, R.H., Williams, I.R., Bagas, L. and Farrell, T.R., 2006. Revised lithostratigraphy of Archean supracrustal and intrusive rocks in the northern Pilbara Craton, Western Australia. Geological Survey of Western Australia, Record 2006/15, 57 pp
Wilde, S.A., 2001. Jimperding and Chittering Metamorphic Belts, southwestern Yilgarn Craton, Western Australia–a field guide. Geological Survey of Western Australia, Record 2001/12, 24 pp

Composition of komatiitic rocks
Barley, M.E., Blewett, R.S., Cassidy, K.F., Champion, D.C., Czarnota, K., Doyle, M.G., Krapez, B., Kositcin, N., Pickard, A.L. and Weinberg, R.F., 2006. Tectonostratigraphic and structural architecture of the eastern Yilgarn Craton. Final AMIRA Report P763/pmd*CRC Project Y1, December 2006
Barnes, S.J., Hill, R.E.T., Perring, C.S. and Dowling, S.E., 2004. Lithogeochemical exploration for komatiite-associated Ni-sulfide deposits: strategies and limitations. Mineralogy and Petrology, 82, 259–293
Lesher, C.M. and Keays, R.R., 2002. Komatiite-associated Ni-Cu-PGE deposits: geology, mineralogy, geochemistry, and genesis. *In:* Cabri, L.J. (editor), The Geology, Geochemistry, Mineralogy and Mineral Beneficiation of Platinum-Group Elements. Canadian Institute of Mining, Metallurgy and Petroleum, Special Volume 54, 579–617

Nickel sulphide resources for deposits and regional nickel endowment
OZMIN–Geoscience Australia's national database of mineral deposits and resources

Neodymium model ages
Champion, D.C. and Cassidy, K.F., 2008. Geodynamics: Using geochemistry and isotopic signatures of granites to aid mineral systems studies: an example from the Yilgarn Craton. *In:* Korsch, R.J. and Barnicoat, A.C. (editors), New Perspectives: The Foundations and Future of Australian Exploration, Abstracts for the 11–12th June 2008 pmd*CRC Conference. Geoscience Australia, Record 2008/09, 7–16

For more information:
Dean Hoatson: phone (02) 6249 9593; email dean.hoatson@ga.gov.au
Jon Claoué-Long: phone (02) 6249 9418; email jon.long@ga.gov.au

© Commonwealth of Australia, 2009

This work is copyright. Apart from any fair dealings for the purposes of study, research, criticism or review, as permitted under the Copyright Act, no part may be reproduced by any process without written permission. Inquiries should be directed to the Communications Unit, Geoscience Australia, GPO Box 378, Canberra, ACT, 2601, Australia

Geoscience Australia has tried to make the information in this product as accurate as possible. However, it does not guarantee that the information is totally accurate or complete. THEREFORE YOU SHOULD NOT RELY SOLELY ON THIS INFORMATION WHEN MAKING A COMMERCIAL DECISION

Published by Geoscience Australia, Department of Resources, Energy and Tourism, Canberra, Australia. Issued under the authority of the Minister for Resources, Energy and Tourism

Copies of this map can be obtained from:
Sales Centre, Geoscience Australia
GPO Box 378, Canberra, ACT, 2601, Australia
Ph (02) 6249 9966, Fax (02) 6249 9960
Email: sales@ga.gov.au

It is recommended that this map sheet be referred to as:
Hoatson, D.M., Jaireth, S., Whitaker, A.J., Champion, D.C. and Claoué-Long, J.C., 2009. *Australian Archean Mafic-Ultramafic Magmatic Events, Sheet 1 of 2* (1:5 000 000 scale map), Geoscience Australia, Canberra

GeoCat Number: 69347 ISBN: 978-1-921672-09-5

AUSTRALIAN ARCHEAN MAFIC-ULTRAMAFIC MAGMATIC EVENTS
Sheet 1 of 2
2009