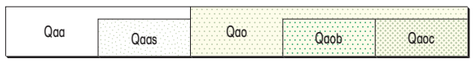
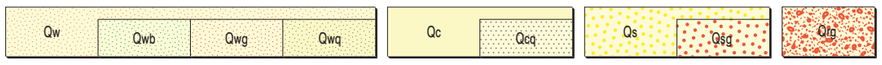
PHANEROZOIC

CAINOZOIC

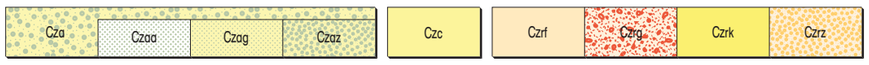
QUATERNARY



Qaa Alluvial sand, silt, and gravel in broad creeks
Qaas Alluvial sand and gravel in river and creek channel beds
Qao Overbank deposits; alluvial sand, silt, and gravel on floodplains adjacent to main drainage channels and interchannel islands; minor clay
Qaob Alluvial clay and silt deposits on floodplains; gilgai surface of expansive clay
Qaoc Alluvial sand, silt, and clay; mixed floodplain deposits (Qao) characterized by numerous small claypans

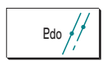


Qw Low-gradient sheetwash deposits — silt, sand, and pebbles on distal outwash fans; no defined drainage
Qwb Sheetwash clay and silt with gilgai (crabhole) surface; generally vegetated
Qwg Sheetwash sand and quartz pebbles overlying and derived from granitic rock
Qwq Low-gradient sheetwash deposits of silt and sand with quartz pebbles; on distal outwash fans; no defined drainage
Qc Colluvium — sand, silt, and gravel in outwash fans; scree and talus; proximal mass wasting deposits
Qcq Quartz debris adjacent to large quartz veins
Qs Eolian sand — light to dark red sand in sheets, and longitudinal (seif) and chain dunes
Qsg Mixed eolian and eluvial sand; red-brown quartz sand in sheets; overlying and derived from granitic rock
Qrg Quartzofeldspathic eluvial sand, with quartz rock and fragments; overlying and derived from granitic rock



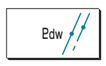
Cza Variably consolidated alluvial clay, silt, and sand; dissected
Czaa Consolidated alluvial clay, silt, and sand; dissected
Czag Consolidated alluvial gravel, sand, and silt; local carbonate cement; dissected
Czaz Silicified and ferruginized channel deposits; cemented quartzite and banded-iron formation clasts in conglomerate
Czc Colluvium — dissected consolidated clay, silt, and sand deposits; derived from adjacent rock outcrop
Czrf Ferruginous duricrust; includes massive, pisolitic, and nodular laterite
Czrg Sand, gravel, and silt overlying and derived from granitic rock; mixed colluvium and eluvium; variably consolidated; dissected
Czrk Calcrete; massive, nodular, and cavernous limestone; residual origin
Czrz Siliceous duricrust; includes silcrete

PROTEROZOIC



Round Hummock dyke swarm: dolerite dyke; generally west-northwest trending; interpreted from aeromagnetic data where dashed

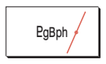
c. 755 Ma [1]



Mundine Well dyke swarm: dolerite dyke with locally abundant granitic xenoliths and potassic alteration of wallrocks; local syenite; interpreted from aeromagnetic data where dashed

1803–1703 Ma [2 3]

Bridget Suite



Hornblende–feldspar–biotite porphyry dykes

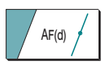
d Dolerite dyke; various ages; interpreted from aeromagnetic data where dashed
ub Fine-grained ultramafic to mafic dykes
ux Fine- to medium-grained pyroxenite dyke
q Quartz vein; various ages

HAMERSLEY BASIN

Mount Bruce Supergroup

Fortescue Group

PEAR CREEK FORMATION
AFpsc Polymictic, matrix-supported conglomerate; cobbles and pebbles of Fortescue Group basalt, basement chert, felsic volcanic rock, and granite
AFpscb Oligomictic conglomerate with cobbles of Fortescue Group basalt in a sandy matrix
AFpst Medium- to coarse-grained sandstone; local pebble conglomerate beds
AFpsxb Coarse breccia of angular to rounded boulders to cobbles of Fortescue Group basalt in a fine sandy matrix
AFpsl Green-weathering, grey-blue siltstone; millimetre to centimetre bedding; local beds with mud rips-ups; probable volcaniclastic sandstone



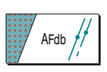
Dolerite dykes and sills; probably related to KYLENA FORMATION

c. 2741 Ma [4]

KYLENA FORMATION
AFkb Massive and vesicular basalt; thick flows
AFkbl Pillow basalt
AFkbx Coarse basaltic pillow breccia with fine- to medium-grained hyaloclastite and sand matrix

2764–2756 Ma [5]

HARDEY FORMATION
AFhsc Matrix-supported cobble to pebble conglomerate and sandstone; dominantly quartz pebbles
AFhsh Brown-weathering shale and siltstone
AFhst Thickly bedded sandstone and pebbly sandstone; local cobble conglomerate
Bamboo Creek Member
AFhbfr Rhyolite; fine grained, spherulitic textured, with sparse quartz phenocrysts and local flow banding; in dykes



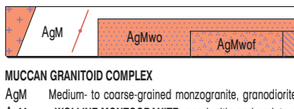
c. 2772 Ma [6]

Black Range Dolerite suite: dolerite and medium- to coarse-grained gabbro dykes; weakly metamorphosed; interpreted from aeromagnetic data where dashed

c. 2775 Ma [5]

MOUNT ROE BASALT
AFrb Massive, plagioclase-glomeroporphyritic, amygdaloidal, and doleritic basalt; thick flows; minor local pillow basalt
AFrbx Basaltic agglomerate
AFrbz Massive, silicified and altered basalt

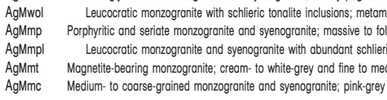
BELLARY FORMATION
AFbsc Pebble to cobble conglomerate and coarse to pebbly sandstone; thickly bedded; dominantly chert and quartz pebbles
AFbst Coarse to pebbly sandstone; minor pebble conglomerate; thickly bedded



CARLINDI GRANITOID COMPLEX
AgL Fine-grained granite; schistose to strongly foliated; metamorphosed
AgLmp Biotite monzogranite, porphyritic (K-feldspar) to seriate; massive to weakly foliated; locally strong flow alignment; metamorphosed
AgLmpf Biotite monzogranite to granodiorite; fine to medium grained; strongly foliated; pegmatite sheeted; metamorphosed

ARCHAEAN

De Grey Group



LALLA ROOKH SANDSTONE
ADlsc Pebble to boulder conglomerate and interbedded pebbly to coarse sandstone; dominantly quartz and chert pebbles; weakly metamorphosed
ADlsh Brown, fissile shale; weakly metamorphosed
ADlst Coarse-grained to pebbly sandstone; minor pebble conglomerate and siltstone; dominantly chert and quartz pebbles; weakly metamorphosed
ADlstq Quartz-rich sandstone; thickly bedded; weakly metamorphosed

Unassigned

Medium- to coarse-grained metagabbro; foliated

Aup Serpentinized metaperidotite and serpentine–chlorite schist
Aupd Serpentinized metadunite and serpentine schist
Aus Strongly sheared serpentine schist
Aut Talc–serpentine–chlorite schist
Aux Metapyroxenite; massive, coarse grained

Pilbara Supergroup

Gorge Creek Group

Unassigned

AG(ci) Thinly bedded black, white, and red banded iron-formation interbedded with ferruginous chert and minor ferruginous shale; weakly metamorphosed
AG(cis) Sheared cherty banded iron-formation; white chert and limonitic layers; weakly metamorphosed
AG(sk) Dark brown carbonate rock; massive, cross-bedded, sheared; weakly metamorphosed
AG(sh) Red and grey-weathering shale; weakly metamorphosed
AG(st) Medium- to coarse-grained pebbly sandstone, blue-grey lithic arenite, and quartz arenite; turbiditic; weakly metamorphosed

Soanesville Subgroup

PADDY MARKET FORMATION
Thinly bedded black, white, red, and grey, cherty banded iron-formation; minor ferruginous shale; weakly metamorphosed

CORBOY FORMATION
AGcsc Polymictic, matrix-supported conglomerate; weakly metamorphosed
AGcss Interbedded sandstone and siltstone; weakly metamorphosed
AGcstq Quartz arenite; thickly bedded; common cross-bedding; weakly metamorphosed

Unassigned

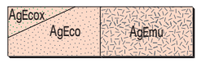
Dykes of mafic or ultramafic composition; metamorphosed

MUCCAN GRANITOID COMPLEX
AgM Medium- to coarse-grained monzogranite, granodiorite, and tonalite; massive to foliated; metamorphosed
AgMwo **WOLLINE MONZOGRANITE:** porphyritic and seriate monzogranite and syenogranite; pink-grey, medium to coarse grained; local flow banding and igneous mineral alignment; metamorphosed
AgMwof Strongly foliated monzogranite and syenogranite; locally pegmatite banded; metamorphosed
AgMwol Leucocratic monzogranite with schlieric tonalite inclusions; metamorphosed
AgMmp Porphyritic and seriate monzogranite and syenogranite; massive to foliated; pink-grey; metamorphosed
AgMmpl Leucocratic monzogranite and syenogranite with abundant schlieric tonalite inclusions; metamorphosed
AgMmt Magnetite-bearing monzogranite; cream- to white-grey and fine to medium grained; metamorphosed
AgMmc Medium- to coarse-grained monzogranite and syenogranite; pink-grey to cream; weak metamorphic foliation; metamorphosed

c. 3250 Ma [7]
c. 3315 Ma [7]
c. 3303 Ma [8]
c. 3313 Ma [8]

PILBARA CRATON

East Pilbara Granite–Greenstone Terrane



MOUNT EDGAR GRANITOID COMPLEX

c. 3314 Ma [9]

AgEco **COPPIN GAP GRANODIORITE:** massive to foliated, cream to pinkish, biotite granodiorite to tonalite; weakly foliated
AgEcox Granitoid rock with mafic and ultramafic xenoliths
AgEmu **MUNGANBRINA MONZOGRANITE:** banded, medium- to coarse-grained monzogranite; locally seriate to porphyritic; foliated

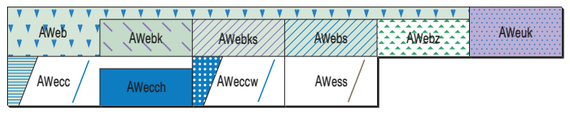
Pilbara Supergroup

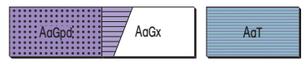
Warrawoona Group

Kelly Subgroup

3325–3315 Ma [10 11 12 13]

WYMAN FORMATION
AWwft Felsic tuff and volcaniclastic sandstone, including ash beds; weakly metamorphosed
AWwstq Quartz-rich sandstone; medium to coarse grained; weakly metamorphosed
AWwstv Volcaniclastic sandstone and quartz arenite; weakly metamorphosed





Gap Intrusion
AaGpd Serpentinized metadunite and serpentine schist
AaGx Metapyroxenite
AaT **Strutton Intrusion:** metagabbro and metapyroxenite

EURO BASALT
AWeb Tholeiitic basalt; generally pillowed; weakly metamorphosed
AWebk Komatiitic basalt; generally pillowed; local pyroxene spinifex texture; weakly metamorphosed
AWebks Tremolite–chlorite–serpentine schist derived from komatiitic basalt
AWebs Strongly sheared chlorite schist
AWebz Silicified and sericitized metabasalt
AWeuk Metakomatiite, with relict olivine spinifex texture
AWecc Chert; generally white, grey, and blue-black layered; locally massive blue-grey; weakly metamorphosed
AWecch Black chert and chert breccia; in hydrothermal veins; weakly metamorphosed
AWeccw Layered white, grey and black chert; metamorphosed
AWess Thinly bedded sandstone and siltstone; minor chert; silicified; weakly metamorphosed

STRELLEY POOL CHERT
AWsc Laminated grey and white chert; includes silicified chemical sedimentary rocks; weakly metamorphosed
AWsst Quartz arenite; weakly metamorphosed
AWsstq Thick-bedded, quartz-rich sandstone; minor chert; weakly metamorphosed

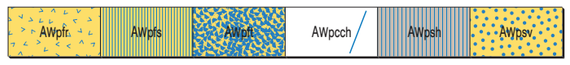
c. 3420 Ma [7]

MUCCAN GRANITOID COMPLEX
Tonalite to granodiorite; massive to strongly foliated; metamorphosed; hornblende porphryoblastic to schlieric textured

Pilbara Supergroup

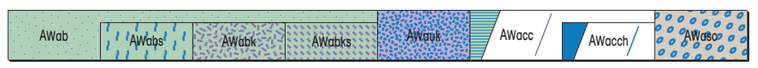
Warrawoona Group

Salgash Subgroup



3458–3426 Ma [2 12 13 14 15 16]

PANORAMA FORMATION
AWpfr Massive, quartz–porphyritic rhyolite; weakly metamorphosed
AWpfs Quartz–sericite schist, derived from felsic volcanic rocks
AWpft Felsic tuff and volcaniclastic sandstone, including ash beds; well bedded; weakly metamorphosed
AWpcch Blue-black hydrothermal chert, in veins and sills; weakly metamorphosed
AWpsh Shale and siltstone; cream to grey; thin to medium bedded; minor sandstone, ash, tuff, and chert; weakly metamorphosed
AWpsv Felsic volcaniclastic sandstone, conglomerate, and siltstone; chert; minor felsic schist; locally silicified; weakly metamorphosed



APEX BASALT
AWab Basalt; pillowed to massive; includes syn-volcanic dolerite intrusions; weakly metamorphosed
AWabs Chlorite–actinolite schist
AWabk Komatiitic basalt; commonly pillowed; local pyroxene spinifex texture; weakly metamorphosed
AWabks Tremolite–chlorite–serpentine schist derived from komatiitic basalt
AWauk Metakomatiite
AWacc Grey, white, and blue-black layered chert; weakly metamorphosed
AWacch Blue-black hydrothermal chert, in veins and sills; weakly metamorphosed
AWasc Angular to subrounded, matrix-supported conglomerate; dominantly chert clasts in medium-grained sandy matrix; silicified; weakly metamorphosed

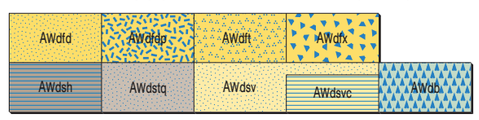
MUCCAN GRANITOID COMPLEX

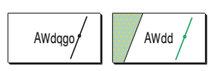
c. 3470 Ma [8]

AgMn Heterogeneous, migmatitic, tonalitic to granodioritic orthogneiss
AgMi Mixed granitoid rock; fine to coarse grained; well foliated to gneissic; minor banded granitoid gneiss (AgMgn: *c.* 3470 Ma[8])
AgMlh Biotite–hornblende leucogranite; medium grained, seriate to weakly porphyritic; metamorphosed

TOWERS FORMATION
AWtm **Marble Bar Chert Member:** grey, white and red layered chert; weakly metamorphosed
AWtcch Blue-black to grey hydrothermal chert; in veins and sills; weakly metamorphosed

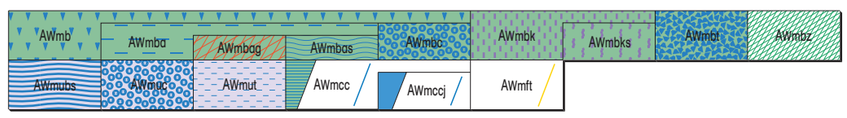
ARCHAEAN





3474–3463 Ma [11 12 13 15]

DUFFER FORMATION
AWdfd Dacite to andesite; local felsic schist; weakly metamorphosed
AWdfdp Massive medium-grained feldspar porphyritic andesite to dacite; mainly subvolcanic intrusions; weakly metamorphosed
AWdft Fine- to coarse-grained felsic tuff and volcaniclastic rock; local greywacke, conglomerate, and jasper chert; thinly to moderately bedded; locally silicified; weakly metamorphosed
AWdfx Coarse- to fine-grained, angular to subrounded, lithic volcaniclastic breccia and conglomerate, including agglomerate and minor tuff; dacitic to andesitic; weakly metamorphosed
AWdqgo Gossanous, syngenetic quartz veins
AWdd Fine- to medium-grained metadolerite and amphibolite, in dykes
AWdsh Dark red- to black-weathering shale and banded iron-formation; thinly bedded; weakly metamorphosed
AWdstq White quartz-rich sandstone; silicified; massive to thickly bedded; local chert beds; metamorphosed
AWdsv Volcanogenic sandstone, siltstone, and tuff; minor quartz-rich sandstone and chert; weakly metamorphosed
AWdsvc Volcanogenic sandstone with cherty siltstone tops; carbonate cemented; turbiditic; weakly metamorphosed
AWdb Basalt; pillowed; weakly metamorphosed



Pilbara Supergroup

Warrawoona Group

Talga Talga Subgroup

MOUNT ADA BASALT
AWmb Basalt, undivided; includes local syn-volcanic dolerite intrusions, metamorphosed
AWmba Amphibolite; massive to foliated
AWmbag Amphibolite, massive to foliated, intruded by numerous granite veins
AWmbas Amphibolite, strongly foliated to schistose; partly retrogressed to greenschist facies
AWmbc Carbonate-altered metabasalt; massive to well foliated; metamorphosed
AWmbk Komatiitic basalt; commonly pillowed; local pyroxene spinifex texture; weakly metamorphosed
AWmbks Tremolite–chlorite–serpentine and chlorite–carbonate schist derived from komatiitic basalt
AWmbt Mafic to felsic tuff; medium to fine grained; weakly metamorphosed
AWmbz Quartz–sericite–leucoxene rock; hydrothermally altered metabasalt
AWmubs Dismembered serpentinized metaperidotite in carbonate–chlorite–talc schist and mafic schist
AWmuc Black-weathering carbonate-altered ultramafic rock; massive to schistose; metamorphosed
AWmut Talc–carbonate(–chlorite–serpentine) schist
AWmcc Chert; generally white, grey, and blue-black layered; locally massive blue-grey; weakly metamorphosed
AWmccj Jasper and white chert, interlayered; weakly metamorphosed
AWmft Albite-porphyritic, felsic accretionary lapilli tuff; sericitized and silicified; weakly metamorphosed

c. 3469 Ma [17]

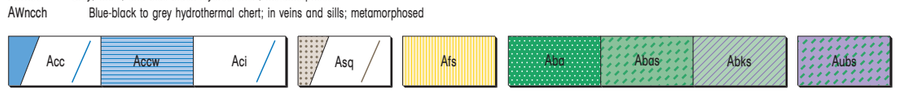
c. 3477 Ma [15]

McPHEE FORMATION
AWh Interbedded mafic volcanic rocks, ultramafic schist, ferruginous chert, sandstone, and shale; minor local felsic tuff; metamorphosed
AWhb Basalt; massive; foliated and lineated; metamorphosed
AWhbk Komatiitic basalt; local pyroxene spinifex texture; weakly metamorphosed
AWhuc Carbonate–talc–chlorite–serpentine schist
AWhcc Grey and white layered chert, and minor felsic tuff, jasper, and limonitic chert; metamorphosed

c. 3490 Ma [18]

NORTH STAR BASALT
AWnb Basalt; generally massive; includes syn-volcanic dolerite intrusions; metamorphosed
AWnba Amphibolite; massive to foliated
AWnbag Amphibolite, massive to foliated, intruded by numerous granite veins; in xenoliths within granite
AWnubs Interlayered ultramafic and mafic schist derived from interbedded tholeiitic and komatiitic basalt
AWncc Grey, white, and blue-black layered chert; metamorphosed
AWncch Blue-black to grey hydrothermal chert; in veins and sills; metamorphosed

Unassigned



Acc Chert, undivided; metamorphosed
Accw Layered white, grey, and black chert; metamorphosed
Aci Metamorphosed banded iron-formation and minor banded chert
Asq Layered, medium-grained quartzite
Afs Metamorphosed felsic volcanic rock, mainly quartz–sericite schist
Aba Amphibolite
Abas Amphibolite, strongly sheared
Abks Tremolite–chlorite schist derived from komatiitic basalt
Aubs Interleaved mafic and ultramafic schist

PILBARA CRATON

East Pilbara Granite–Greenstone Terrane