

# Legend of the Stratigraphic Map of the Northeastern Superior Province

## CENOZOIC



**Pinguluit Crater:** Meteorite impact crater also known as the Nouveau-Québec Crater. (1.3 Ma).

## PALEOZOIC

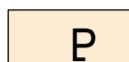


**Lac à l'Eau Claire Complex:** Meteorite impact assemblages including a basal breccia, impactite and mylonitic dykes, impact ignimbrite, and impactite. (280 Ma).

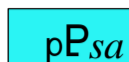


**Lac Couture impactite:** Meteorite impact. (425 Ma).

## PROTEROZOIC



**Undivided:** In many locations, Archean units are bordered by Proterozoic units that were studied in detail. These various Proterozoic units are undivided on the map, except for the Sakami Formation, which occurs in the heart of the Archean craton. Archean rocks are also intruded by diabase, lamprophyre, carbonatite, and locally diatreme dykes, all Proterozoic in age, which are not represented on the geological map.



**Sakami Formation:** Outliers of sedimentary rocks consisting of a lower red bed sequence (conglomerate, arkosic sandstone, mudstone, siltstone) and an upper sequence of orange-coloured quartz sandstone. (2500-2230 Ma).

## PROTEROZOIC OR ARCHEAN

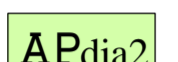
**Diana structural Complex:**



**Felsic intrusive unit:** Monzonite and quartz monzonite, foliated to mylonitic, porphyroid texture. (2756 Ma).



**Orthogneiss unit:** Strongly deformed tonalite, trondhjemite, diorite, and granodiorite. (2782 Ma).



**Volcanic unit:** Amphibolite, mafic gneiss and ultramafic rocks. (No age determination; Archean and Proterozoic in age).



**Metasedimentary unit:** Migmatitic paragneiss, marble, and calc-silicate rocks. (No age determination; probably Proterozoic in age).

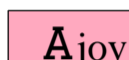
## ARCHEAN

### NEOARCHEAN (2800 to 2500 Ma)

#### Post-2740 Ma Archean units (see diagram 2)

#### 2680 to 2630 Ma

##### Ashuanipi Subprovince



**Joinville Suite:** Homogeneous and massive granite that contains less than 1% biotite or chlorite. (No age determination; younger than 2638 Ma).



**Dervieux Suite:** Granodiorite and granite with biotite + hornblende, characterized by porphyroid texture. (No age determination; younger than 2638 Ma).



**Opiscotéo Suite:** Granodioritic to granitic diatexites with biotite ± orthopyroxene ± clinopyroxene ± garnet, contain abundant biotite schlieren, numerous enclaves of migmatitic paragneiss and a few enclaves of mafic gneiss and tonalitic gneiss. (2638 Ma).

##### Minto Subprovince



**Tasiat Syenite:** Isolated pluton, 2 km by 3 km in size, composed of nepheline-biotite syenite and aegyrine-augite alkaline gabbro (essexite). (2643 Ma).



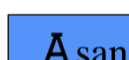
**Bourdel Syenite:** Isolated intrusion, 6 km long, composed of nepheline-biotite syenite, with a well-developed magmatic foliation. (2675 Ma).

#### 2705 to 2680 Ma

##### Diatexites



**Rivière aux Mélézes Suite:** Granodioritic to granitic heterogeneous diatexites with biotite + garnet + cordierite + andalusite ± sillimanite, contain abundant biotite schlieren and numerous enclaves of migmatitic paragneiss. (2668 Ma).

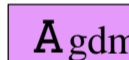


**Sanigittik Suite:** Tonalitic to granitic heterogeneous diatexites with biotite + garnet or biotite ± orthopyroxene, contain abundant biotite schlieren and numerous enclaves of paragneiss, amphibolite, diorite, and leucocratic tonalite. (No age determination; age estimated between 2697 and 2668 Ma).



**Le Roy Complex:** Granodioritic to granitic, rarely tonalitic diatexites with biotite + garnet ± cordierite ± sillimanite ± orthopyroxene, contain abundant biotite schlieren and a significant amount of migmatitic paragneiss enclaves. (2697 Ma and 2668 Ma).

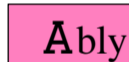
##### Granites, granodiorites, monzonites, and monzodiorites



**Morrice Suite:** Pinkish to reddish, homogeneous granite with biotite ± hornblende, local porphyroid texture; pegmatite. (2684 Ma).



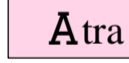
**Cornelle Suite:** Whitish massive granite, with chlorite (<2%) and garnet (<1%), characterized by the presence of bluish quartz; numerous enclaves of paragneiss, amphibolite, diorite, and gabbro; minor tonalite and pegmatite. (2698 to 2688 Ma).



**Belloy Suite:** Massive monzonite and quartz monzodiorite with biotite + hornblende, characterized by porphyroid texture. (ca. 2690 Ma).



**Druillon Suite:** Small intrusions of monzodiorite, quartz monzodiorite, diorite, monzonite, and quartz monzonite with hornblende + biotite ± clinopyroxene ± orthopyroxene, porphyroid texture; granite characterized by the presence of sodic amphibole. (No age determination; age estimated between 2705 and 2680 Ma).



**Tramont Suite:** Homogeneous granite with biotite + chlorite. (2701 Ma and 2698 Ma).



**Maurel Suite:** Granodiorite, granite, monzodiorite, and quartz monzodiorite with biotite + hornblende, characterized by porphyroid texture. (2707 to 2686 Ma).

##### Tonalites



**Beausac Suite:** Foliated to banded tonalite with biotite + hornblende; minor quartz monzodiorite and granodiorite. (2690 Ma).



**Rivière Qijuttuq Suite:** Three small intrusions of massive and weakly deformed biotite leucotonalite. (No age determination).



**Hinnaru Pluton:** Biotite ± hornblende tonalite and minor biotite trondhjemite; a few enclaves of paragneiss and mafic to felsic igneous rocks. (2691 Ma).

##### Intermediate to ultramafic intrusions

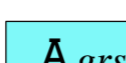


**Couture Suite:** Small ultramafic to intermediate intrusions, cut by felsic injections that produce a brecciated aspect; ultramafic intrusions consist of pyroxenite and peridotite; mafic intrusions consist of gabbro with minor anorthosite; intermediate intrusions consist of diorite and quartz diorite. (No age determination; age estimated at about 2705 Ma).

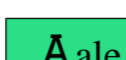


**Qullinaaraaluk Suite:** Small homogeneous and massive ultramafic to mafic intrusions, cut by felsic injections that produce a brecciated aspect. Ultramafic intrusions consist of pyroxenite, hornblende and more rarely, peridotite; mafic intrusions consist of gabbro and gabbrotonalite. (2707 and 2705 Ma; one earlier age at 2720 Ma).

##### Volcano-sedimentary rocks



**Grosbois Complex:** Foliated and migmatitic paragneiss with biotite ± orthopyroxene ± hornblende ± garnet; 5 to 50% bands from 1 to 10 cm in size of tonalitic to granitic mobilizate; a few iron formation horizons. (No age determination; age estimated at about 2700 Ma).



**Allemand Belt:** Mafic gneiss and tholeiitic metabasalts, interlayered with laminated mafic to felsic tuffs and metre-scale horizons of lapilli tuff; banded muscovite schists and a few metre-scale layers of quartzite, conglomerate, and iron formation. (No age determination; age estimated at about 2700 Ma).



**Juet Belt:** Sandstone, laminated siltstone, monogenic and polygenic conglomerate, a few beds of phyllite and iron formation; mafic tuff with laminated, crystal, and massive facies, and intermediate to felsic aphanitic tuff, tholeiitic amphibolite and metagabbro. (No age determination; age estimated at about 2700 Ma).

#### 2740 to 2705 Ma

##### Pyroxene-bearing felsic intrusive rocks

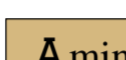
###### Loups Marins Suite:



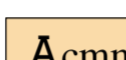
**Clinopyroxene sub-unit:** Clinopyroxene tonalite and diorite, with minor amounts of granodiorite and granite; these clinopyroxene-bearing rocks are characterized by the presence of burgundy-coloured plagioclase. Numerous enclaves of amphibolite, diorite, and paragneiss. (2715 to 2705 Ma; a few ages from 2731 to 2710 Ma).



**Orthopyroxene sub-unit:** Hypersthene enderbite and quartz diorite, with minor amounts of opalite and charnockite; multi-km-scale lenses of gabbrotonalite, hypersthene diorite, and local ultramafic rocks; numerous enclaves of amphibolite, diorite, and paragneiss. (2735 to 2720 Ma; one younger age at 2693 Ma).



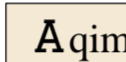
**Lac Minto Suite:** Massive to foliated enderbite, with a charnockitic or opalitic phase in diffuse contact; intrusions of hypersthene diorite and gabbrotonalite; small charnockite intrusions. (2735 to 2710 Ma; younger ages from 2702 to 2688 Ma).



**MacMahon Suite:** Homogeneous enderbite associated with small intrusions of hypersthene diorite, gabbrotonalite, and ultramafic rocks; extensive opalite and charnockite bodies; clinopyroxene tonalite with minor clinopyroxene diorite. (2729 to 2711 Ma; several younger ages from 2702 to 2676 Ma).



**Lepelle Suite:** Homogeneous and strongly foliated clinopyroxene granodiorite and granite, characterized by the presence of burgundy-coloured plagioclase; minor clinopyroxene tonalite; enclaves of tonalite, mafic rocks, and rare ultramafic rocks. (2725 to 2720 Ma).



**Qimussinguat Complex:** Orthopyroxene orthogneiss and foliated to gneissic charnockitic intrusions composed of enderbite with minor opalite, charnockite, and hypersthene diorite; small gabbrotonalite intrusions. (2734 Ma).

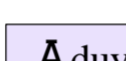


**Troie Complex:** Orthopyroxene orthogneiss and foliated to gneissic charnockitic intrusions composed of enderbite, opalite, and minor charnockite and hypersthene diorite; small gabbrotonalite intrusions. (2741 to 2722 Ma).

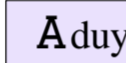
##### Granites, granodiorites, monzonites, and monzodiorites



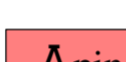
**Desbergères Suite:** Biotite-hornblende granodiorite and biotite granite, homogeneous, massive to weakly foliated; porphyroid-textured granodiorite and granite; significant proportion of tonalitic enclaves. (2720 to 2710 Ma; a few ages from 2732 to 2724 Ma).



**Dufrebois Suite:** Homogeneous granite with biotite + hornblende; late aplitic and pegmatitic injections are common. In the Lac Dufrebois area, this unit also includes granodiorites, monzonites, charnockitic rocks and minor tonalite, diorite, and gabbro. (2726 Ma and 2721 Ma).



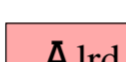
**Rivière aux Feuilles Suite:** Homogeneous granodiorite with hornblende + biotite, which commonly contains a granitic phase in diffuse contact; clinopyroxene and orthopyroxene-bearing granodiorite horizons in a few locations. (2733 to 2722 Ma).



**Pinguq Suite:** Granite, granodiorite, quartz monzodiorite, and quartz monzonite, characterized by porphyroid texture; minor homogeneous granite and granodiorite, without porphyroid texture; minor quartz syenite and biotite diorite. (2727 Ma and 2725 Ma).



**La Chevrotière Suite:** Granite, granodiorite, and quartz monzodiorite with biotite + hornblende, characterized by porphyroid texture; minor homogeneous granite and granodiorite, without porphyroid texture. (2734 to 2719 Ma).

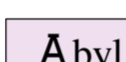


**Leridon Suite:** Granodiorite, granite, and minor monzonite with hornblende + biotite, homogeneous, massive to foliated, with or without porphyroid texture. (No age determination; age estimated between 2735 and 2720 Ma).



**Tonalites**

**Lesdiguières Suite:** Foliated to gneissic tonalite with biotite + hornblende, granoblastic texture, contains more than 20% cm-scale layers of felsic mobilizate; minor diorite. (2724 Ma).



**Bylot Suite:** Migmatitic tonalite, with a diatexitic aspect; numerous enclaves of mafic gneiss, diorite, and paragneiss; minor granodiorite and granite. (2737 Ma and 2723 Ma).

##### Intermediate to ultramafic intrusions

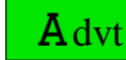


**Bacqueville Suite:** Dykes, remnants, and dismembered bodies of gabbro, gabbrotonalite, diorite, and local ultramafic rocks. All these rock types are generally strongly foliated to gneissic and exhibit a well-developed granoblastic texture. (No age determination; age estimated between 2740 and 2710 Ma).



**Châteauguay Suite:** Dykes and tabular intrusions ranging from ultramafic to intermediate in composition, though predominantly mafic; gabbro and gabbrotonalite, and quartz diorite, peridotite, pyroxenite, and hornblende. These intrusions are commonly injected with felsic material, which produces a brecciated aspect. (No age determination; age estimated between 2740 and 2710 Ma).

##### Volcano-sedimentary rocks



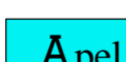
**Duvert Complex:** Amphibolite and tholeiitic mafic gneiss, intermediate to felsic volcanic rocks, and ultramafic intrusive and effusive rocks; variably migmatitic paragneiss; layers of iron formation and calc-silicate rocks. (2715 Ma).



**Vizien Belt:** Wide variety of ultramafic to felsic effusive volcanic rocks and intrusive rocks; sedimentary rocks. (2724 to 2708 Ma; one early age between 2797 and 2786 Ma).



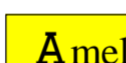
**Chavigny Complex:** Sequence composed of 70% felsic volcanic rocks, 20% mafic volcanic rocks, and 10% sedimentary rocks; felsic volcanic rocks consist of rhyolite and rhyolitic to rhyodacitic tuffs. Mafic volcanic rocks are represented by tholeiitic basalts and andesitic basalts. Sedimentary rocks consist of wacke, paragneiss, and polygenic conglomerate. Iron formation horizons are associated with all assemblages. Sericite schists are interpreted as metamorphosed hydrothermal alteration zones. (2722 Ma).



**Péican Complex:** Migmatitic paragneiss with 5 to 50% cm-scale to m-scale layers of felsic mobilizate; oxide-facies and rare silicate-facies iron formations. Mafic to felsic volcanic rocks of diverse origins. (2739 Ma; 2733 Ma in mobilizate).



**Tasiataq Belt:** Amphibolite-grade basalts and andesites; rhyolite, dacite, and diverse felsic tuffs; iron formations; a few layers of pyroxenite, peridotite, hornblende, and serpentinite; minor gabbro. (2740 Ma).



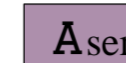
**Melvin Belt:** Calc-alkaline felsic rocks, metamorphosed and strongly deformed, derived from a mixture of lavas and diverse tuffs. (2741 Ma).

## Pre-2740 Ma stratigraphic units (see diagram 1)

### 2800 to 2740 Ma



**Kakiattug Suite:** Biotite tonalite with a granodioritic and granitic phase in diffuse contact with the tonalitic phase; 1 to 10-metre layers of hornblende-biotite tonalite; numerous enclaves of paragneiss, amphibolite, mafic to intermediate gneiss, gabbrotonalite, and iron formation. (2741 Ma).



**Sem Suite:** Biotite-rich heterogeneous tonalite, visually similar to diatexites; numerous dioritic enclaves. (No age determination; age estimated between 2760 and 2740 Ma).



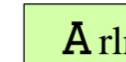
**Favard Suite:** Biotite trondhjemite and tonalite with a granodioritic and granitic phase in diffuse contact with the tonalitic phase; 1 to 10-metre layers of hornblende-biotite tonalite; numerous enclaves of amphibolite and granoblastic diorite. (2766 to 2740 Ma, mostly from 2750 to 2740 Ma; younger ages at 2717 Ma and 2714 Ma; earlier age at 3020 Ma).



**Coursoules Suite:** Hornblende-biotite tonalite with a granodioritic to granitic phase in diffuse contact with the tonalitic phase; early diorite, and gabbro unit also occurring as enclaves in the tonalite. (2758 Ma and 2756 Ma; younger ages at 2716 Ma and 2713 Ma).



**Innuksuac Complex:** Remnants of volcanic and sedimentary rocks metamorphosed to the amphibolite and granulite facies. Volcanic remnants mainly consist of tholeiitic amphibolite showing a variety of textures, along with ultramafic rocks, paragneiss, and iron formation horizons. Sedimentary remnants include migmatitic paragneiss with intermediate volcanic rocks and iron formation horizons. (No age determination; age estimated between 2760 and 2740 Ma).



**Roulier Belt:** Amphibolitized mafic volcanic rocks of tholeiitic affinity; 1 to 10-metre horizons of migmatitic metapelites; pyroclastic rocks mainly represented by crystal and lapilli tuffs; gabbro dykes. (2759 Ma).



**Mézard Complex:** Remnants of volcanic and sedimentary rocks metamorphosed to the amphibolite and granulite facies. Volcanic remnants consist of amphibolite with 1 to 10-metre horizons of intermediate to felsic rocks. Sedimentary remnants include migmatitic paragneiss and iron formation horizons. (No age determination; age estimated between 2760 and 2740 Ma).



**Kogaluc Complex:** Sequence composed of 80% sedimentary rocks, including biotite paragneiss, iron formation, sandstone, siltstone, quartzite, argillite, and local conglomerates, and 20% mafic to felsic volcanic rocks of calc-alkaline affinity. (2760 Ma and 2759 Ma).



**Kimber alkaline Suite:** Three small intrusions of massive, undeformed nepheline syenite, with a well-developed igneous granular texture; injections of fine-grained to pegmatitic syenite. (2761 Ma).



**Nantais Complex:** Tholeiitic metabasalts and mafic gneiss, metamorphosed to the amphibolite and granulite facies; locally, layers of diverse intermediate to felsic tuffs, conglomerate, and ultramafic rocks. (2775 Ma).



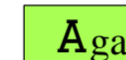
**Kapjiq Suite:** Biotite trondhjemite and hornblende-biotite tonalite, foliated to gneissic, with a granoblastic texture and a migmatitic aspect due to the presence of cm-scale to m-scale horizons of tonalitic to granitic mobilizate; enclaves of amphibolite, diorite, and gabbro. (2783 Ma and 2768 Ma).



**Rochefort Suite:** Biotite tonalite and trondhjemite, and hornblende-biotite tonalite, foliated to gneissic, with an igneous or granoblastic texture, contains a granitic and granodioritic phase in diffuse contact with the tonalitic phase; numerous mafic enclaves. (2789 to 2755 Ma; most ages between 2785 and 2775 Ma).



**Faribault-Thury Suite:** Biotite trondhjemite and hornblende-biotite tonalite, foliated to gneissic, granoblastic texture, with a migmatitic aspect due to the presence of cm-scale to m-scale veins of tonalitic to granitic mobilizate; enclaves of amphibolite, diorite, and gabbro. (Several ages between 2785 and 2772 Ma; earlier ages between 2879 and 2857 Ma).



**Garault Complex:** Biotite paragneiss, muscovite schist, quartz sandstone, and a few layers of conglomerate; calc-alkaline basalt, andesite, and felsic rocks; gabbro and diorite; minor tonalitic gneiss. (2782 Ma).



**Dupire Complex:** Paragneiss with biotite + hornblende ± garnet or biotite ± garnet; horizons of quartzite, tholeiitic metabasalt, metarhyolite, felsic pyroclastic rocks, silicate-facies and oxide-facies iron formation, and anthophyllite-cordierite-biotite schist; ultramafic to mafic sills. (2798 Ma and 2787 Ma).

## MESOARCHEAN (3200 to 2800 Ma)

### 2850 to 2800 Ma



**Suluppaugalik Suite:** Heterogeneous, foliated to gneissic tonalite, lithologically and structurally complex; numerous ultramafic to intermediate enclaves of variable sizes; numerous late injections of granodiorite and granite. (2808 Ma).

