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MATAGAMI REGION

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Geology of the Île Bancroft (32F12-200-0202) and Lac MacIvor map sheets (32F13-200-0101), Matagami region

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Abstract

The work conducted in the summer of 2008 was part of a new three-year mapping revision of the Matagami region. Two 1:20,000 NTS map sheets immediately south and west of the city of Matagami were partially mapped: 32F12-2000-0202 and 32F13-200-0101. The compilation and interpretation of earlier data supported the field work.

The region consists of volcanic rocks, mafic and intermediate intrusions, and a small amount of sedimentary rocks, all of Archean age, cut by several Proterozoic gabbro dykes. Two volcanic groups dominate the study region: the Lac Watson Group (2725–2723 ±2 Ma) and the overlying Wabassee Group.

The Lac Watson Group consists mainly of rhyolite, rhyodacite and dacite, with lesser amounts of andesite and basalt.

The Key Tuffite, a marker horizon for volcanogenic massive sulphide (VMS) mineralization in the region, is positioned immediately above the Lac Watson rhyolites. The Wabassee Group is dominated by andesites and by pillowed, massive or brecciated basalts, often amygdular. The group comprises the Rivière Bell Volcanics, of tholeiitic affinity, and the Rivière Allard Volcanics, of mainly calc-alkaline to transitional affinity, but which also includes some tholeiitic basalts. In addition, layers of rhyolitic to dacitic felsic volcanics have been observed in the core of the Wabassee Group mafic volcanics. The Brouillan-Nord, Brouillan-Fénelon and Enjalran-Bapst volcanic groups have seen little study due to the scarcity of outcrops. Regional metamorphism generally reached greenschist facies. The Rivière Bell Complex (2725 +3/-2 Ma) consists mainly of gabbro. Anorthosites, pyroxenites and dunites are less common.

The McIvor Pluton, the biggest part of which lies outside the area covered by this study, is represented here by its dioritic phase.

The Galinée Anticline represents the main structure in the region (see accompanying maps). Its core contains intrusive rocks of the Rivière Bell Complex and its two flanks comprise volcanic rocks of the Lac Watson and Wabassee groups, which are affected by local folding. The structure is truncated by the Daniel Fault (see accompanying maps), with a vertical displacement of at least 500 m. The Archean rocks are weakly deformed, highlighted by schistosity with an overall ESE-WNW to E-W orientation.

The region is recognized for its polymetallic (Zn-Cu-Ag-Au) VMS-type deposits and showings, hosted for the most part in Lac Watson rhyolites. Several spots with rusty zones and sulphide mineralization were observed in Rivière Allard andesites, but our analyses did not yield anomalous metal values.

In the south-central part of map sheet 32F13-200-0101, tholeiitic basalts at the base of the Wabassee Group suggest the presence deeper felsic layers belonging to the Lac Watson Group or the Dumagami Rhyolite. The contacts between different facies within the Lac Watson Group volcanics are also potential VMS targets. In light of recent studies, the potential in the Wabassee Group rhyolites also merits re-examination.

West of the mapped sheets, on what is commonly known as the “West Side”, is a rhyolitic band enclosing a series of Zn-Cu deposits (Figure 1b). This underscores the importance of improving our geological understanding of neighbouring areas and dictates the necessity of pursuing work beyond the sheets mapped in 2008.