



Northeast Friends of the Pleistocene 2017

June 9-11, 2017

The 80th Annual Reunion of the Friends of the Pleistocene will be head-quartered at Mont St-Hilaire (Gault Nature Reserve, McGill University) in southern Québec, Canada. The meeting is co-sponsored by the Geological Survey of Canada and the Ministère de l'Énergie et des Ressources naturelles du Québec.

The fieldtrip **“Middle and Late Wisconsinan events and stratigraphy in southern Québec – A new pre-LGM marine incursion”** will be led by Michel Parent (GSC), Hugo Dubé-Loubert (MERN) and collaborators (Pierre J.H. Richard, J.P. Guilbault). The 2017 gathering will be held in the St. Lawrence Lowlands of southern Québec for the first time since 1982 when Pierre LaSalle, P.P. David and M.A. Bouchard had hosted the 45th annual FOP fieldtrip in St-Hyacinthe and Drummondville.

At the time of that meeting, the early radiocarbon age (> 12 500 BP) of the Champlain Sea incursion and associated deglacial events, most notably the ice-flow reversal in the Appalachians and the development of a calving bay in the St. Lawrence Valley, were controversial issues. Now that the existence of a large proglacial lake preceding the Champlain Sea (Glacial Lake Candona) has been reinstated in the southern St. Lawrence Lowlands (Parent and Occhietti, 1988; Rodrigues, 1992) and that late glacial ice-flow re-orientations have been ascribed to the development of ice-streams (Parent and Occhietti, 1999; Ross et al., 2006), new uncertainties in the regional Late Quaternary record have emerged as a result of new findings from fieldwork and drilling conducted in the context of regional hydrogeologic surveys (Dubé-Loubert, Parent and Brazeau, 2013; Parent et al., 2014).

These new findings include:

- Multiple sites showing the presence of a post-LGM ‘readvance till’ overlying glaciofluvial and/or glaciolacustrine sediments. While the age of this readvance is stratigraphically constrained (during the Lake Candona episode), its outer boundary remains to be established.
- Pre-LGM fossiliferous marine sediments, overlying alluvial sands AMS-radiocarbon-dated at $31\,270 \pm 200$ years BP and $33\,250 \pm 240$ years BP. The fossil content and age of these sediments indicate that a relatively long Middle Wisconsinan interstadial event, characterized by normal drainage conditions and followed by a relatively short-lived marine incursion, preceded the Late Wisconsinan glacial advance across the region.

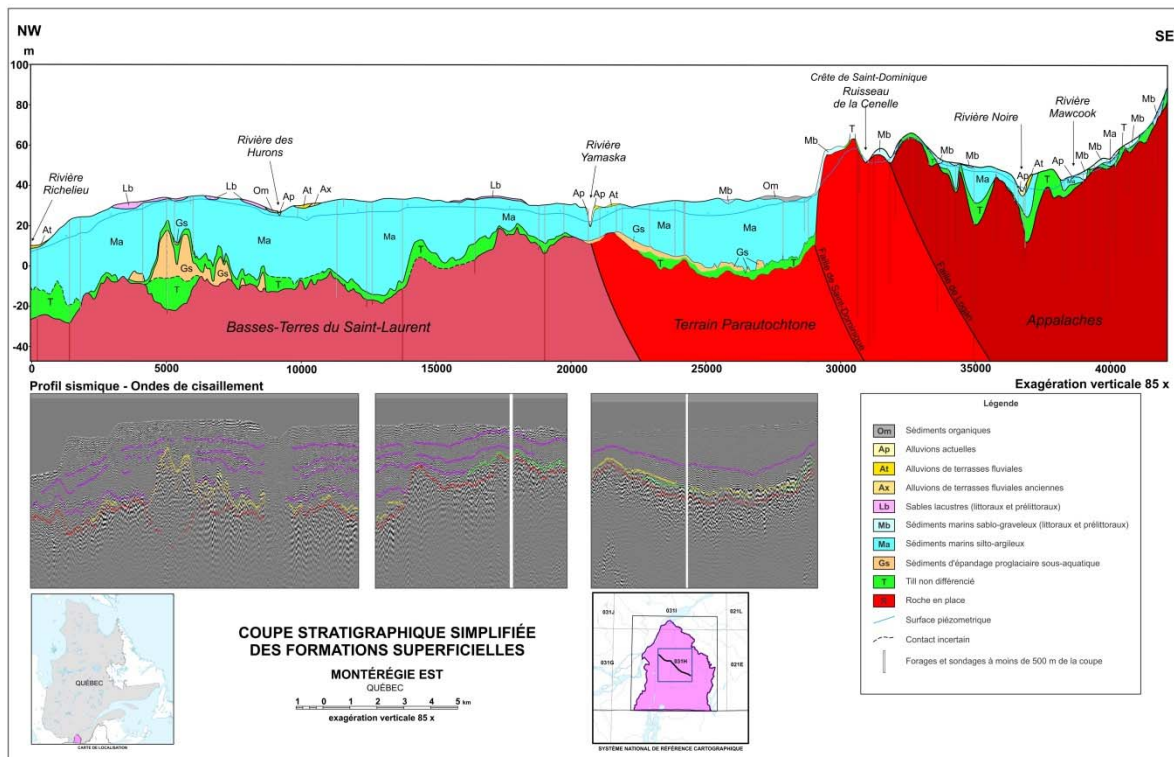


Figure 1. Representative cross-section of Quaternary units between the Richelieu River and the Appalachian Piedmont. Notice the vertical exaggeration of 85 X of this 40 km-long section. The buried subaquatic outwash/esker ridge complex was first identified by the 3C seismic survey (shear wave profile shown below the cross-section) and then confirmed by a rotasonic cored borehole (RS-02). Note that although marine limit (about 175 m ASL) lies well above the level of both the lowlands and the piedmont, Champlain Sea clays are much thinner on the piedmont.

Friday evening, we will gather at the Gault House (Gault Nature Reserve, McGill University) on Mont St-Hilaire for an ice-breaker beginning at about 6:00 PM. We have reserved accommodation for 42 people at the Gault House and chalets. Information on lodging and reservation instructions will be provided in a forthcoming message.

On Saturday, we will board a bus (or vans) and travel to Stops between Mont St-Hilaire and the Appalachian Piedmont. We visit a series of typical exposures, including: (1) 'Readvance' till overlying subaqueous outwash/eskers and overlain by Champlain Sea sediments, (2) Champlain Sea littoral sand and gravel and associated fossil shell assemblages, (3) Delta (210 m ASL) deposited during the Lake Candona episode. On our way to a site showing NW-trending *roches moutonnées* with crosscutting N-S striae, we will pass by the site of borehole RS-04 where the pre-LGM marine and alluvial sediments were recovered.

Saturday evening, Happy Hour and Banquet will be held at the Gault House. Before dinner, taking advantage of our location on the shore of Lake Hertel, Pierre Richard has accepted to present what may be called the long and the short history of this key locality in the development of facts and ideas between about 1966 and 2003 pertaining to the timing of the Champlain Sea incursion (now estimated at about 11 100 cal years BP).

On Sunday morning, we will complete our visit of exposures pertaining to Mid- and Late Wisconsinan events and if time permits, we will visit nearby exposures of offlap sands deposited by the early St. Lawrence River, just after the end of the Lake Lampsilis episode. The fieldtrip will end after we have lunched at the Gault House.

Registration details will follow.

U.S. citizens, be sure your passport is current and bring it on the trip!