McGill Arctic Research Station

The McGill Arctic Research Station (MARS) is one of the oldest university operated field stations in the Canadian Arctic. The current configuration consists of 2 “stand alone” facilities; the original McGill Arctic Research Station (MARS) research station at Colour Lake (est 1960) and a CSA sponsored Mars Analogue research station (MARS-CARN) ~ 8 km down Valley (est 2005). Both include a combination of permanent heated all season buildings and unheated Weatherhaven structures. MARS remains the primary facility however the resources of both are included here.

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Owner
McGill University

Membership
Regular Member

Latitude
79.41508

Longitude
-90.75

Location
Axel Heiberg Island - Expedition Fiord

Nearest Community
Grise Fiord (~400 km) and Resolute Bay (~ 500 km)

Territory/ Province
Nunavut

Aboriginal Government/ Homeland
Crown land www.gov.nu.ca

Facility Type
Seasonally-Operated Research Station, Seasonally-Operated Field Camp, Site for Observing/Monitoring

Research Hinterland
Continuous Permafrost, Lake, Polar Desert, Glacier, Tundra

Main Research Disciplines
Biochemistry, Climatology, Environmental Sciences, Geodesy, Geology and Sedimentology, Geophysics, Geocryology, Geomorphology, Glaciology, Hydrology, Isotopic Chemistry, Limnology, Mapping/GIS, Microbiology, Soil Science, Terrestrial Biology/Ecology

Research History
MARS was established in 1960 by McGill University (in partnership with the late George Jacobsen) as the base for an integrated program of natural science research. The early research program (1960-70) focused on glaciology, geology, geomorphology, botany, climatology and mapping. For the next 2 decades more targeted research on a range of topics (eg anhydrite diapirs, vegetation, push moraine dynamics …) was undertaken although glaciology and continued mass balance studies of the White Glacier formed a core program. Since the 1980s the multi-disciplinary nature of research has expanded to include questions about planetary analogues, astrobiology, microbial ecology and climate change.

Current Projects
White Glacier Mass Balance, Regional Glaciology, Perennial spring hydrology & mineralogy, Lake chemistry and Limnology, Permafrost & spring microbiology, Microclimate, Diapir tectonics, Paleosprings, Permafrost and ice wedge polygons, Astrobiology

Power
Generator, Solar, Wind

Communications
Telephone (Vonage VoIP), Satellite phone, HF & VHF, Internet, Computer

Local Transportation
ATV (4) Snowmobile (3)

Equipment Storage
2 Unheated Weatherhavens

Dormitory/Sleeping Facilities
10 main cabin (heated), 4 Weatherhaven (heated), 2 unheated Alaskan Structure

Dining/Kitchen Facilities
2 Full kitchens (MARS and MARS-CARN), with propane stoves, freezers and refrigerators. Dining capacity 12 persons MARS and 8 MARS-CARN

Laboratory Facilities
There is dedicated laboratory space but in house equipment is limited – research projects usually are self-equipped

Fuel Availability
Supplied through PCSP support and is therefore project allocated, fuels include: Jet B, Diesel, Propane, Mogas

Research Requirements
Nunavut Research Licence (Land and Water Application). Also specialized collection permits for plant and animal materials. www.nri.nu.ca

Special Rules and Regulations
Most Research is supported by the Polar Continental Shelf Program (PCSP) – so must meet PCSP regulations with respect to camp best practices and safety. There is also a MARS Code of Conduct that apples to both stations and that all users must sign with specific requirements pertaining to: safety and communication, firearms, alcohol consumption, fuel management (& spill contingency), waste, ATVs and Snowmobile.

Local External Resources
This is a very remote research station, there no other resources on Axel Heiberg Island. The nearest facilities are the EC Eureka Weather station and DND Fort Eureka ~ 120 km away. Limited interaction with the communities of Grise Fiord and Resolute Bay.

Nearest Medical Service
Resolute Bay (500 km)

Safety Considerations
Wilderness First Aid (cert req'd), CPR (cert req'd), Firearms safety (FAC required), HF radio protocols (on site training), ATV/Snowmobile safety (on site…), Glacier safety (formal training)

Cost
$200/day/person full R&B
$100/day/person

Other Information
The While Glacier mass balance record is the longest for a high Arctic valley glacier. MARS has the most northern Ka Band satellite communication system. Research on cold perennial springs has attracted considerable international research collaboration.

Last Updated
15-05-30