ᓄᓇᕘᒥ ᐊᕙᑎᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖏᑦᑎᒍᑦ ᑐᒃᓯᖅᑑᑦ ᕿᒥᕐᕈᔭᒃᓴᖅ #125260

MAP (Multidisciplinary Arctic Program) - Last Ice

ᑐᒃᓯᖅᑑᑕᐅᔪᖅ ᖃᓄᐃᑦᑑᓂᖓ: New

ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔫᑉ ᖃᓄᐃᑦᑑᓂᖓ: Scientific Research

ᐅᓪᓗᖓ ᑐᒃᓯᖅᑑᑎᓕᐊᕕᓂᐅᑉ: 1/31/2018 1:44:07 PM

Period of operation: from 0001-01-01 to 0001-01-01

ᑲᔪᓯᒃᑲᐃᐳᐅᓂᐊᖏᓯᒥᔭᐅᔪᑦ: from 0001-01-01 to 0001-01-01

ᐱᓕᕆᐊᖃᕈᒪᔪᖅ:

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Freshwater Institute, Christine Michel
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ᑐᓴᐅᒪᔭᒃᓴᑦ

ᖃᓄᐃᑦᑑᑎᓂᒃ ᐱᓕᕆᐊᖅᑲᖅᓂᐊᓂᐊᖅᒐᓐᓂᒃ

ᖃᓪᓗᓈᑎᑐᑦ: The general objective of this project is to better understand the sea ice ecosystem in the northern Canadian Archipelago, in particular the old multiyear ice. Because this old ice is disappearing from the Arctic and changing into thinner annual ice, this has many impacts on the ecosystem. The study will take place on the sea ice off Alert, during the spring of 2018, from end of April to beginning of June. We will use snowmobiles to go a station on the sea ice where ice conditions are safe (see map for tentative location). We will have a temporary shelter tent on the ice; which will be used to process sea ice and water samples. At the station, we will collect sea ice cores and cut them in sections for analysis of the ice conditions. We will also collect water samples using sampling bottles and measure salinity and biological conditions. We will use oceanographic instruments to measure the properties (temperature, salinity) of the water column. We also plan to install instrumentation to measure meteorological conditions, ocean currents, and zooplankton during the spring.. Twice during the study, we will carry out marine mammal surveys using a Twin Otter. The surveys will help identify the use of the sea ice by seals and polar bears. At the end of the spring field season, we will remove all the equipment installed on the ice, including temporary shelter. We plan to return to the station in the fall to deploy the same oceanographic instruments and have measurements until the next spring. We are planning to continue this study over subsequent years, in 2019-2020, to assess year-to-year changes in conditions. The results of this study are needed to better understand the sea ice ecosystem and how it will respond to climate change. This is important since many Arctic marine species depend on the sea ice.

ᐅᐃᕖᑎᑐᑦ: n/a

ᐃᓄᒃᑎᑐᑦ: ᑐᕋᒐᐅᔪᑦ ᐱᓕᕆᐊᖑᔪᒧᑦ ᑐᑭᓯᔭᐅᑦᑎᐊᕈᒪᓪᓗᓂ ᓯᑯ ᑕᕆᐅᕐᒥ ᐊᕙᑎᖓᓃᑦᑐᑦ ᐅᑭᐅᖅᑕᖅᑐᖓᓂ ᑲᓇᑕᒥ, ᐱᓗᐊᖅᑐᒥᒃ ᓯᑯᑐᖅᑲᐅᓂᖅᒥᑦ. ᐱᔾᔪᑎᒥᓪᓗᒍ ᓯᑯᑐᖅᑲᐅᔪᑦ ᐊᓯᐅᕌᓪᓕᐊᒃᒪᑦ ᐅᑭᐅᖅᑕᖅᑐᒥᑦ ᓄᑖᖑᕐᓇᐅᓕᖅᐸᓪᓕᐊᓪᓗᓂᓗ ᓯᑯᖓ ᓵᓪᓕᕙᓪᓕᐊᒃᒪᑦ, ᐊᕋᒍᑕᒫᑦ, ᐊᕙᑎᖓᓄᑦ ᐃᒃᐱᒃᓇᐅᑎᓯᒪᒃᒪᑦ. ᖃᐅᔨᓴᕐᓂᐅᔪᖅ ᑎᑯᓯ ᐊᓘᑦᒥ, ᐅᐱᕐᖔᖅᓚᓂ 2018, ᓄᖑᐊᓂᑦ ᐊᐃᓂᓃᑦ ᑎᑭᓪᓗᒍ ᐱᒋᐊᕐᓂᖓᓄᑦ ᔫᓂ. ᓯᑭᑑᒃᑯᑦ ᐊᑐᕐᓗᑕ ᓯᑯᒧᐊᖅᑕᕐᓗᑕ ᖃᐅᔨᓴᕝᕕᐅᔪᒧᑦ ᐊᑦᑕᕐᓇᖏᑦᑐᒧᑦ (ᓄᓇᖑᐊᕐ ᑕᑯᓗᒍ ᐃᓂᒋᔭᐅᔪᒪᔪᖅ). ᑐᐱᖅᑲᑦᑕᕐᓂᐊᖅᑐᒍᑦ ᓯᑯᒥ; ᖃᐅᔨᓴᕐᑕᑎᓐᓄᑦ ᓯᑯᖅᒪᓂᒃ ᓂᓚᒃᒥᒃ ᓂᐅᕐᑐᕐᓯᒪᔪᒃᑦ ᐊᕕᒃᑐᕐᑕᐅᓗᑎᒃ ᖃᐅᔨᓴᕐᑕᐅᕙᒃᓗᑎᒃ. ᐃᒥᖅᒪᓂᒃᓗ ᑕᓇᐅᕐᒥ ᐃᒥᖅᑲᐅᑎᒧᐊᖅᑕᕐᓗᒥᑦ ᖃᓄᑎᒥ ᑕᓇᐅᖅᒍᑎᒥᓂᖅᒪᓂᒃ ᖃᐅᔨᓴᕐᓗᑕ ᐊᒻᒪᓗ ᐆᒪᔪᐊᕐᔪᒃᑕᕐᑲᕐᑎᒥᓂᖅ. ᖃᐅᔨᓴᕈᑎᓂᒃ ᐊᑐᕐᓗᑕ ᑕᓇᐅᕐᒧᑦ (ᐅᖅᖂᓂᖅ, ᑕᓇᐅᖅᒍᓂᖅ) ᑕᕐᑭᐅᕐᒥᖅᒪᕐᑐᖅ. ᐃᓕᐅᖅᑲᐃᓂᐊᕐᑐᒍᑦ ᖃᐅᔨᓴᕈᑎᓂᒃ ᓯᓚᓐᓂᐊᕈᑎᓂᒃ, ᐃᖕᒥᕋᓂᖅᒪᓂᒃ ᖃᐅᔨᓴᕈᑎᓂᒃ ᐊᒻᒪᓗ ᖁᐱᕈᐊᕐᔪᒃᓂᒃ ᖃᐅᔨᓴᕈᑎᓂᒃ ᐅᐱᕐᖔᒃᑯᑦ. ᒪᕈᐃᕐᓯᕐᓗᒍ ᖃᐅᔨᓴᕐᑎᓪᓗᑕ, ᑕᑯᓇᓯᒃᓂᐊᕐᒥᔪᒧᑦ ᐳᐃᔨᓂᒃ ᖃᖓᑕᓲᖃᕈᓘᒃᑯᑦ. ᑐᑭᓯᓇᓯᒃᓗᑕ ᖃᓄᐃᑦᑑᖓᒪᖔᑕ ᐆᒪᔪᐃᑦ ᑕᒪᓃᖅᑲᑦᑕᕐᒪᖔᑕ ᓇᑎᑦ, ᓇᓄᐃᑦ ᐊᓯᖅᒥᑦᓗ. ᐅᐱᕐᖔᒃᑯᑦ ᐱᔭᓂᕐᑲ ᐅᐱᕐᖔᒃᑯᑦ, ᐱᔭᕐᑕᐅᓂᐊᕐᑐᑦ ᖃᐅᔨᓴᕈᑕᐅᔪᑦ ᓯᑯᒥ ᐃᓕᓯᒪᔪᑦ, ᑐᐱᖃᓗ ᐱᕐᑲᓯᐅᑎᓗᒥᑦ. ᐅᑎᒃᑲᓐᓂᕈᕐᑐᒍᑦ ᐅᑭᐅᒃᓵᒃᑯᑦ ᖃᐅᔨᓴᕈᑎᓂᒃ ᐃᓕᐅᖅᑲᐃᓗᑕ ᐅᐱᕐᖓᒧᑦ ᑎᑭᓐᓇᓯᒃᓂᖅᒪᓂ. ᖃᐅᔨᓴᕐᑲᑦᑕᕈᒪᔪᒍᑦ ᐊᕋᒍᓄᑦ ᑐᖅᒥᑎᓂᓄᑦ 2019-2020, ᐊᕋᒍᑕᒫᑦ ᖃᓄᐃᓕᕙᓪᓕᐊᒃᒪᖔᑦ. ᖃᐅᔨᓴᐅᑎᒥᔭᕗᑦ ᓯᓚᐅᑦ ᐊᓯᓪᓕᕐᕙᓪᓕᐊᓂᖓᓄᑦ ᐊᑐᑎᖃᕐᓂᐊᖅᑐᖅ ᖃᐅᔨᓴᕐᑕᐅᓂᖓᓄᑦ ᐃᒃᐱᒃᓇᐅᑎᓯᒪᓂᖓ. ᑖᓐᓇ ᐱᒻᒪᕆᐅᕗᖅ ᐱᔾᔪᑎᒥᓪᓗᒍ

ᐅᑭᐅᖅᑕᕐᒥ ᓴᐃᓕᐅᔪᑦ ᐅᒪᔪᐃᓴᓪᓗ ᓂᐊᒥᖅ ᐃᓇᔪᑎᖅᑲᖅᒪᑕ.

Inuinnaqtun: n/a

Personnel

Personnel on site: 6
Days on site: 35
Total Person days: 210
Operations Phase: from 2018-04-20 to 2018-05-27

ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᑦ

ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᑦ

ᓇᒥ	ᖃᓄᐃᑦᑑᒥᑦ ᐱᓕᕆᐊᖃᕐᓂᐊᖅᐸ	ᑭᒃᑯᑦ ᓄᓇᖁᑖᓂ	ᑐᓴᐅᒪᔭᒃᓴᑦ ᓄᓇᐅᑉ ᖃᓄᖅ ᐊᑐᒐᐅᓚᐅᖅᓯᒪᔭᕆᐊᖕᒐᓐᓂᒃ	ᐃᑦᓴᕐᓂᑕᖃᕐᕕᐅᑦᓚᐅᖅᐸ ᐃᓄᖕᓄᑦ ᓇᔪᖅᑕᐅᖃᑦᑕᕐᓂᑯᕙᓪᓗ ᑕᐃᑦᓯᒪᓂᑐᖃᐅᓕᖅᑐᖅ	ᖃᓂᒡᓂᖅᐹᖅ ᓄᓇᓕᒋᔭᐅᔪᖅ ᐊᒻᒪᓗ ᓴᐳᒻᒥᒃᓱᕕᐅᕙᓪᓗ ᓱᓇᓄᑦ
OffshoreAlert	Aerial surveys	Marine	no site history, on the ice off Alert	n/a	Near Quttinirpaaq National Park; no close community; nearest communities are Resolute Bay and Grise Fjord
OffshoreAlert	Sampling sites	Marine	no site history, on the ice off Alert	n/a	Near Quttinirpaaq National Park; no close community; nearest communities are Resolute Bay and Grise Fjord
OffshoreAlert	Baseline data	Marine	no site history, on the ice off Alert	n/a	Near Quttinirpaaq National Park; no close community; nearest communities are Resolute Bay and Grise Fjord

ᓄᓇᓕᐅᑉ ᐃᓚᐅᖃᑕᐅᓂᖓ ᓄᓇᓖᓐᓗ ᐊᕕᒃᑐᖅᓯᒪᐅᕐᓂᖓᓄᑦ ᐃᑲᔪᑕᐅᔪᓐᓇᖅᑐᑦ

ᓄᓇᓕᒋᔭᖅ	ᐊᑏᑦ	ᑲᑐᔾᔨᖃᑎᒌᒋᔭᖅ	ᖃᖓᓗ ᑐᓴᖅᑎᑕᐅᓚᐅᕆᐊᖅᒥᓐᓂᒃ
ᖃᐅᓯᐃᑦᑐᖅ ᕿᓴᓘᑦ	Nancy Amarualik / Philip Manik Sr	Resolute HTA	2017-12-21
ᐊᐅᓯᐃᑦᑐᖅ	Terry Noah	Iviq HTA	2017-12-20

ᓚᐃᓴᓐᓰᑦ ᐱᒍᖅᓇᐅᑏ ᐊᖏᖅᑕᐅᓯᒪᔪᑦ

ᓇᒦᒥᐊᖏᓐᓂᒃ ᐱᓕᕆᐊᕆᕝᕕᐅᓂᐊᖅᑐᑦ ᑎᑎᕿᕐᓗᒥᑦ

ᓚᐃᓴᓐᓰᑦ ᐱᒍᖅᓇᐅᑏ ᐊᖏᖅᑕᐅᓯᒪᔪᑦ

ᒐᕙᒪᒋᔭᐅᔫᑉ ᐊᕕᒃᑐᖅᓯᒪᐅᕐᓂᖕᒐᓐᓂ ᒪᓕᒐᕐᓄᖕᒐᔪᓂᒃ ᐱᖁᔭᕐᓅᖕᒐᔪᓂᓪᓗ	ᖃᓄᐃᑦᑐᓪᓚᓇᐅᕙ ᓚᐃᓴᓐᓯᑖᕈᑕᐅᔪᖅ ᐱᔪᖕᓇᐅᑎᑖᕈᑕᐅᔪᖅ ᐊᖏᖅᑕᐅᔪᕐᓘᓐᓃᑦ	ᒫᓐᓇ ᖃᓄᐃᓕᖓᕙ	ᐅᓪᓗᒥ ᑐᓂᔭᖅ/ ᑐᒃᓯᖅᑑᑕᐅᓚᐅᖅᓯᒪᔪᖅ	ᑭᓪᓕᖅᑲᕕᖓ

ᑲᒪᔩᑦ ᐱᔪᖕᓇᐅᑎᑖᕈᑎᓂᒃ ᓚᐃᓴᓐᓯᓄᓪᓗ ᑲᔪᓯᒃᑲᐃᔩᑦ				
ᑲᓇᑕᒥ ᐃᖃᓗᓕᕆᔩᑦ ᑕᕆᐅᓕᕆᔩᓪᓗ	Licence for fishing for Scientific Purpose (LFSP)	Applied, Decision Pending	2017-12-19	
ᓄᓇᕗᑦ ᒐᕙᒪᖕᒐ, ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ	Scientific Research License - Contacted Mosha Cote & Mary-Ellen Thomas for clarification on application requirement	Not Yet Applied		

Project transportation types

Transportation Type	ᖃᑦᓯᐅᕙᑦ	ᓱᓇᒧᑦ ᐊᑐᒐᐅᓂᐊᖅᐸ	Length of Use
Air	0	for marine mammal surveys (30h Twin Otter flight in total)	
Water	0	on ice, by snowmobile, to sampling site	

Project accomodation types

Temporary Camp

ᐊᓯᖕᒐ,

ᐊᑐᒐᐅᓂᐊᖅᑐᖅ

ᐱᕐᑯᑦ ᐊᖏᔪᖅ ᐊᑐᖅᑕᐅᓂᐅᓭᔪᖅ ᐃᓚᖅᓯᐅᑎᓗᒋᑦ ᐃᑳᑕᐃᑦ, ᒥᓪᓗᐊᕈᑏᑦ, ᖃᖓᑕᔾᔪᖅ, ᔪᓇᓯᐅᑦ ᐊᓯᖏᓪᓗ

ᐊᖏᔪᖅ ᐱᕐᑯᑦ ᐊᑐᒐᐅᓂᐊᖅᑐᖅ ᖃᔪᐃᑦᑑᓂᖓ	ᖃᑦᓯᐅᕙᑦ	ᐊᖏᓂᖏᑦ - ᐳᖅᑐᓂᖏᑦ	ᓱᓇᒧᑦ ᐊᑐᒐᐅᓂᐊᖅᐸ
snowmobiles	3	regular	regular travel to-from sampling site - Alert
Twin Otter	1	regular	for marine mammal surveys (30 h total)
ice corer	2	9 cm diam	to collect sea ice cores
ice auger	1	8/10 in diam	to auger in the ice and collect water samples
weather haven tent	1	12 x 20	for temporary shelter on ice
generator	1	2.2	to power scientific equipment at station

ᑎᑎᕋᐅᓯᖅᑐᒍ ᐅᖅᓱᒃᓴᐃᑦ ᐊᑦᑕᓇᖅᑐᖅᑖᕐᓗ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᖏᑦ

ᓱᓇᒧᑦ ᐅᖅᓱᒃᓵᒥᐊᖅ ᐊᑐᒐᐅᓂᐊᖅᐸ	ᖃᔪᐃᑦᑐᓪᓚᖅᐅᕙ ᐅᖅᓱᒃᓵᒥᐊᖅ	ᖃᑦᓯᐅᕙᑦ ᐅᖅᓱᒃᓭᖃᐅᑏᑦ	ᑑᒃᓴᐅᑉ ᐃᒪᖄᑎᒋᔪᓐᓇᕐᓂᖓ	ᑲᑎᓪᓗᒍ	ᑑᒃᓴᐃᑦ ᐊᒥᔫᓂᖏᑦ	ᓱᓇᒧᑦ ᐊᑐᒐᐅᓂᐊᖅᐸ
Propane	fuel	1	20	20	Lbs	for stove/heat in temporary shelter
Diesel	fuel	1	45	45	Gallons	for heat for temporary shelter
Gasoline	fuel	1	5	5	Gallons	for generator and snowmobiles

ᐃᒪᖅ ᐊᑐᖅᑕᐅᔮᖅᑐᖅ

ᐅᓪᓗ ᑕᒫᖅ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᖅ	ᖃᔪᖅ ᐃᒥᖅᑕᖃᑦᑕᕐᓂᐊᖅᐸᑦ	ᓇᑭᑦ ᐃᒥᖅᑕᖃᑦᑕᕐᓂᐊᖅᐸᑦ
0	drinking water will be carried to the field station from Alert station	Alert station will provide drinking water

ᐊᒃᑕᒌᑦ

ᐊᒃᑕᒌᓕᖕᓂᐊᕐᓂᖅ

ᐱᓕᕆᐊᕆᔭᐅᔪᒪᔪᒧᑦ ᐱᕆᐊᕆᔭᐅᓂᐊᖅᑐᖅ	ᖃᔪᐃᑦᑐᖅ ᐊᒃᑕᒌᖅ	ᖃᔪᑎᒥ ᐊᒃᑕᒌᑦ ᓴᖅᑭᐊᓂᐊᖅᑐᕆᔭᐅᕙᑦ	ᖃᔪᖅ ᐊᒃᑕᖅᑕᐅᓂᐊᖅᐸ	ᓴᓗᒪᖅᓴᐅᑎᒃᓴᒃᑲᓂᐅᓂᐊᖅᑐᑦ
Researching	ᐊᒃᑕᒌᑦ ᐃᑯᐊᓚᑕᐅᔪᓐᓇᖅᑐᑦ	negligible	combustible waste will be brought back and disposed of at Alert station	standard procedure at Alert station
Researching	ᐃᒪᐃᑦ ᐊᑐᖅᑕᐅᔫᖅᓯᒪᔪᑦ	negligible	grey water will be brought back and disposed of at Alert station	standard disposal procedure at Alert station

Researching	ᕐᑯᖅᑕᓕᕆᓂᖅ	negligible	human waste will be brought back to Alert station for disposal	standard procedure at Alert station

ᐊᕙᑎᒥᐅᑕᓅᑦᑐᑦ ᐊᒃᑐᖅᑕᐅᓯᒪᔪᑦ

- aerial surveys are done offshore of Alert. We don't know the abundance of fauna in this region as the surveys will be the first in this region. Potential impacts of noise are minimized by carrying surveys at altitude to minimize noise while maintaining scientific relevance, and by minimizing survey time (and keep minimum acceptable coverage). - the region is far from communities, therefore there are no impacts for local hunters or communities - disturbance to the ice site is kept to minimum. We do not stay on the ice for long periods, only for day trips. All equipment is removed after field program, all waste is brought back to Alert. - potential impact of noise/disturbance to fauna at sampling site. We don't know the abundance of fauna and their use of the site. Noise will be kept to minimum by using augers and generator for only short periods. - Disturbance to the ice is kept to minimum by putting back ice core sections in ice holes after finishing coring. Ice refreezes within a few hours/days after sampling. - Potential impact of noise during transit to /from ice by snowmobile is minimized by travelling in group (travel once rather than many trips by different people)

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

ᐃᒡᓗ ᐊᕐᑎᐅᑦ ᖃᓄᐃᑦᑐᑦᓯᐅᓂᖅ: ᓄᓇᐅᑦ ᖃᓄᐃᑦᑐᓂᖅ

ᐃᒡᓗ ᐊᕐᑎᐅᑦ ᖃᓄᐃᑦᑐᑦᓯᐅᓂᖅ: ᐅᒪᔨᖅᑕᖃᖅᓂᖅ

ᐃᒡᓗ ᐊᕐᑎᐅᑦ ᖃᓄᐃᑦᑐᑦᓯᐅᓂᖅ: ᐃᓄᓕᓯᓂᕆᔭᖅᓴᑦ-ᐱᕐᓕᐊᔨᓯᓂᕆᔭᖅᓴᑦ

ᓄᓕᓇᐃᖅᑕᐅᓂᖅᑭᑦ ᐊᖏᖅᑕᐅᔪᒪᔨᑦ ᖃᓄᐃᑦᑐᓂᖅᑭᑦ ᕿᓚᐅᒋᔨᓂᖅᑕᐅᓂᐊᖅᓂᖅᑭᑦᓗ

Cumulative Effects

Impacts

ᓇᓗᓇᐃᖅᑕᐅᓂᖅᑎᑦ ᐊᐢᑎᑎᒥᐅᑕᓂᑐᑦ ᐊᖏᑐᑕᐅᓯᒪᔪᑦ

ᓴᓇᓂᖅ																									
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ᐅᔨᕋᖏᑕᕐᓂᖅ																									
Sampling sites		-	-	-	-	-	-	-	-	-	-	-	-	N		-	-	-	-	-		-	-	-	-	-
ᐃᑐᑦᑎᓇᓂᖅ																									
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(P = ᐊᑲᐅᔭᕈᑎᔪᓐᓇᖅᑐᑦ, N = ᐊᑲᐅᖅᑭᔨᔪᑕᐅᔪᓐᓇᖅᑐᑦ ᕿᓚᐅᒻᔨᔪᓯᖅᑐᖅᑕᐅᔪᓐᓇᖅᑭᑦᑐᓪᓗ, M = ᐊᑲᐅᖅᑭᔨᔪᑕᐅᔪᓐᓇᖅᑐᑦ ᕿᓚᐅᒻᔨᔪᓯᖅᑐᖅᑕᐅᔪᓐᓇᖅᑐᓪᓗ, U = ᖃᑲᐅᔨᒪᓐᓇᖅᑭᑐᖅ)