

# ICE-PPR

## Environmental Working Group Project:

### Support to IABP

#### **Applicant Name and Contact Information:**

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#### **GENERAL**

International Cooperative Engagement Program for Polar Research (ICE-PPR) conducts collaborative polar defence projects via four working groups. The Environmental Working Group (Env WG) is one of the four working groups. The Env WG supports activities which monitor environmental changes or models the environment, in both the Arctic and Antarctic. As part of the International Arctic Buoy Program (IABP), the placement of buoys on the Arctic ice cap is among the activities supported by the Env WG. A variety of buoys are placed by the IABP via various means, in an effort to monitor environmental conditions (wind, temperature, pressure, salinity, etc, depending on the buoy and location) and to track the movement of ice. ICE-PPR coordinates the airlift resources of the US, Canada and Denmark, to place buoys on the ice or in leads, which are far from land in most cases.

The first ICE-PPR supported activity was that of buoys dropped from a Royal Danish Air Force (RDAF) C130 flying out of Thule in 2017. The following year, buoys were dropped from a RCAF C130 flying out of Resolute. This year, buoys were dropped again from a RCAF C130 flying out of Resolute. The buoy placement activities are expected to be conducted until 2021, using either Danish (RDAF), American (USCG, USAF or USN), or Canadian (RCAF) C130 aircraft. Typically, over the course of three days each year approximately twenty buoys of three types are dropped from the back of an aircraft. The dropped buoys ordinarily replace older buoys which were dropped in previous years and have ceased to function. Infrequently, one or more buoys are dropped to fill in gaps which have emerged or in which no buoys have been placed in some time.

As indicated in Figure 1, the majority of buoys, supported by ICE-PPR, are being dropped far from Canadian territory in Areas A and B, or even further from Canadian territory. However, albeit rarely, there are instances where an ice island of interest moves into or is identified within Canadian territorial boundaries or where the IABP may have a need/requirement to drop a buoy on ice or in the water, within Canadian territorial waters. To enable ICE-PPR to place buoys within Canadian territorial boundaries, support from Department of National Defence and the Nunavut Planning Commission is sought. NIRB support for this year and the next two years, is sought through this project description, only for buoy placement within Canadian territorial boundaries.

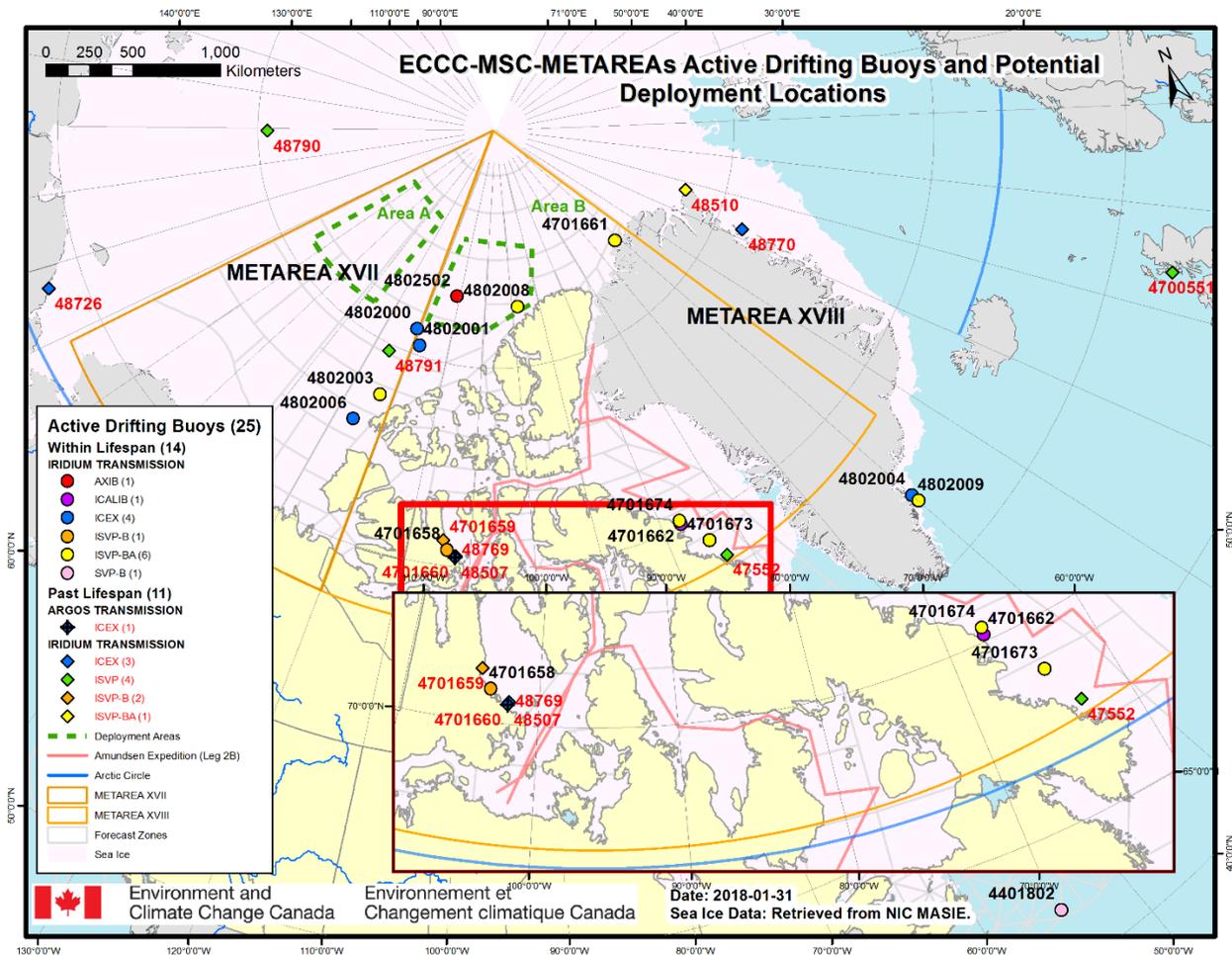


Fig 1. Area of Operation for Op NA-NU 19

No land-based or maritime-based operations are being contemplated at this time to deliver buoys to their destinations. Buoys will only be delivered by air. A C130 aircraft operating out of Resolute, as arranged by the RCAF or other air force through established military protocols, will be the primary air operation. Should it be required, any remaining buoys which were not dropped by the C130, may be dropped by CC138 Twin Otter. At this point in time, buoy placement activity is being contemplated for only three ice tracker buoys to be placed on ice locations following this year's operation, in March 2020.

### INTERNATIONAL PARTICIPATION

International participation will occur, as ICE-PPR by nature is an international and collaborative program. US, Danish and Canadian aircraft and personnel, along with buoys from different sources within the ICE-PPR nations, may be employed to conduct an annual buoy placement activity.

### ENVIRONMENTAL CONSIDERATIONS

Environmental impact is considered to be minimal. The total of three buoys, approximately 30 cm by 45 cm in size and less than 5 kgs in weight each, are planned to be dropped in March 2020. Each buoy

contains a small package of batteries powering a built-in GPS and a small Iridium radio which transmits location/position and time data to a satellite. The buoys are not intended to be recovered but if they are, they can be rebuilt, and the components can be recycled or reused, or they can be disposed of.

In order to drop the buoys, low level flight in visual flying conditions is required for a brief period of time to identify/locate the correct ice island/location, to accurately place the buoy on it, and to ensure the buoy is serviceable. Less than 15 minutes per buoy at low level (below 1000 feet) is required. It is not possible to satisfactorily predict the position of ice islands more than a week in advance. Moreover, the positions will need to be updated the morning of the flight to place a buoy. To the extent possible, no air operations will be undertaken inside any wildlife areas, parks, or sensitive areas.

The scientific team and the aircrew will be based in Resolute and will comply with local procedures to ensure any waste or litter from the buoys is properly disposed of or recycled. Waste from packaging materials is anticipated to be minimal. Any buoys that for any reason are not launched, will be returned to Trenton, Ontario.

### LOCATIONS

Table 1. Buoy drop positions for March 2020

Buoy	Latitude (DMS.S)	Longitude (DMS.S)
USIABP IT #1	80°50'24.0"N	100°19'48.0"W
USIABP IT #2	82°09'36.0"N	81°21'00.0"W
USIABP IT #3	82°01'48.0"N	80°42'00.0"W

### PERSONNEL

The scientific team will consist of up to 10 people. In addition, there will be a C-130 crew. In the event a CC138 is required for buoys replacement, there will be a scientific team of up to 4 people in addition to the CC138 crew. Should a CC138 crew be used, it may operate out of a location other than Resolute, at their discretion.

### WATER AND WASTE

No water or waste is expected to be consumed or generated, beyond that is generated at Resolute through normal aircraft operations in or out of Resolute, including overnight stays in the local accommodations.

### INUVIALUIT OWNED LAND PARCELS

No land will be affected. All three buoys are planned to be placed on ice. No future buoy placement is currently contemplated to be done on land. Should such requirement arise, NPC will be advised.

### CONCLUSION

The information provided is the most accurate information available at this time, and dates and locations may change slightly due to unpredictable circumstances such as weather and the drift of the ice.

Regardless of circumstance, DND is accountable with respect to environmental stewardship, and will conduct the operation with due diligence towards the environment.