

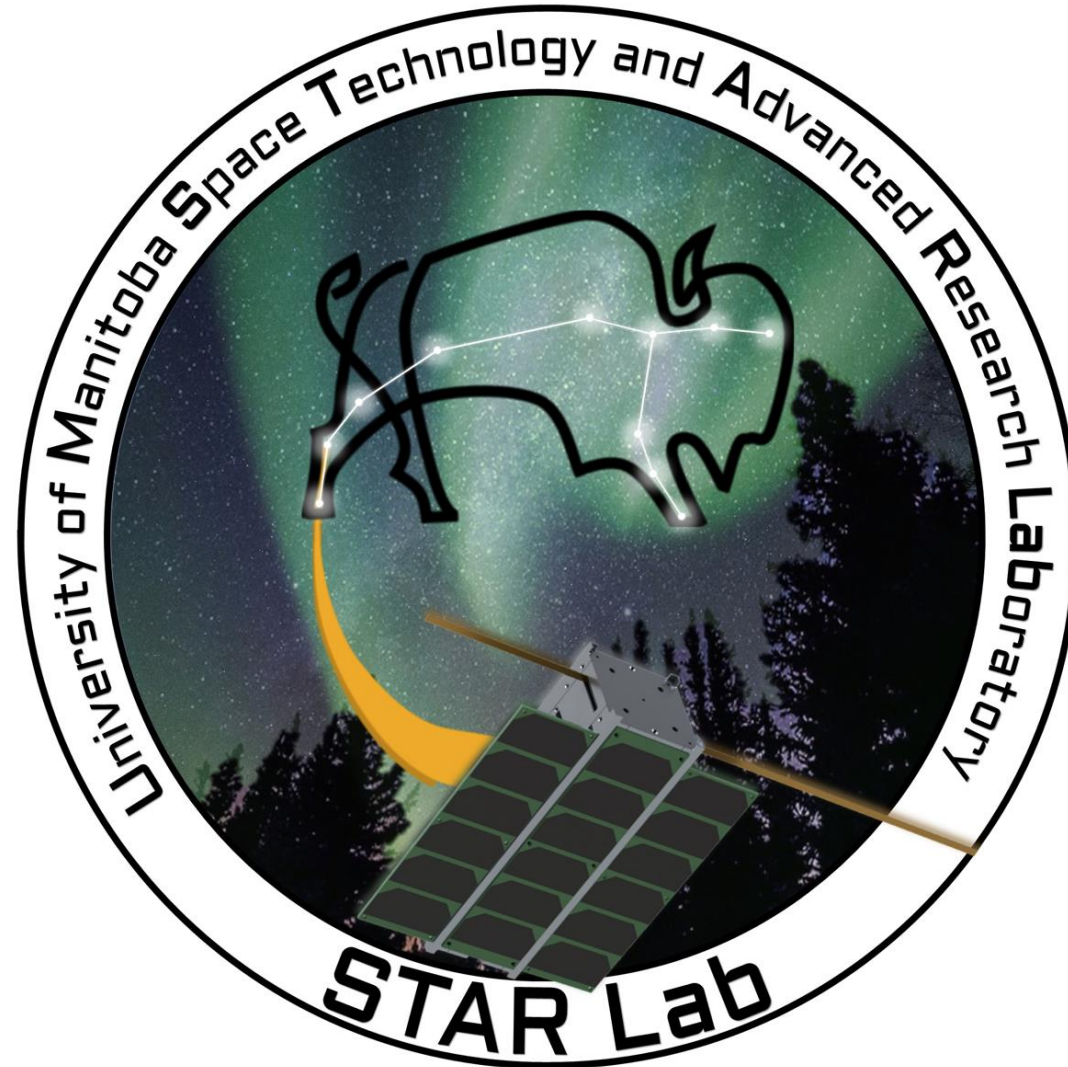
Community Co-Developed Airships and CubeSats to Enhance Community Resilience

PI: Chesterfield Inlet, NU
(David Kattegatsiak, Gloria Thompson)

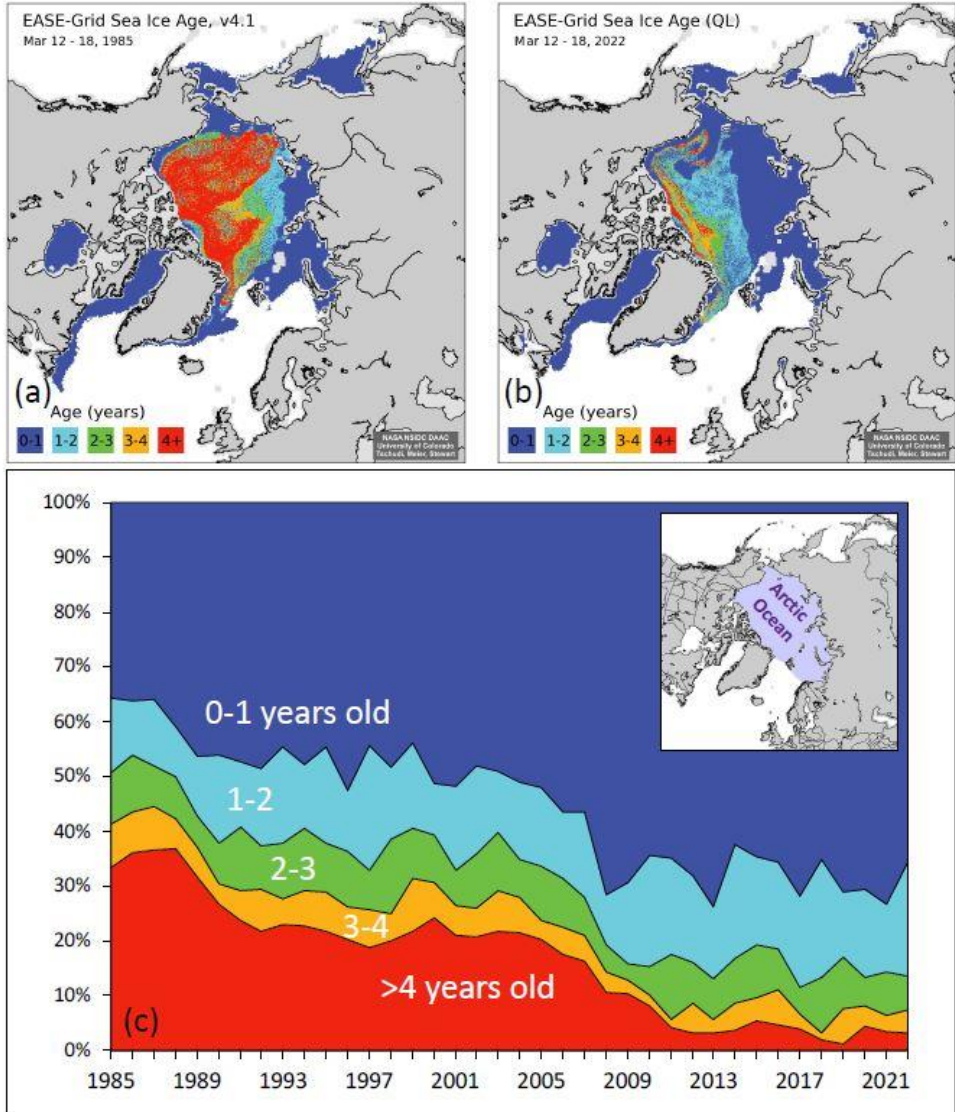
Co-I: Philip Ferguson (University of Manitoba)



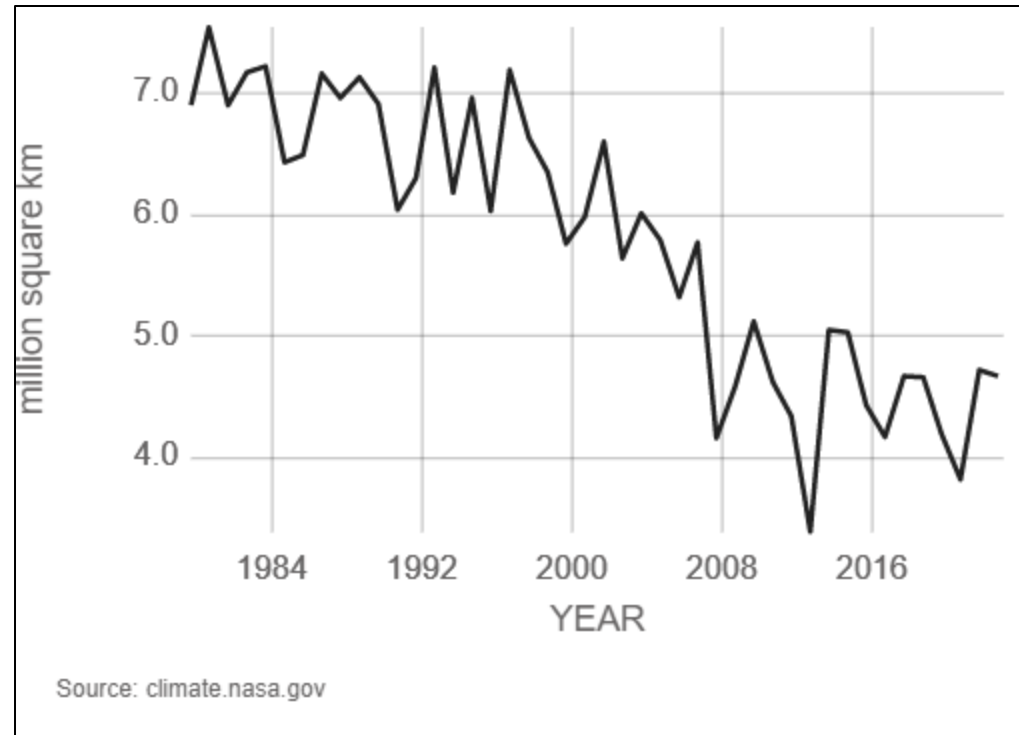
Space Technology and Advanced Research Laboratory (STARLab)



Motivation



Annual Arctic Sea Ice Minimum Extent
September 1979-2022



Problem: Unsafe Ice Conditions

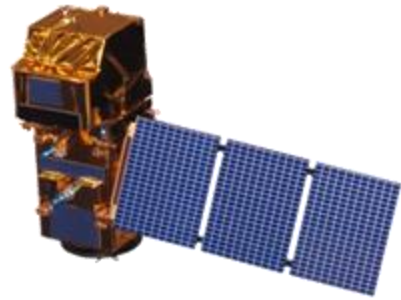


Photo Credit: Jean Landry

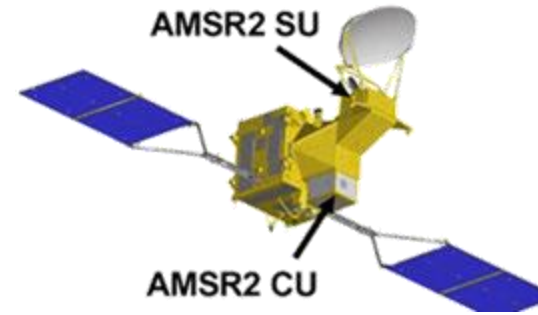


Image Credit: Destination Nunavut

Current Commercial Sources



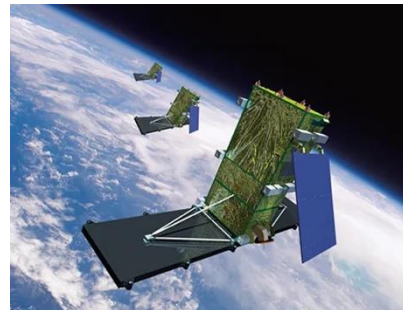
Sentinel 2



AMSR-2



ICE-EYE



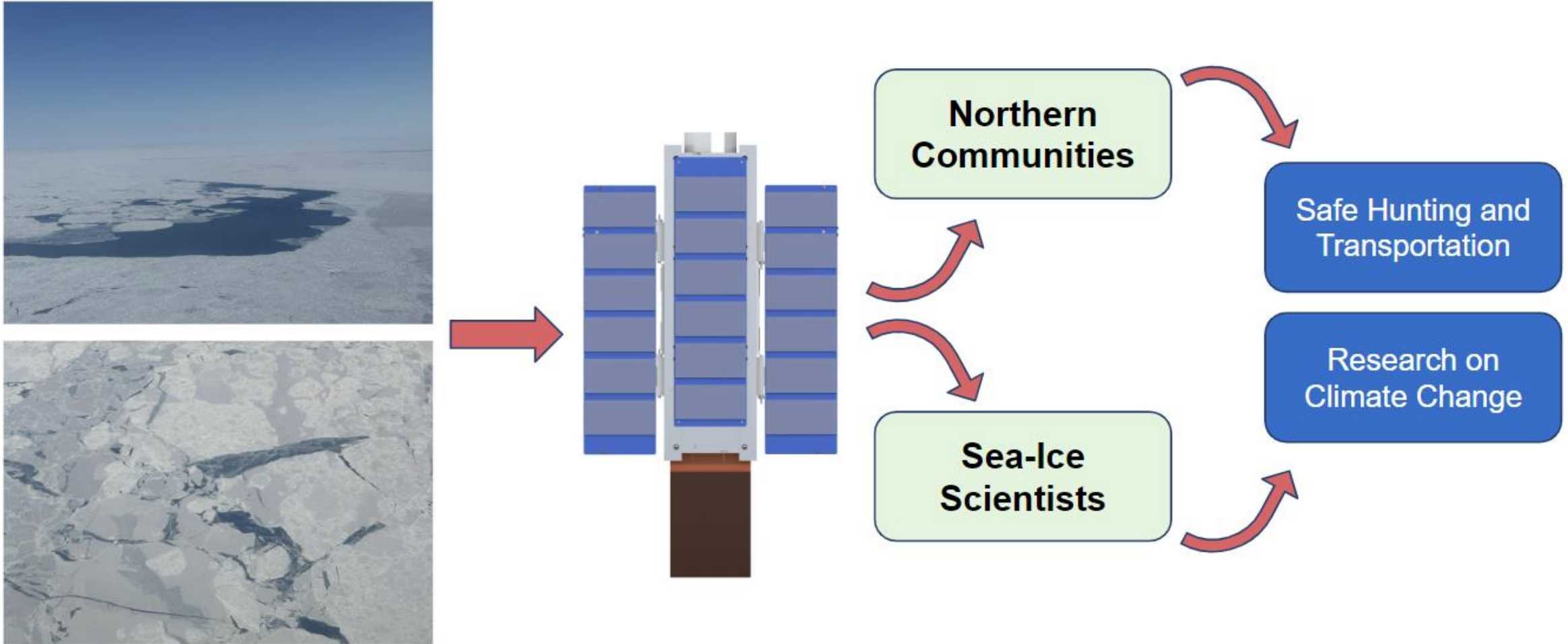
Radarsat Constellation Mission



M3MSat


But the data is not timely and difficult to access




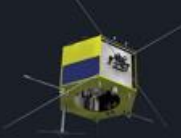








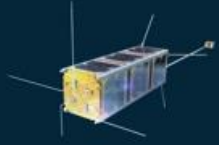



ArcticSat Mission: Objective




ArcticSat Mission: A Sense of Scale

HOW HEAVY IS A SATELLITE?



LARGE SATELLITE	 RADARSAT-2	 >1000 kg	 RHINO
MEDIUM SATELLITE	 CASSIOPE	 500-1000 kg	 BUFFALO
MINI SATELLITE	 SCISAT	 100-350 kg	 LION
MICRO SATELLITE	 M3MSat	 10-100 kg	 WOLF
NANO SATELLITE including CUBESAT	 Ex-Alta 1	 1-10 kg 1 kg per unit	 RACCOON  DUCK

 Canadian Space Agency / Agence spatiale canadienne

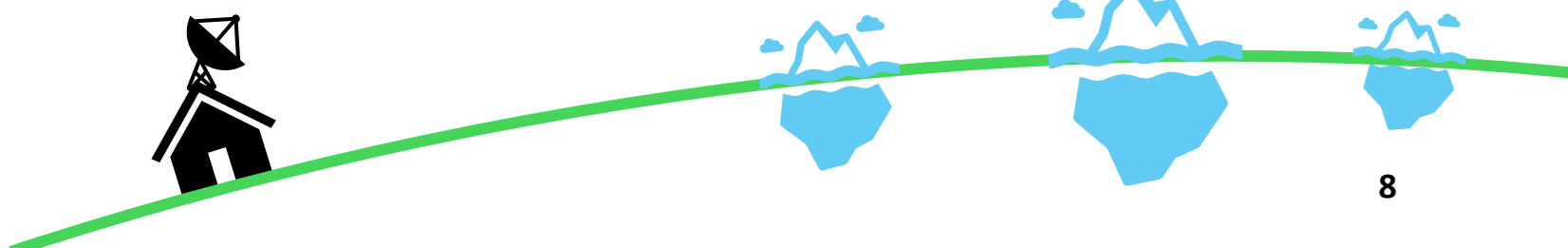
Note: These weights are approximations.

Canada

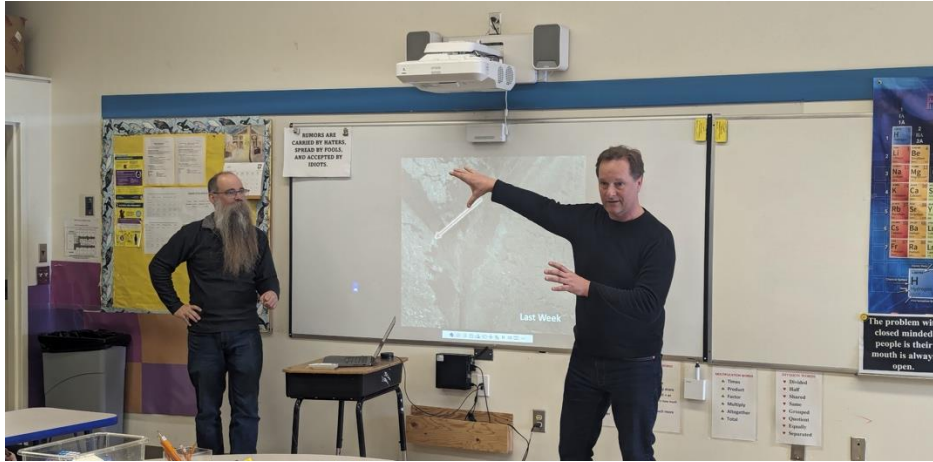
ArcticSat Mission: Co-Development



RADAR SYSTEM:
for detecting sea ice properties



Youth Researchers from Chesterfield Inlet



Victor Sammurtok School Chesterfield Inlet, Nunavut

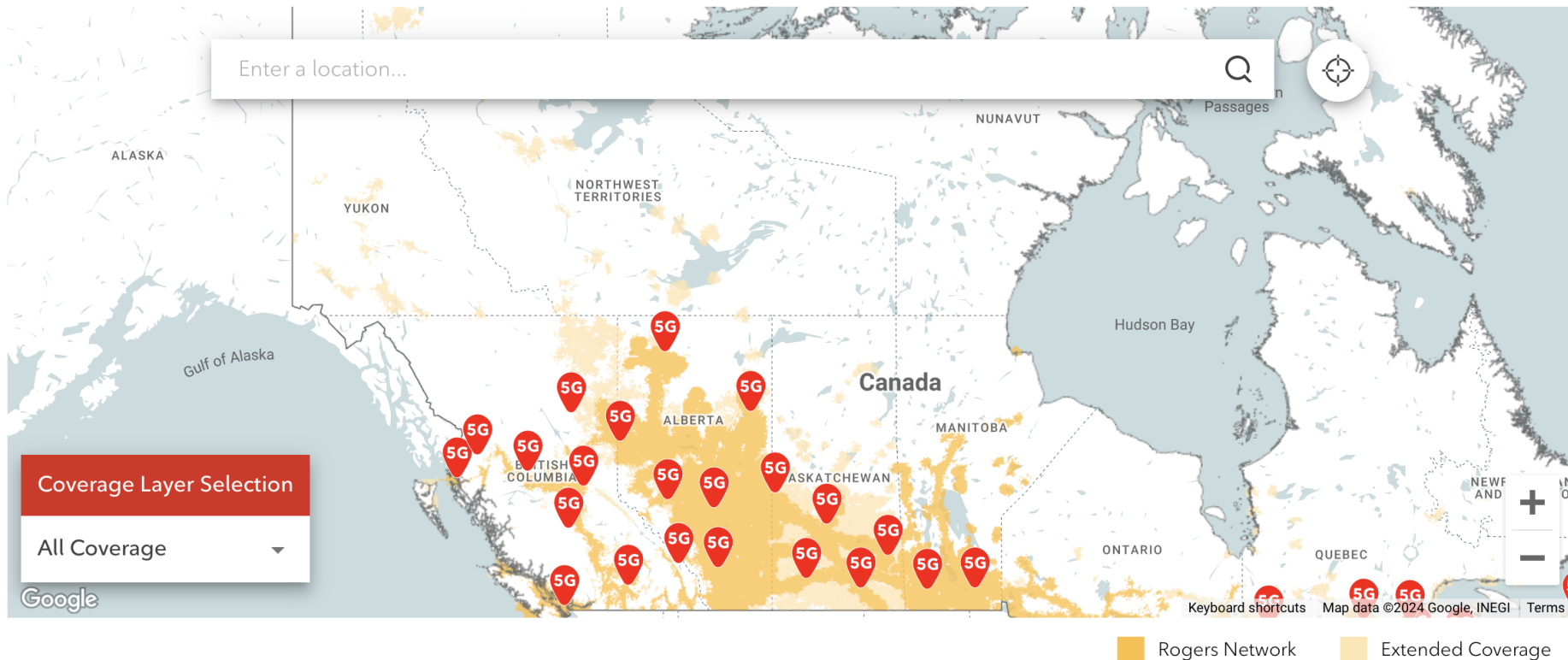
- Grades 9-12
- Designing CubeSat systems and data collection strategies
- Data collection with drones



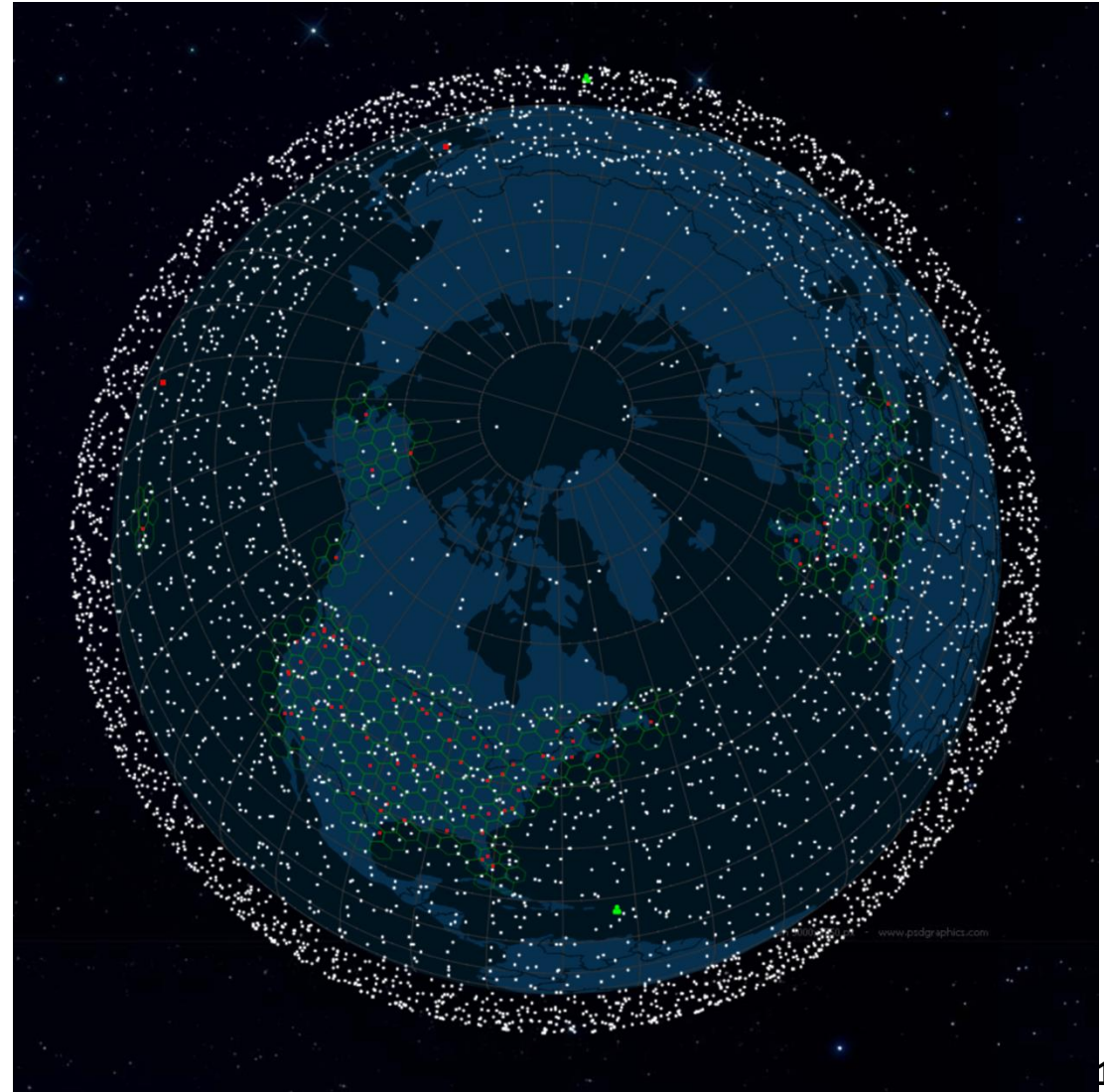
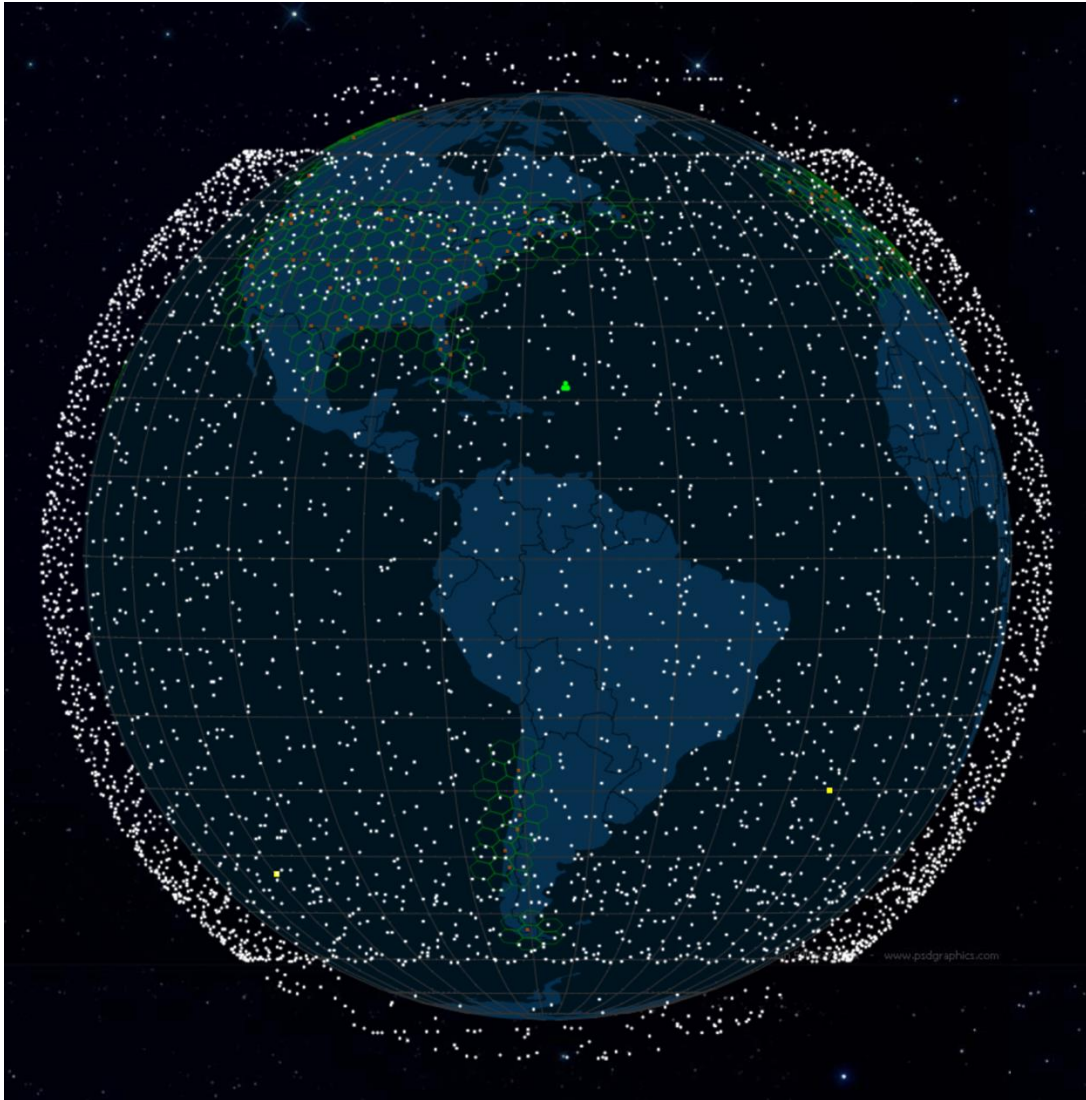
ACCESS Mission: Poor Data Connectivity

Coverage map of the Rogers 5G network

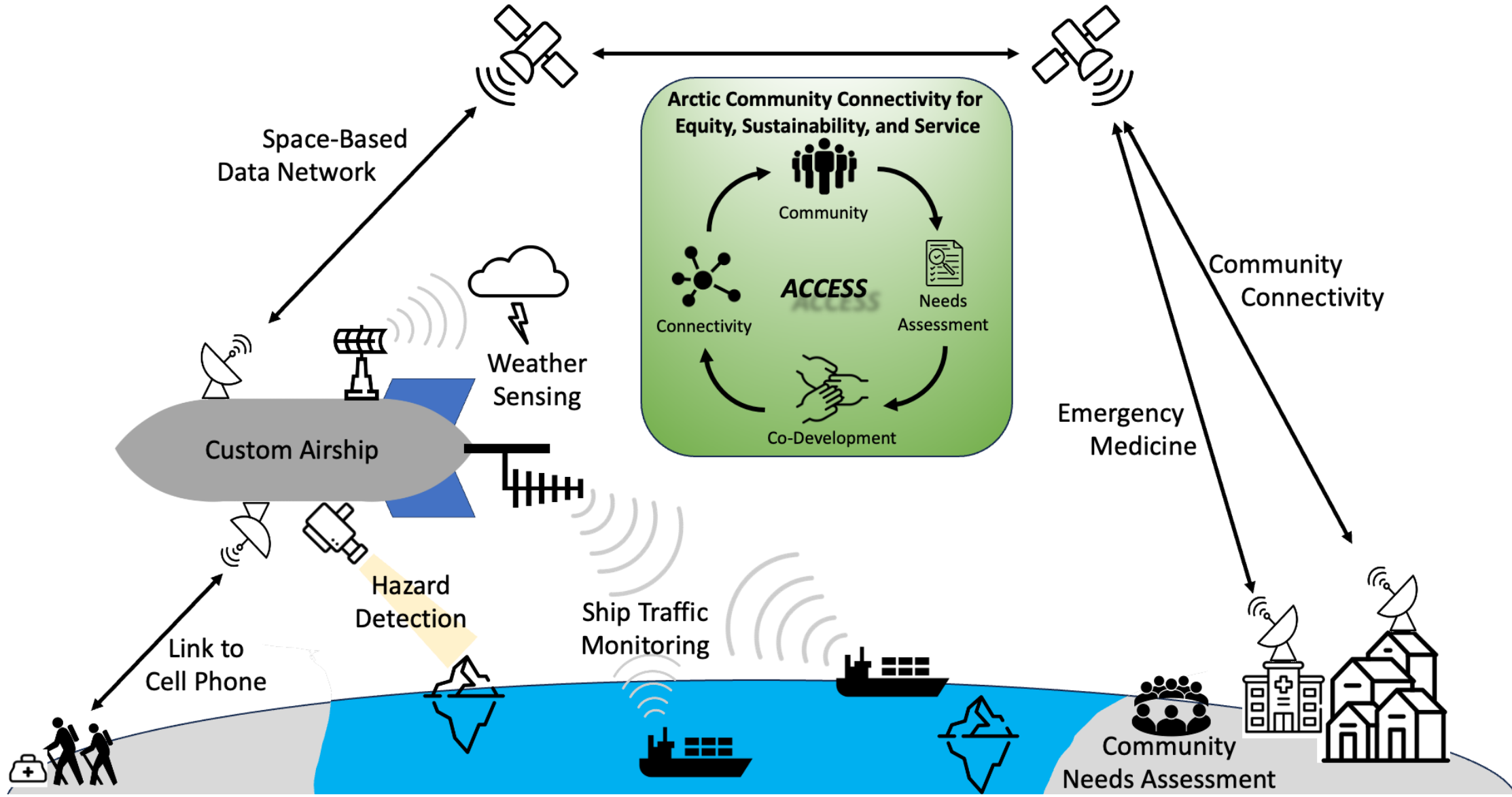
Use the map below to check the mobile coverage in your area - whether it's our 5G network, 4G LTE, or even extended coverage. We're also expanding our 5G network across Canada so check back soon as our coverage grows.



ACCESS Mission: Poor Data Connectivity



ACCESS Mission: Overall Project Scope



ACCESS Mission: Co-Develop with Communities



Photo Credit: BASI

ACCESS Mission: Deploy Technologies



Photo Credit: BASI



A screenshot of the SIKU website. The logo consists of four colored squares: a green square with a white 'S', a blue square with a white 'I', a red square with a white 'K', and a yellow square with a white 'U'. Below the logo, the text reads "The Indigenous Knowledge Social Network" and "Facilitating self-determination in research, education and stewardship for Indigenous communities." At the bottom, there are two buttons: "Create Account" and "Sign In". The background of the website features a collage of photos of Indigenous people.



Questions

