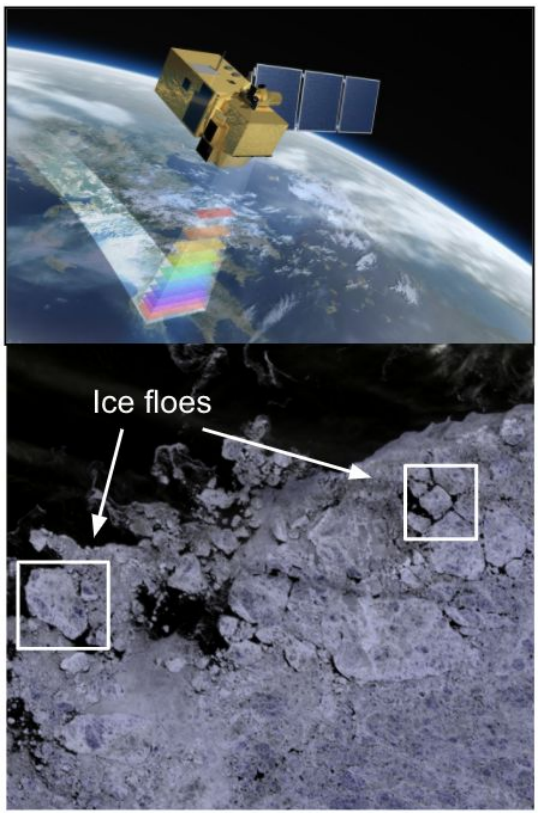
Name: Date:

Role Description: Optical Satellite Imagery Analyst

Using satellite images to locate areas with extensive ice



You will be looking at *optical satellite images* of Arctic sea ice to help identify a suitable ice floe for your team. Optical satellite images are similar to photographs you would take with a camera. They show what your eye would see if you were looking down on the earth from the position of a satellite orbiting the earth. This means one of the downsides to optical satellite imagery is that, just like your eyes, it cannot see through clouds or at night when it is dark.

When selecting an ice floe to attach the Polarstern with, MOSAiC scientists analyzed satellite images to identify locations where 1) there was enough ice to freeze around the ship, and 2) the ice floes had rounded edges -- ice floes with jagged edges tend to break apart more easily.

Questions:

1. As the optical imagery satellite analyst, which of the 6 ice floe characteristics (see below) can you help identify? Circle all that apply.

Drift across much of the Arctic	Must be near thin ice (<1.5 m)	Must not drift into EEZ
Ice must be at least 1.5-2 meters thick	Low risk of breaking apart	Enough ice must freeze around ship

2. What information and expertise can you provide for your team given your role that will help you identify a suitable ice floe for your expedition? What will you be looking for?

The materials were developed by CIRES Education and Outreach at CU Boulder

Name: Date:

3. Practice:
    a. Analyze the satellite image taken from location: 85°N, 105°E (see Figure 1).
    b. Would an ice floe in this location (85°N, 105°E) be suitable for attaching the Polarstern to? Defend your answer.

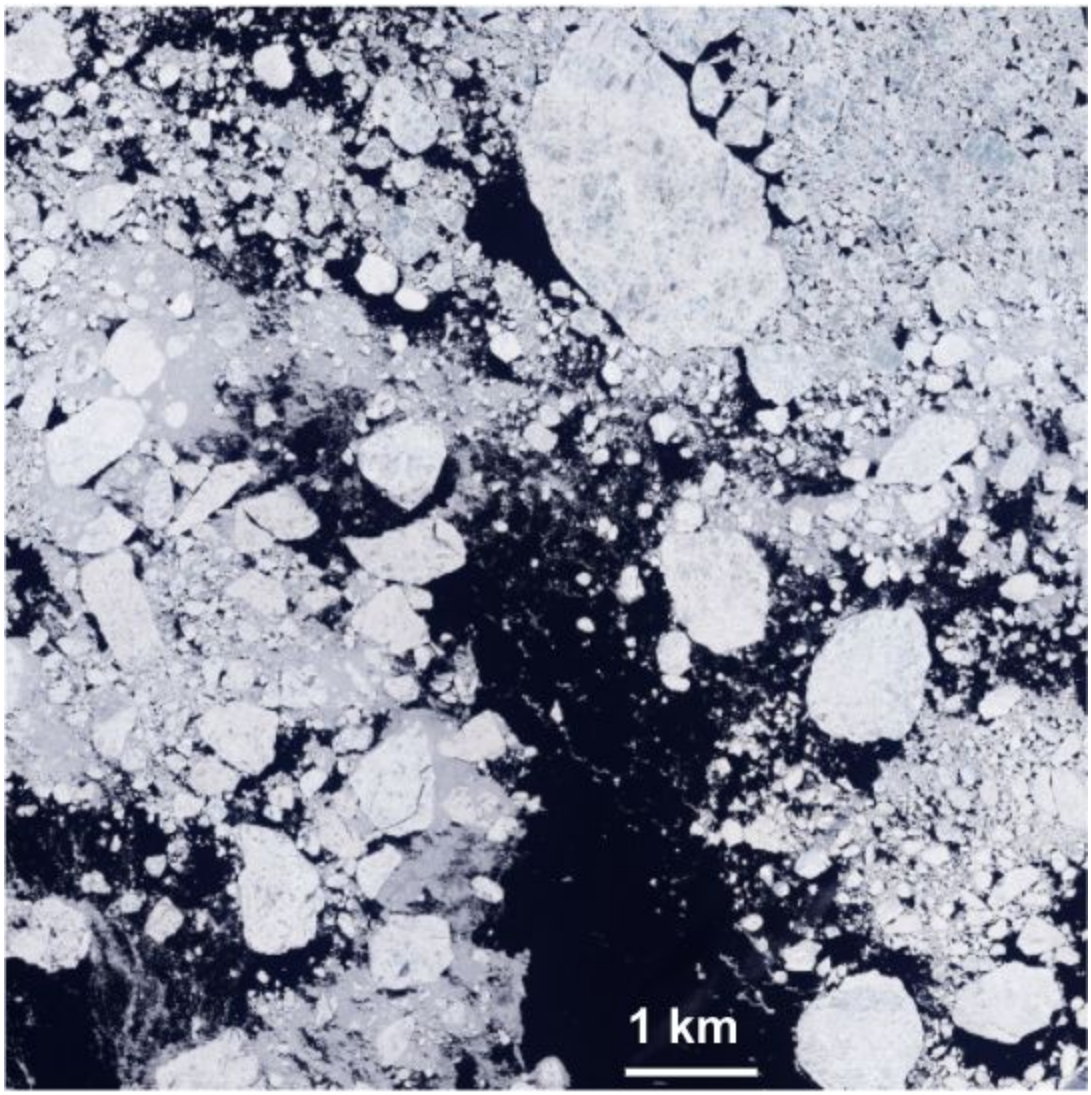


Figure 1 - Satellite image of Arctic sea ice capture at 85°N, 105°E. Image from NASA.

Name: Date:

Refer to the satellite images below (Locations #1-5) as part of Day 2.

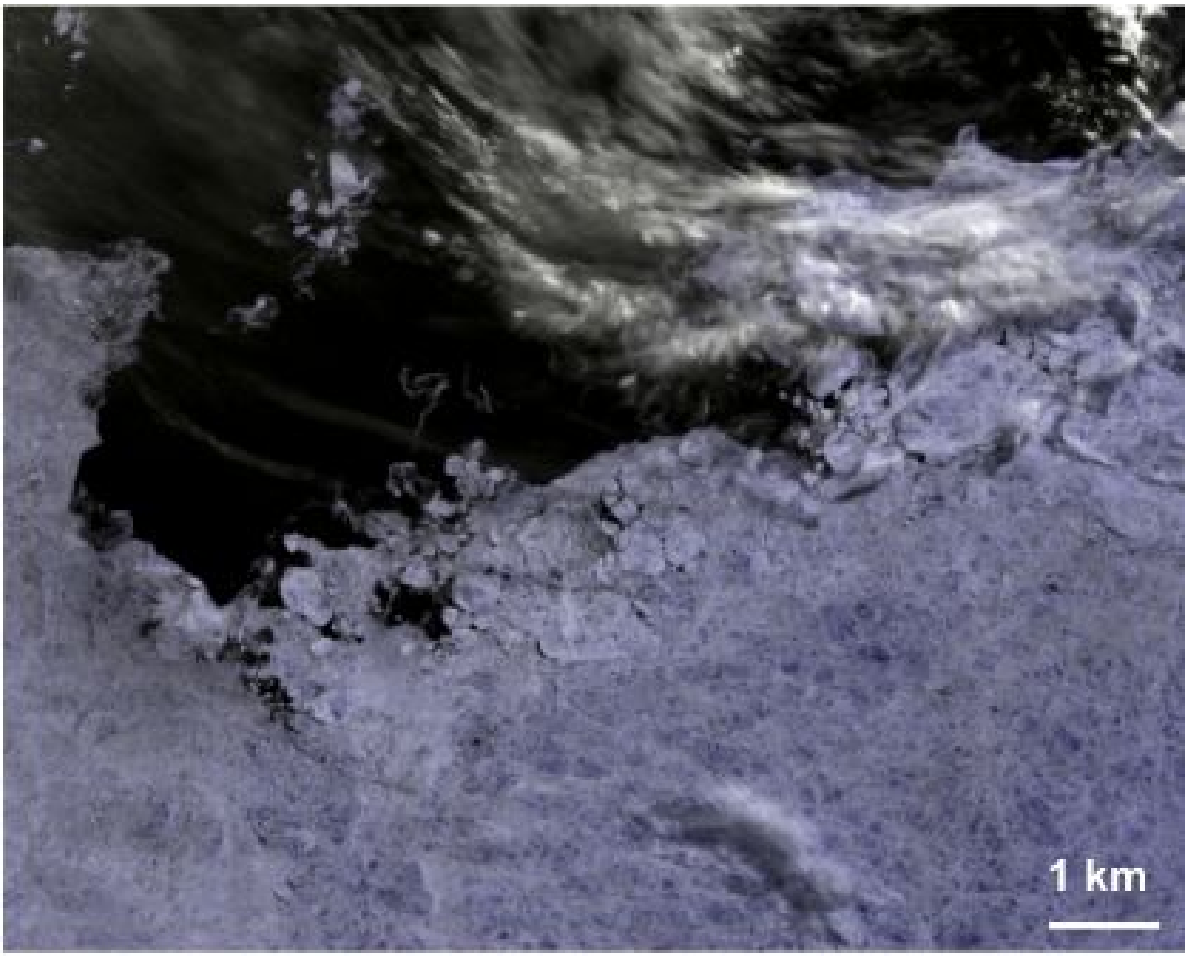


Image 1 location: 75°N, 107°W

The materials were developed by CIRES Education and Outreach at CU Boulder

Name: Date:

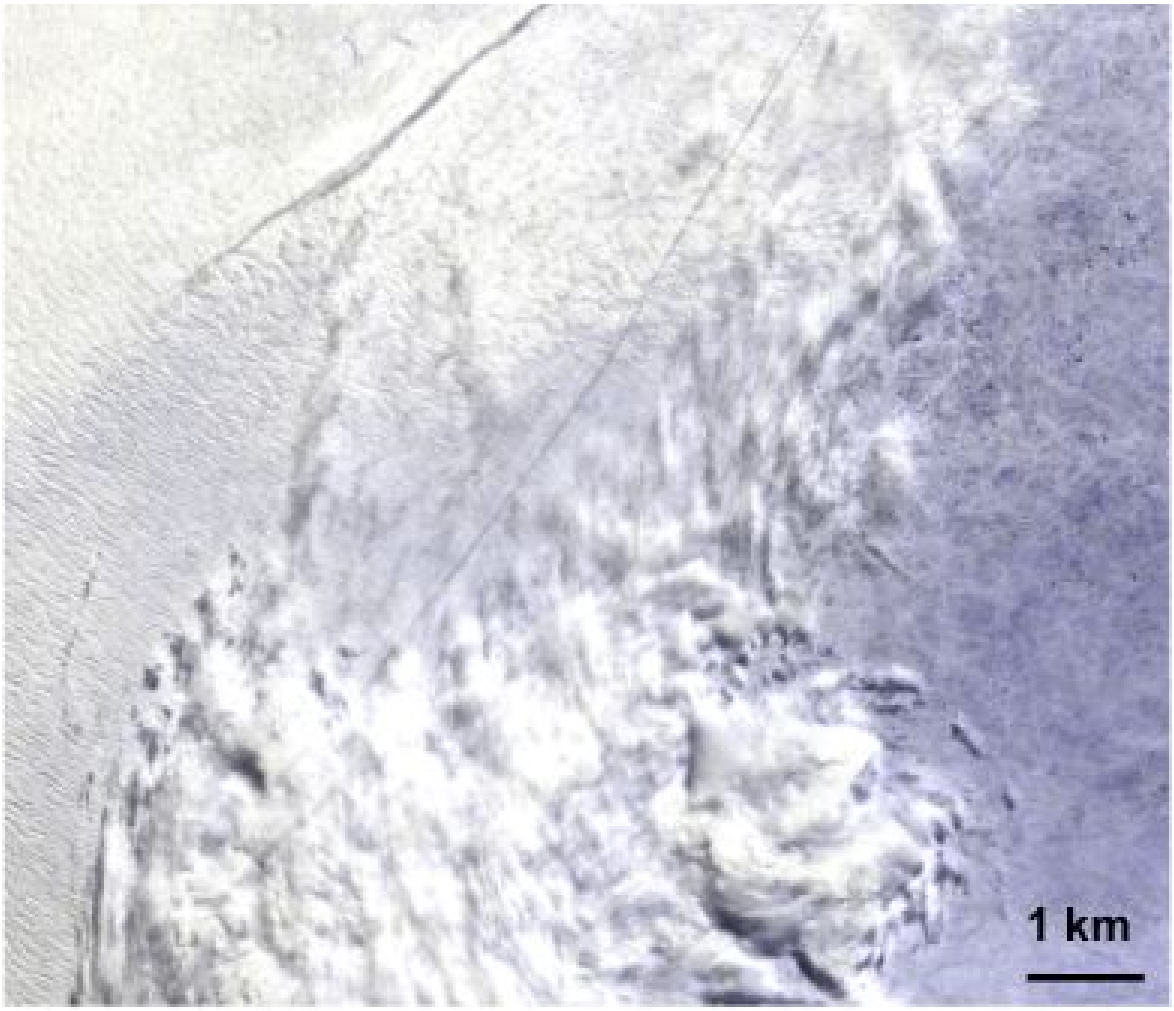


Image 2 location: 85°N, 40°W

The materials were developed by CIRES Education and Outreach at CU Boulder

Name: Date:

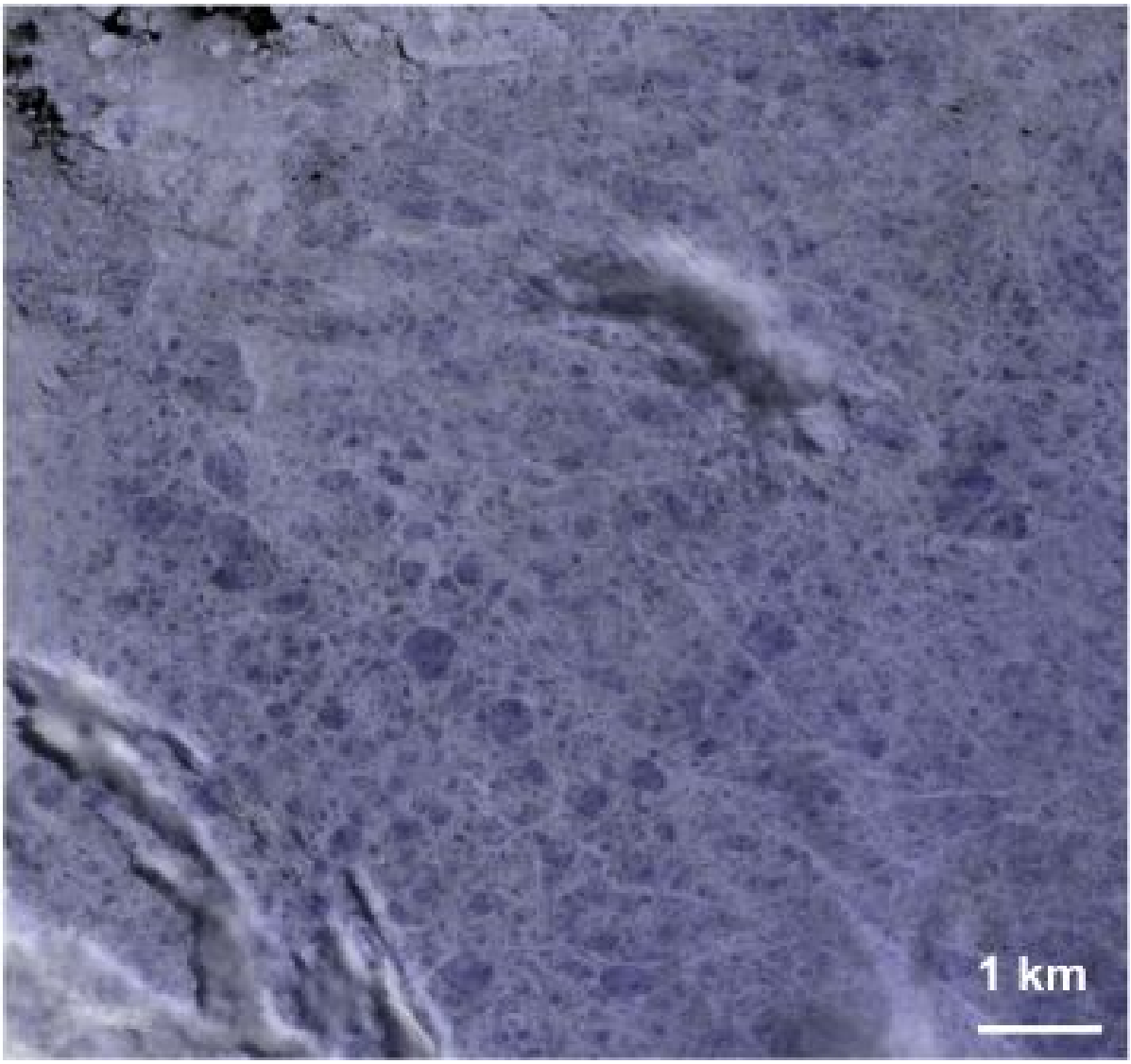


Image 3 location: 82°N, 165°W

The materials were developed by CIRES Education and Outreach at CU Boulder

Name: Date:

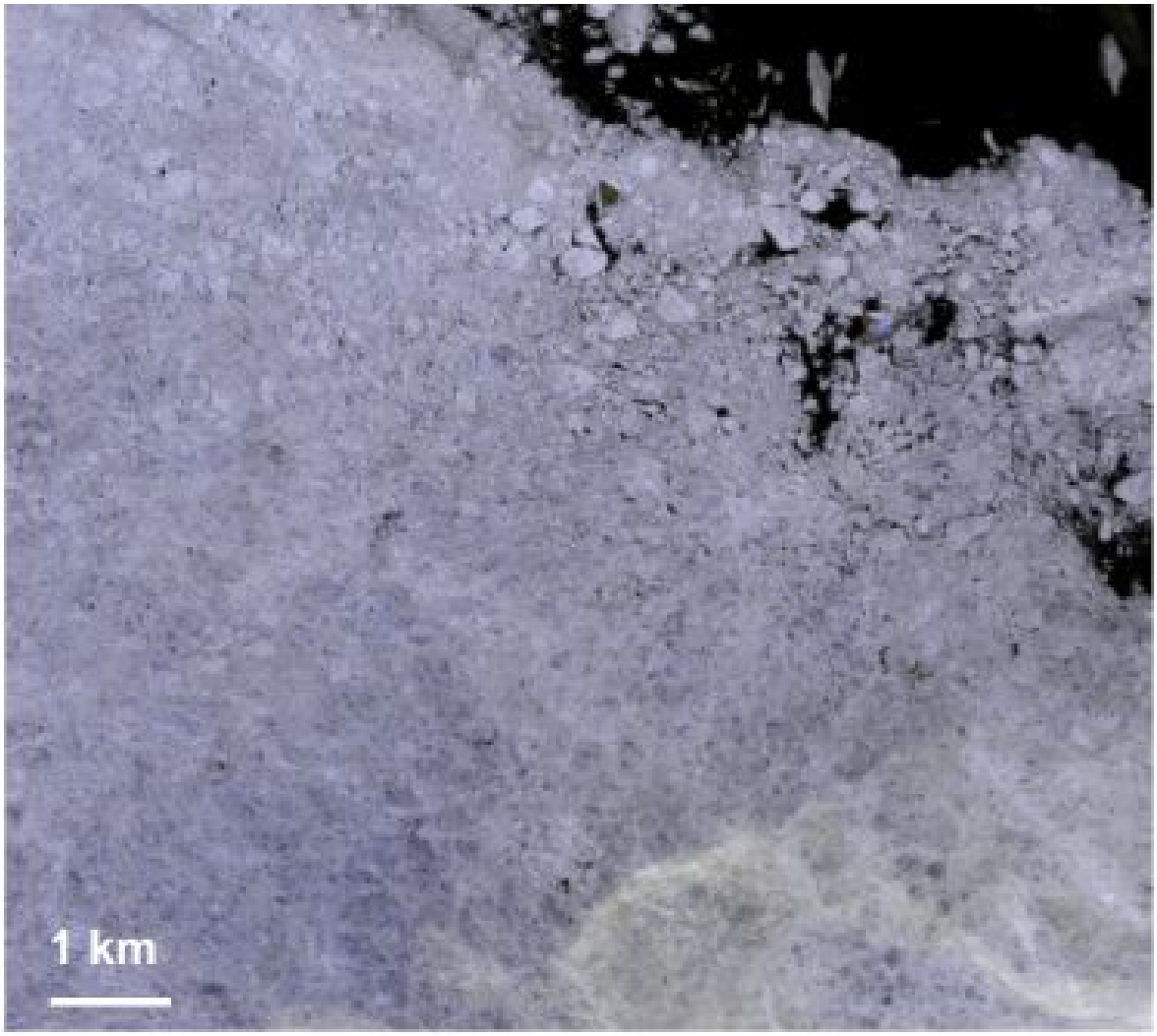


Image 4 location: 78°N, 0°

The materials were developed by CIRES Education and Outreach at CU Boulder

Name: Date:

Image 5 location: 85°N, 100°E

The materials were developed by CIRES Education and Outreach at CU Boulder