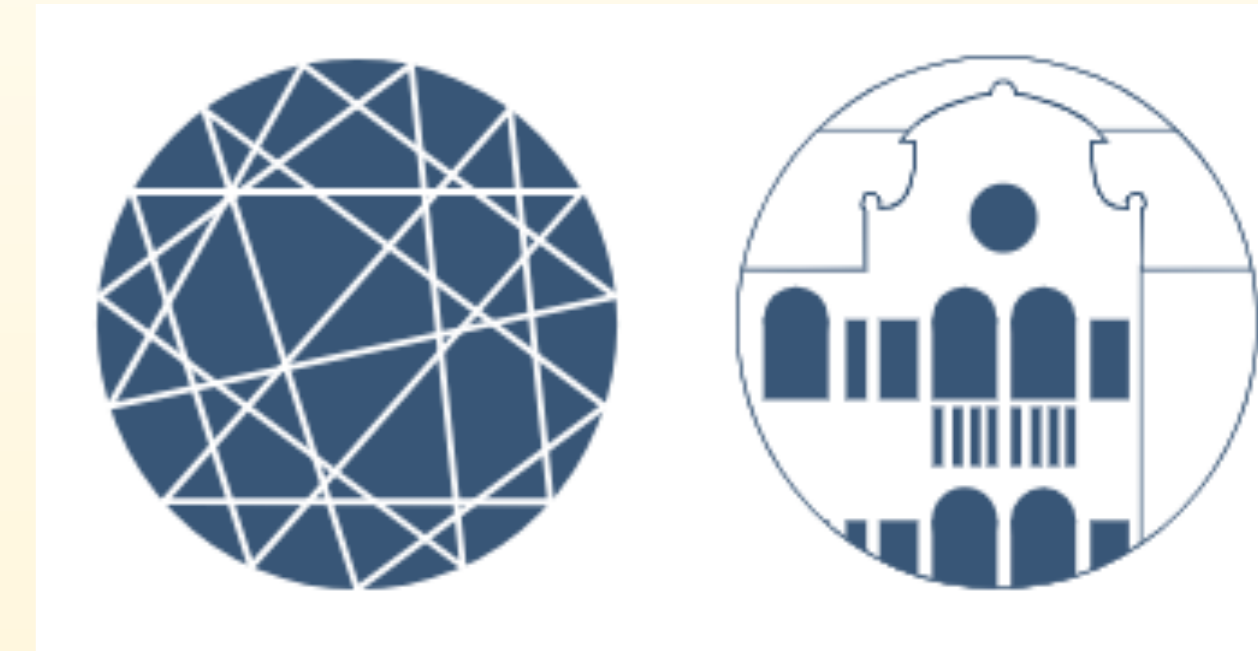




PLANKTONIC FORAMINIFERA AS PROXY FOR CLIMATE CHANGE

Laura Bellentani



DiSVA, Laboratory of Paleocology

Tutor: Prof. Anna Sabbatini

INTRODUCTION

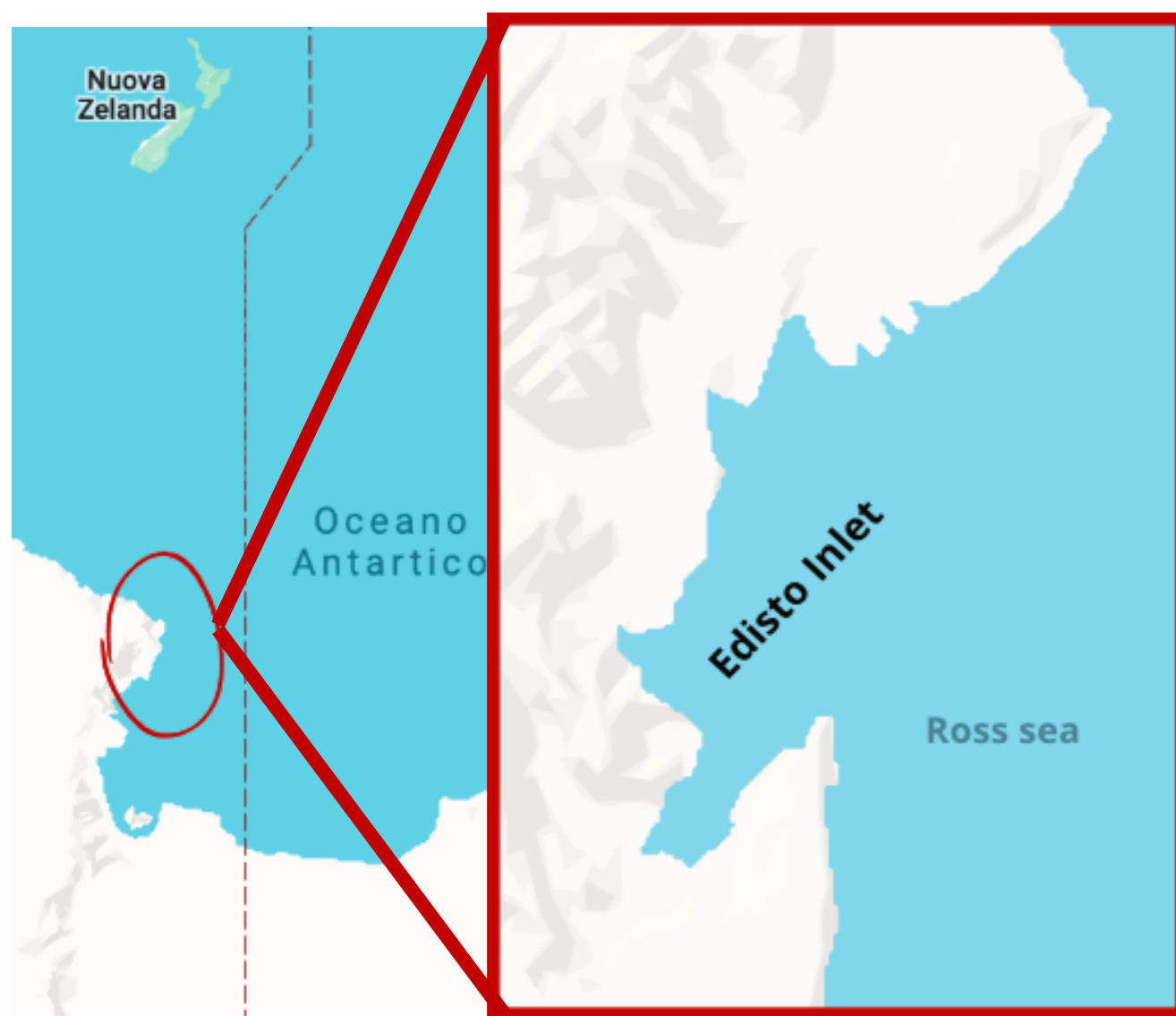
Foraminifera are single-celled microorganisms which create a calcium carbonate shell capable of fossilizing and recording surrounding environmental variables. They are very abundant in marine environments and their abundance, widespread distribution, and rapid evolutionary capacities have made them important indicators for studying past environments, climate change, and evolutionary processes.

OBJECTIVE

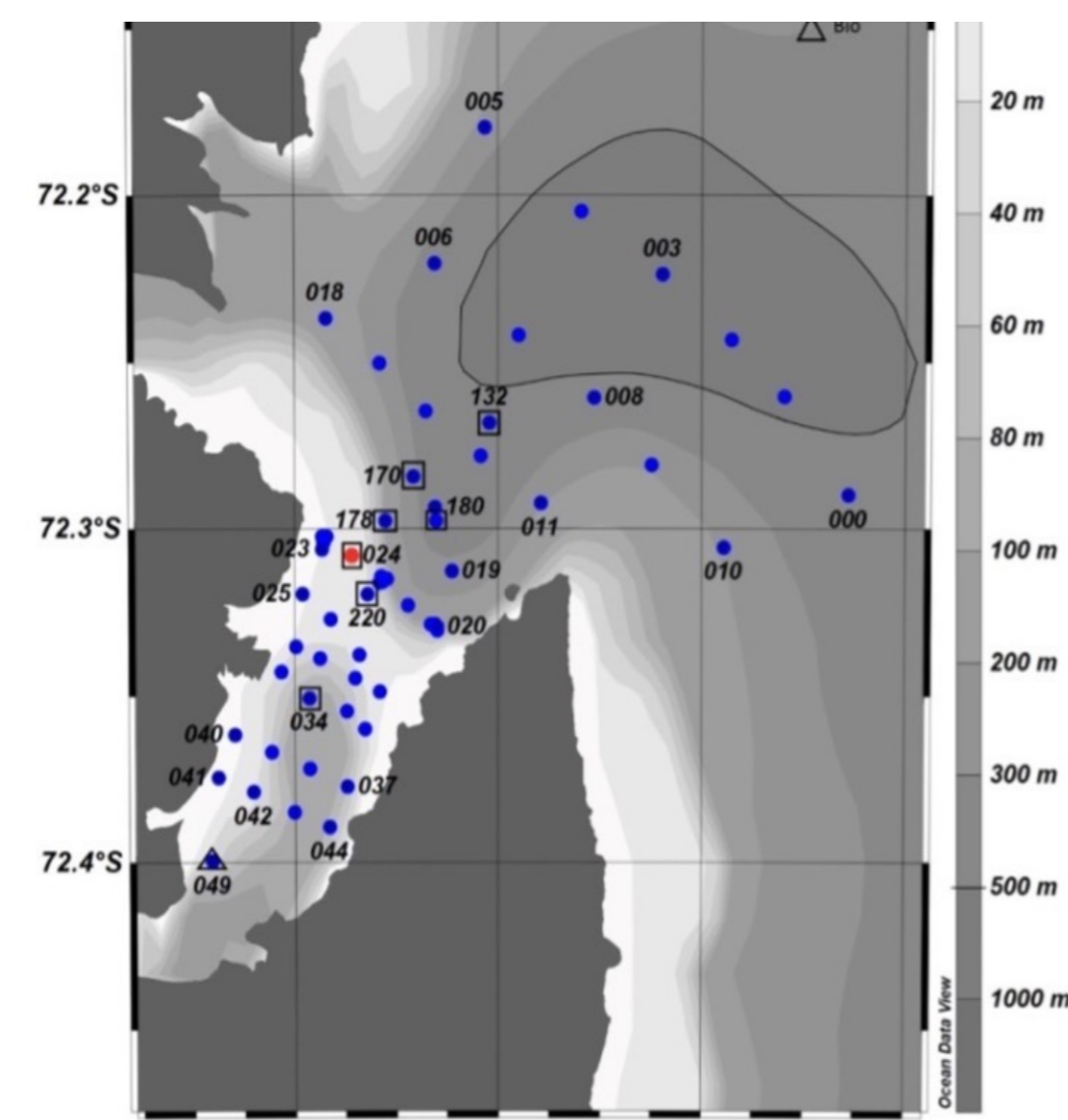
Investigate if planktonic foraminifera *Neogloboquadrina pachyderma* trapped in the sea-ice: (1) develop a different adaptive morphological design of their tests compared to those living in the seawater column, and if (2) these different morphological designs evolve in a unique sea-ice species confirmed also by elemental and morphological analyses.

MATERIALS AND METHODS

Study Area

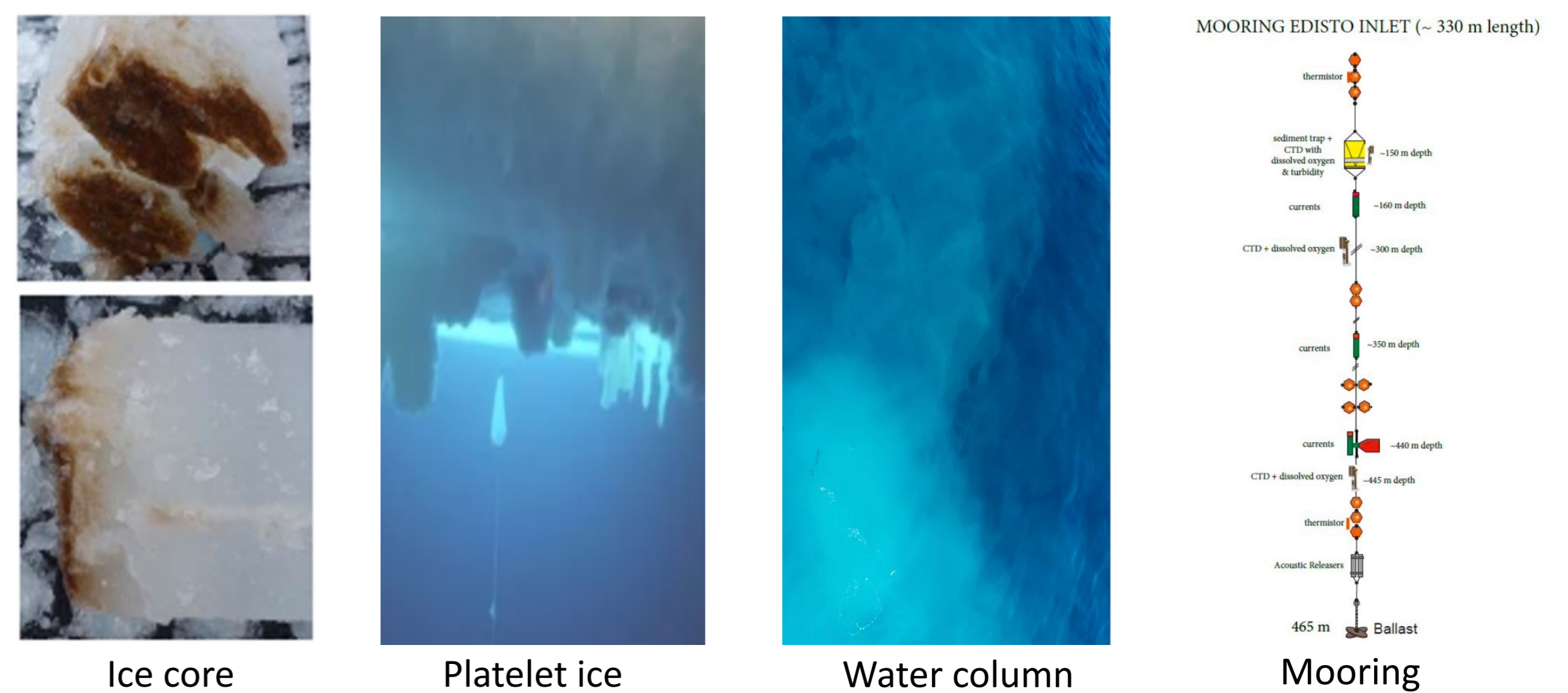


Study area: Edisto Inlet, Ross Sea, Antarctic Ocean

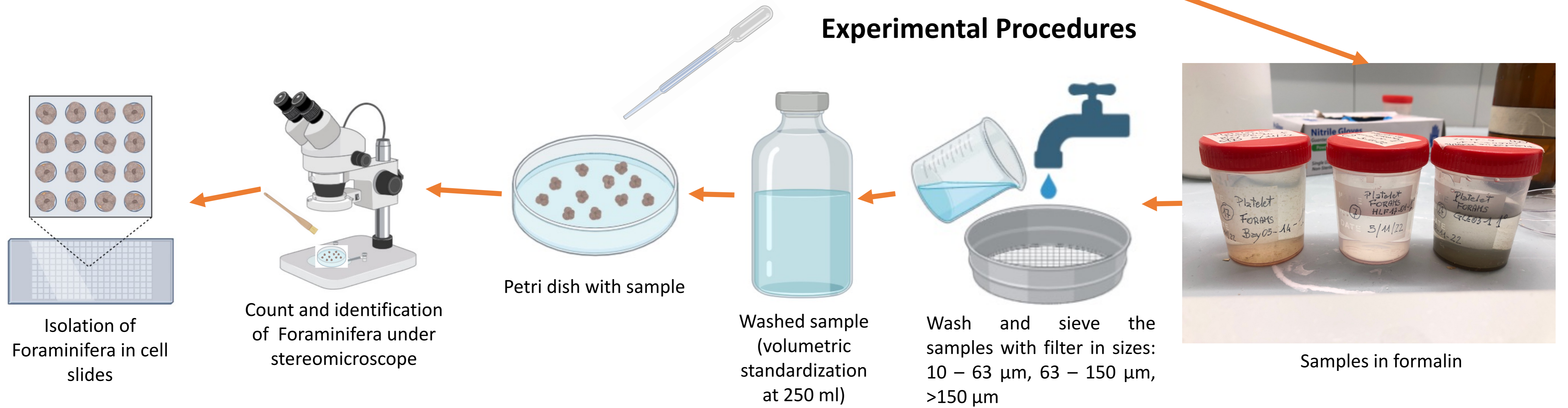


Sample points

Sample Collection



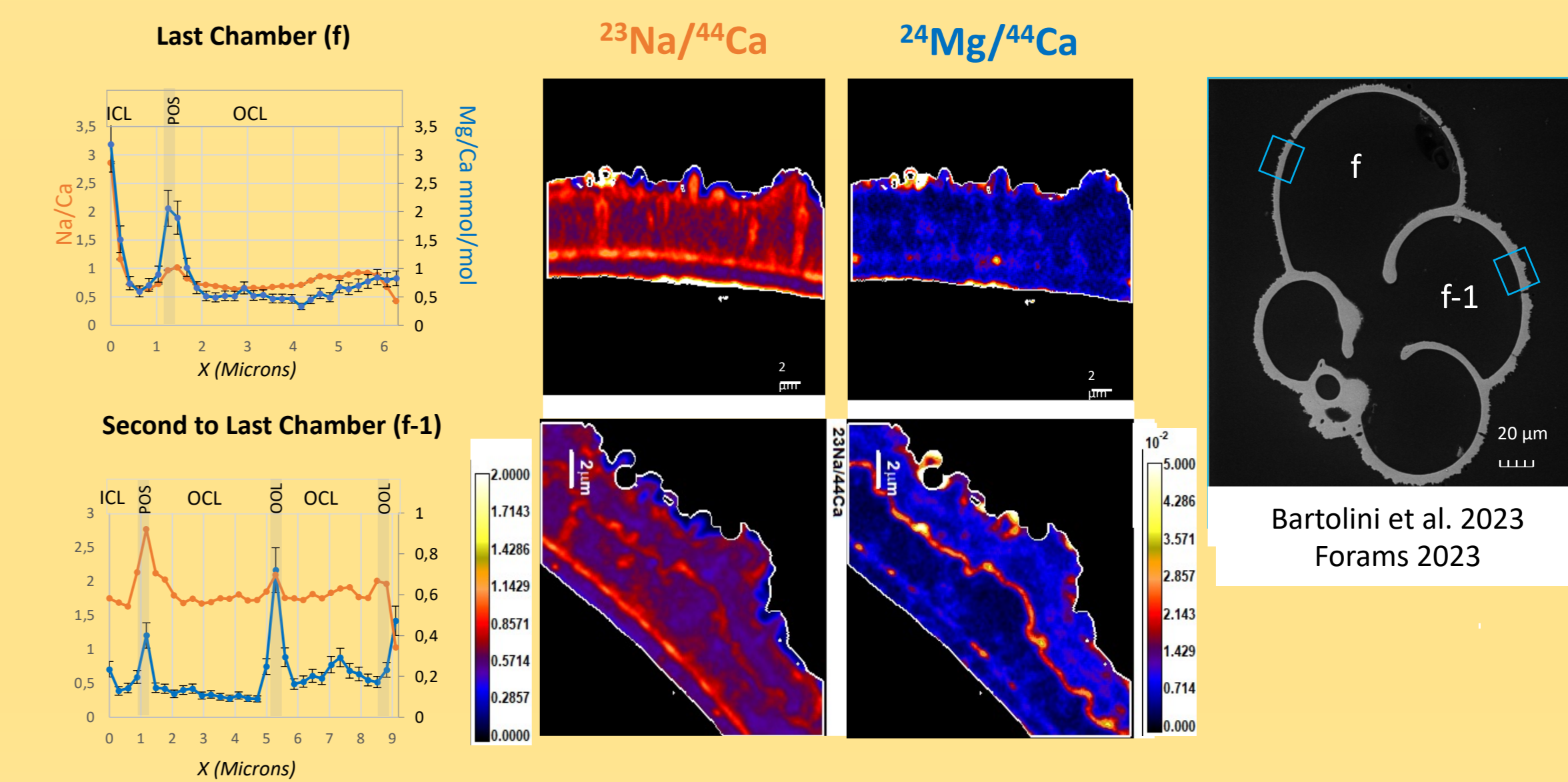
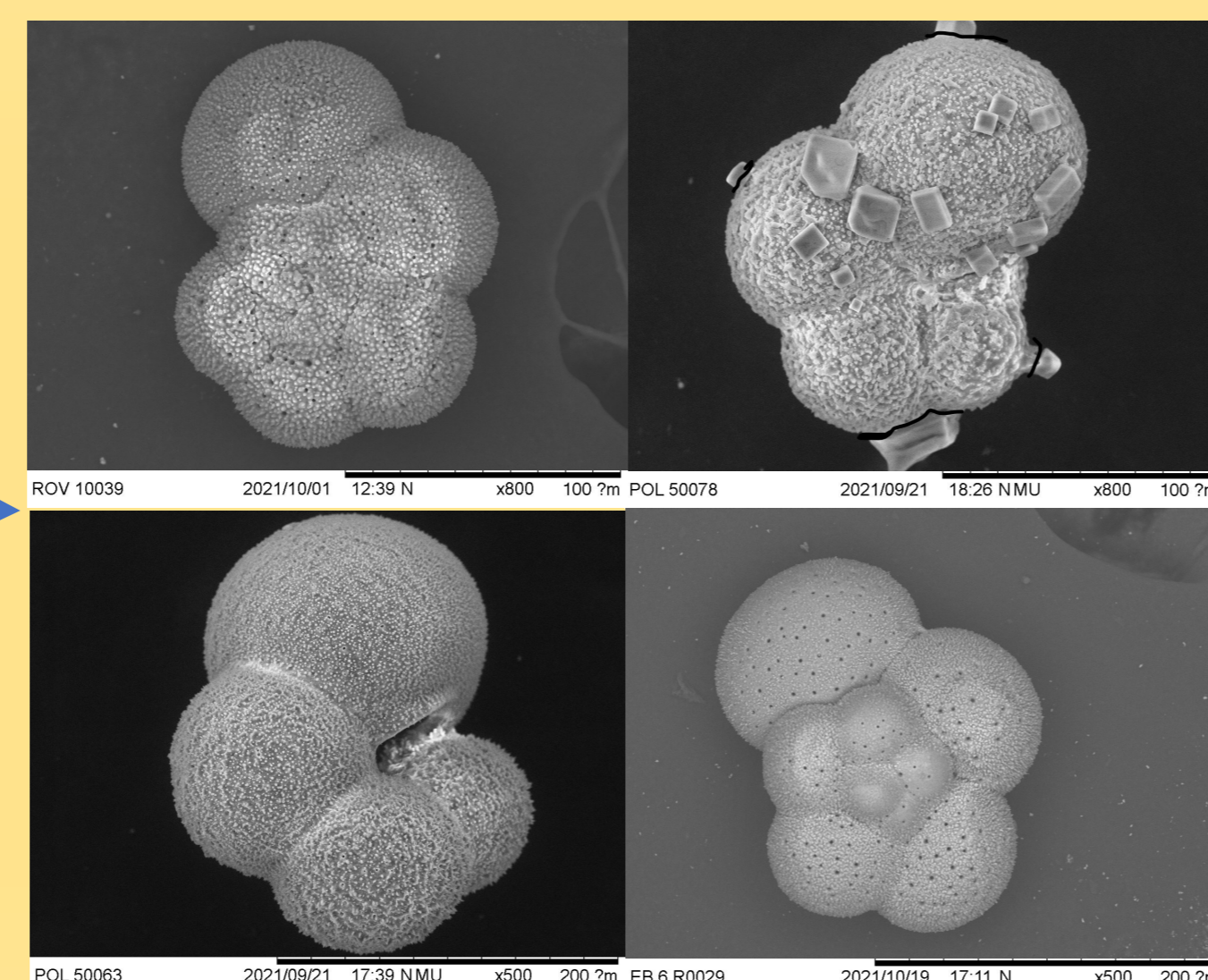
Experimental Procedures



FUTURE ANALYSIS



Morphometric faunal analysis with Scanning Electron Microscope (SEM)



Ultrastructural and geochemical analysis

EXPECTED RESULTS AND IMPACT

The shell of foraminifera act as natural archives that record information about the environmental conditions at the time its formation. If the morphological characteristics of the *N. Pachyderma* of the ice show differences compared to the one in the water column and sediment, this will be an important proxy for geological and sedimentary climatic reconstruction.

Can we use this specific foraminifera elemental signature as proxy for paleoclimatic reconstructions?

