A large amount of carbon was stored in the Arctic.

It is predicted that the release of this soil carbon will accelerate with the warming climate, which will feedback to the climate to accelerate the warming.

However, the prediction is highly uncertain.

Today, I will talk about using mechanistic models to understand and quantify soil carbon decomposition and methane production processes

The ultimate goal is to improve climate model prediction.

At first, I will talk about some incubation tests. Then I will focus on modeling.

The soil samples were taken from Barrow, which is located at the north tip of Alaska.

The site is characterized by polygonal ground.

The cores used in this work were taken from a low center polygon.

We have three topographic locations: trough, ridge, and center.

We separate the core into organic layer and mineral layer.