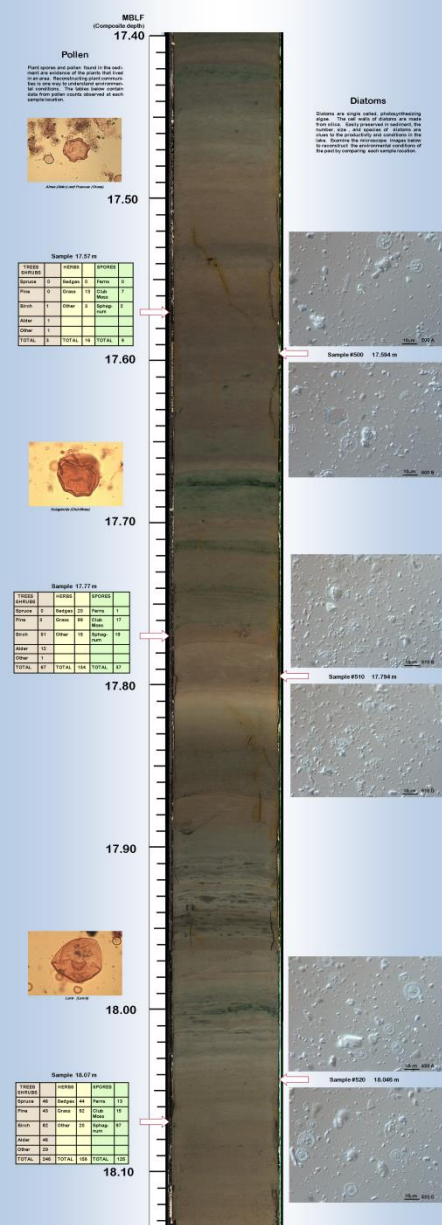


El'gygytgyn impact crater lake is located in the Chukotka province of the Russian Federation. The 18km (12 miles) meteor impact crater is located 150km north of the Arctic Circle. In the summer of 2006, an international Polar Party, a consortium of 16 nations, returned to the Arctic to drill over 300 meters of sediment cores and over 200 meters of impact related rocks. The sediments have been extensively studied because they hold the longest, undisturbed record of climate change of any location in the continental Arctic. The core sample below extends from the composite depth 17.4 meters below Lake floor (MBLF) to 18.9 MBLF which corresponds to 378,000 – 420,000 years ago. Study the core sample and associated data to learn about the Arctic climate 400,000 years ago.



Diatom Smear Slide Images

Lake El'gygytgyn Core 5011

Samples 500-590

Depths 17.594 – 19.446 MBLF

Ages 385 – 429 k.a.

This data set is to be used in conjunction with Lake El'gygytgyn sediment core poster.

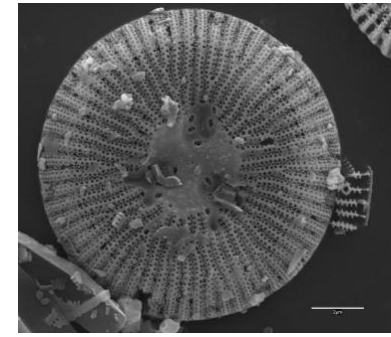
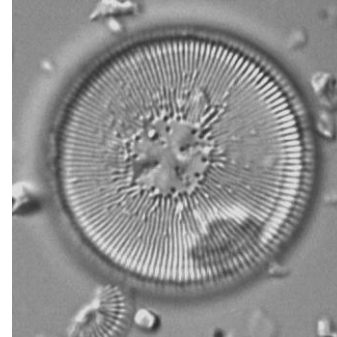
Samples prepared by Dr. J. Snyder , Bowling Green State University.

Paleoclimatology activity by T. Martin.

Diatom Analysis

Diatoms are single celled, photosynthesizing algae. The cell walls of diatoms are made from silica. Easily preserved in sediment, the number, size, and species of diatoms are clues to the productivity and conditions in the lake. Diatoms are sensitive to environmental factors such as: salinity, pH, nutrients, depth, ice cover and temperature.

Examine the microscopic images in the following slides to reconstruct the environmental conditions of the past by comparing each sample.



Most of the diatoms in the samples below belong to the Genus Cyclotella. The two images above show Cyclotella with a light microscope (left) and an electron microscope (right)

Suggested Investigations

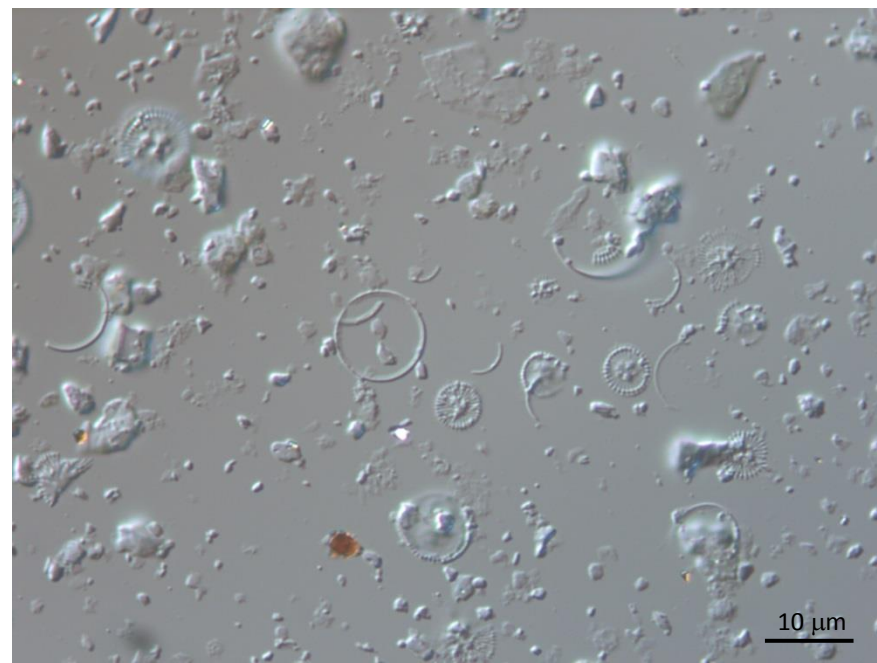
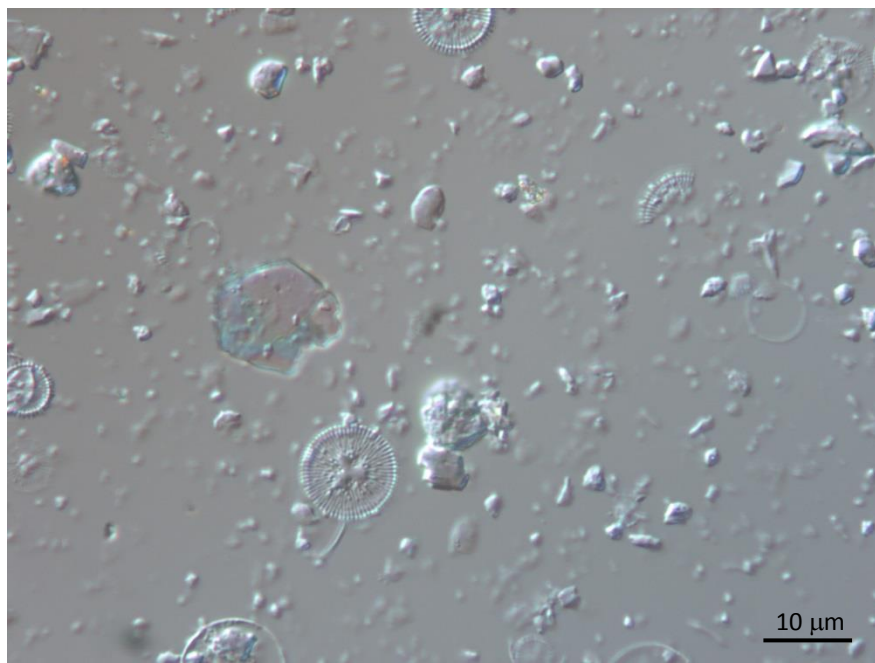
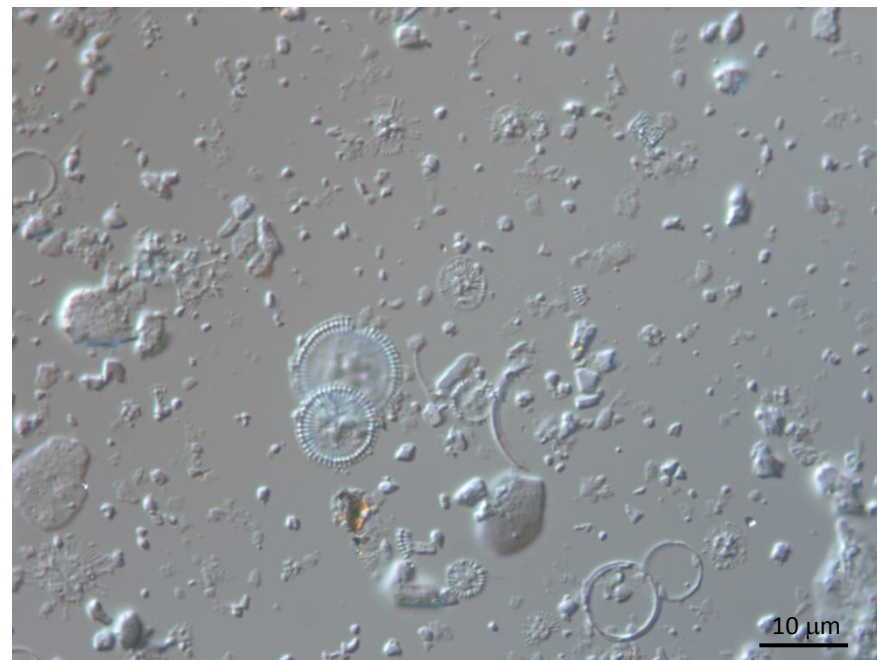
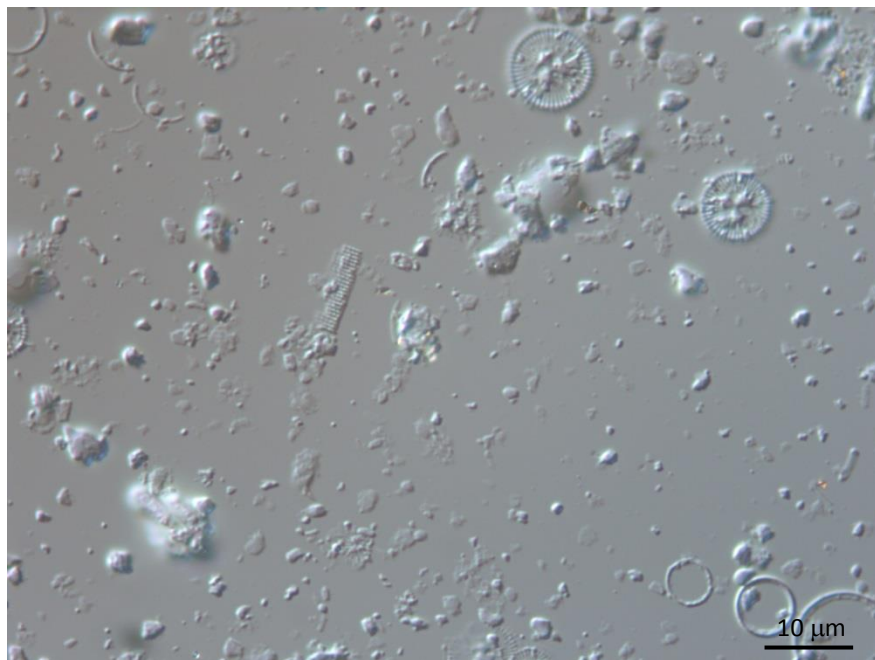
- Count the number of diatoms on each image – graph results
- Measure the diameter of the 2 largest diatoms on each image – graph results
- Construct hypothesis to explain observed changes.

Lake El'gygytgyn core 5011

Sample 500

Depth 17.594 MBLF

Age 385.0 ka

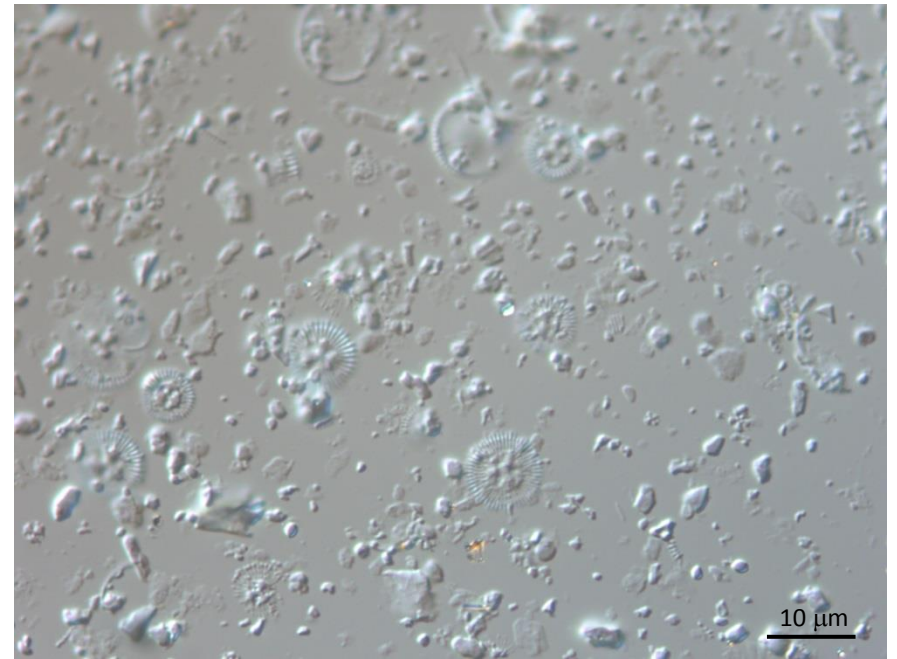
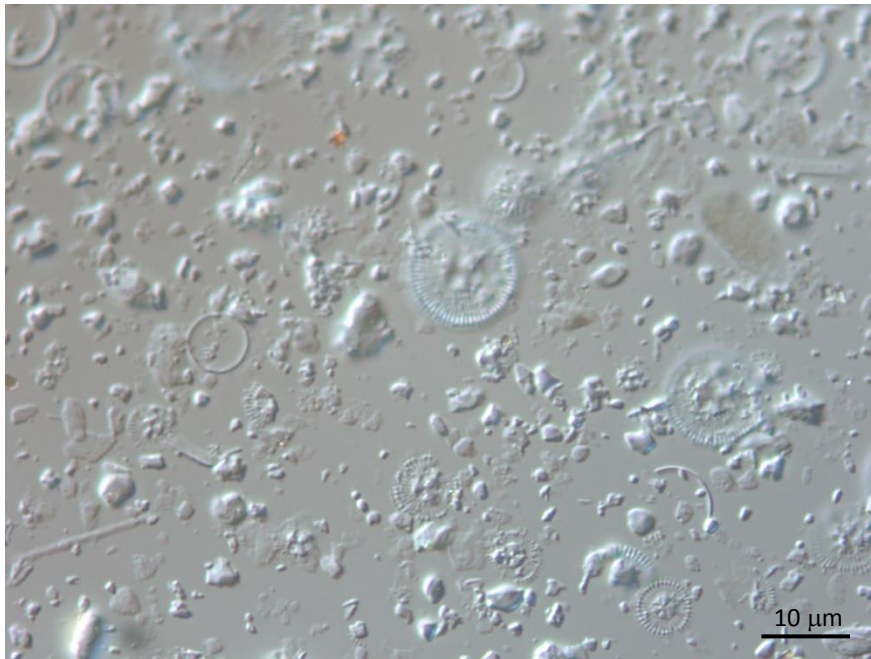
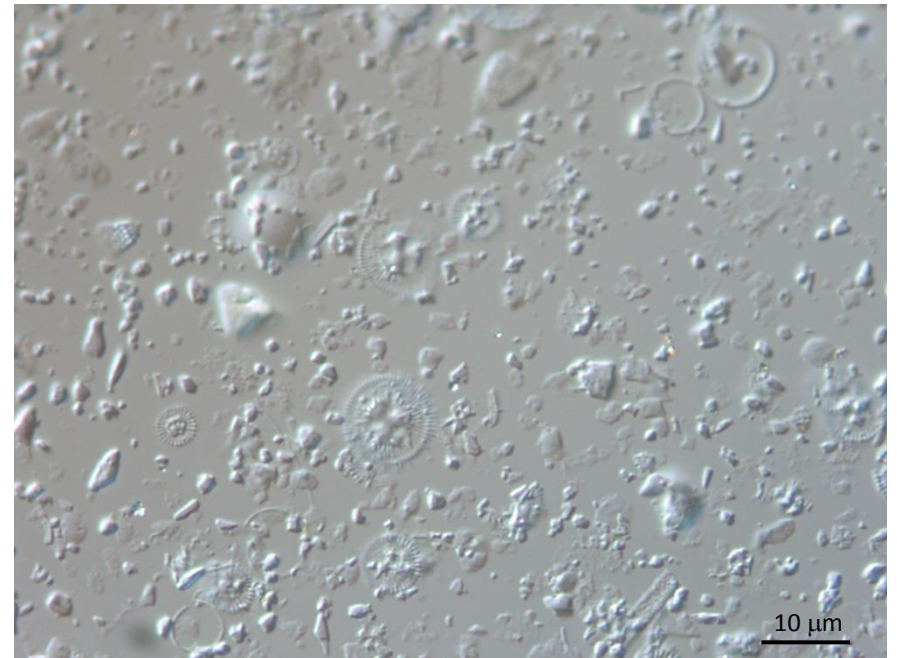
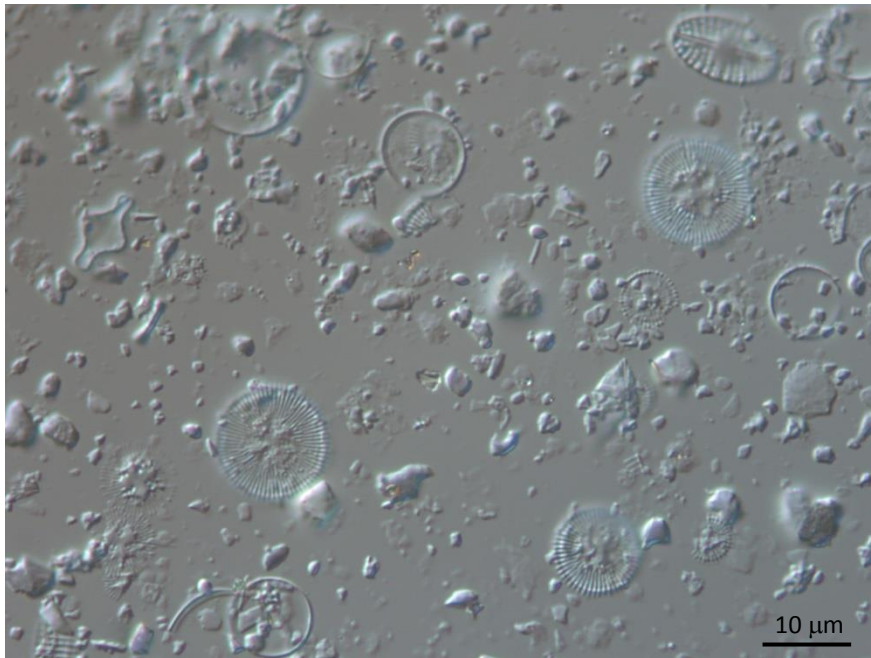


Lake El'gygytgyn core 5011

Sample 510

Depth 17.794 MBLF

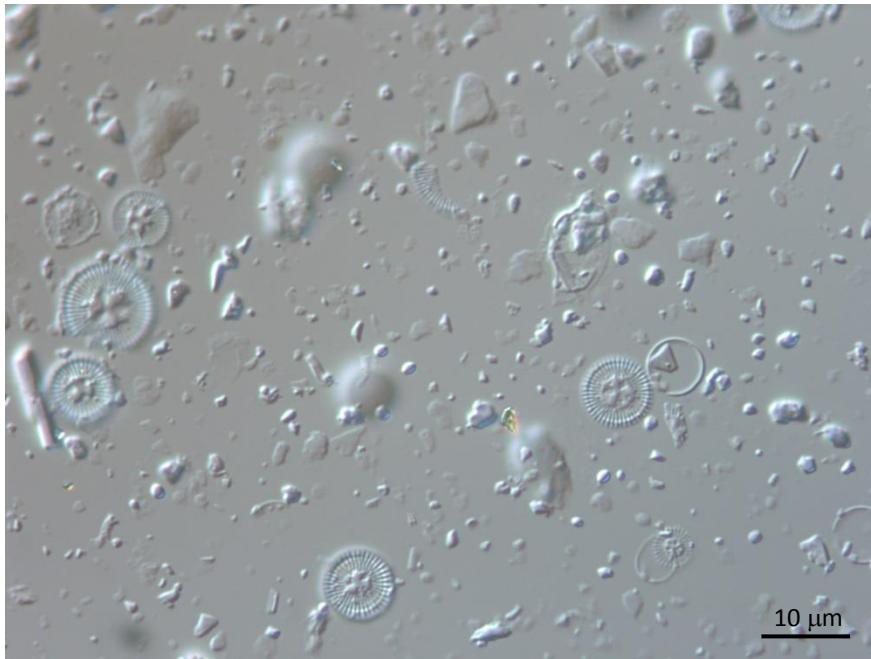
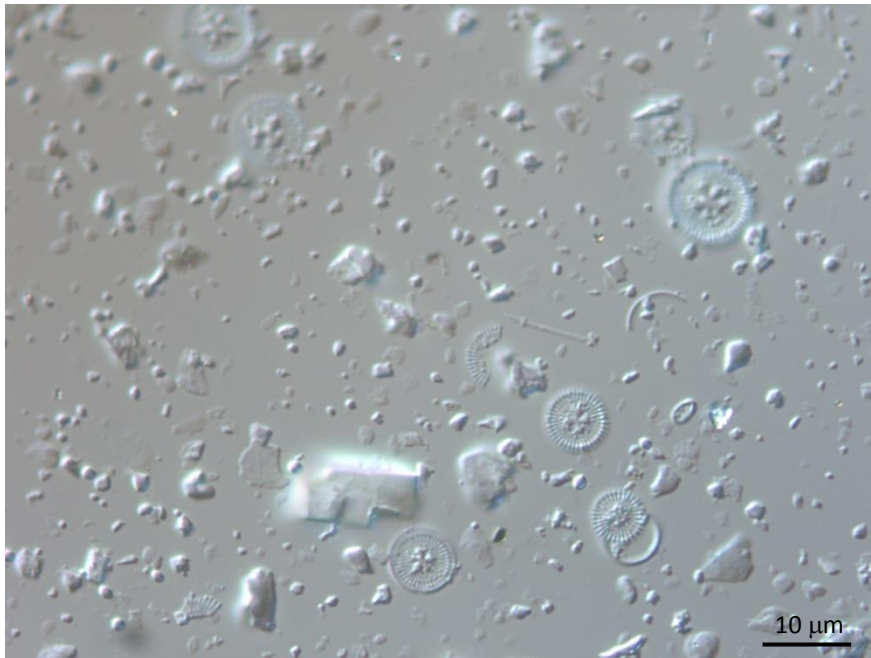
Age 390.5 ka



Lake El'gygytgyn core 5011

Sample 520

Depth 18.046 MBLF Age 395.5 ka

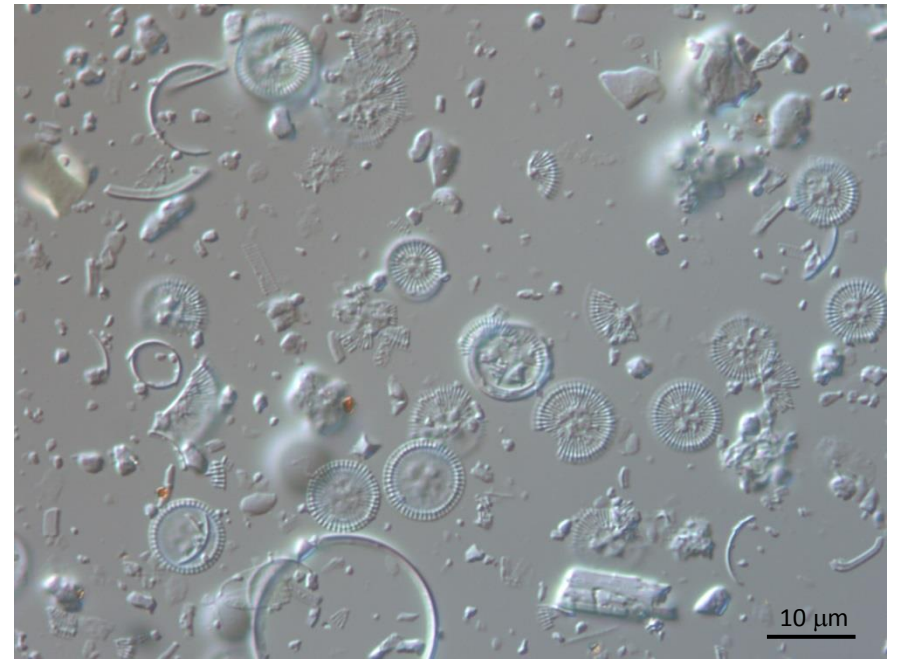
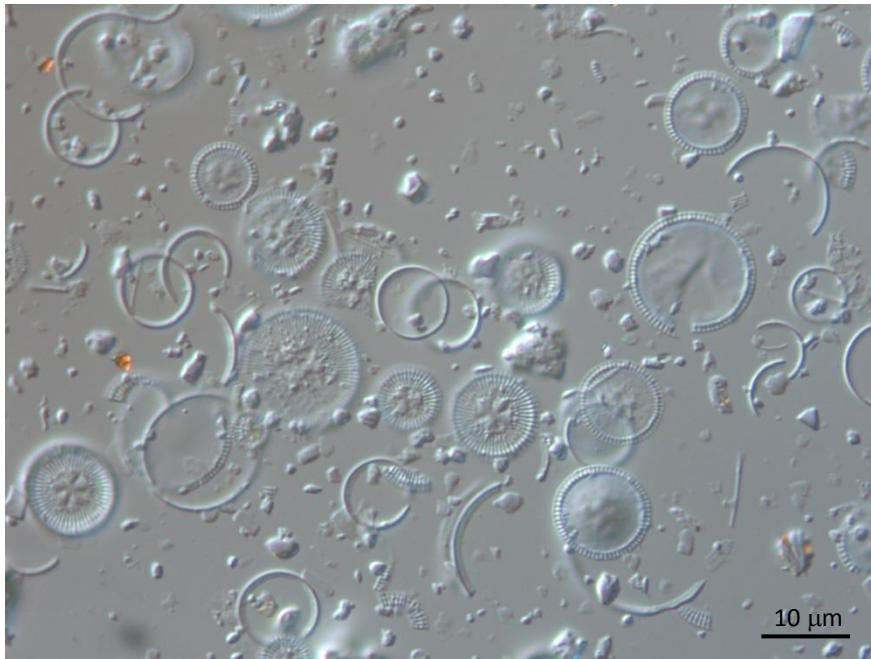


Lake El'gygytgyn core 5011

Sample 530

Depth 18.246 MBLF

Age 399.3 ka

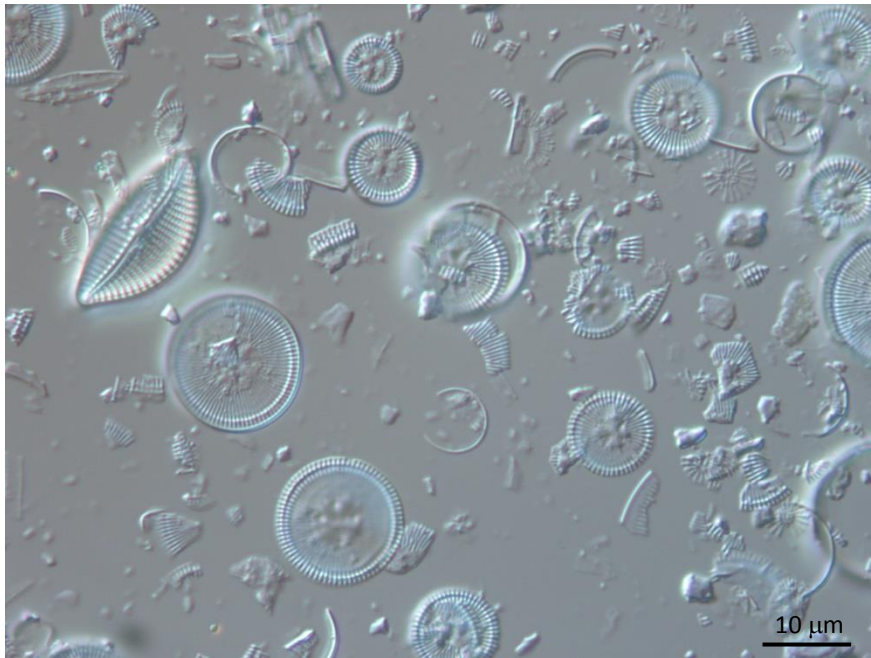


Lake El'gygytgyn core 5011

Sample 540

Depth 18.446 MBLF

Age 403.4 ka



Lake El'gygytgyn core 5011

Sample 550

Depth 18.646 MBLF

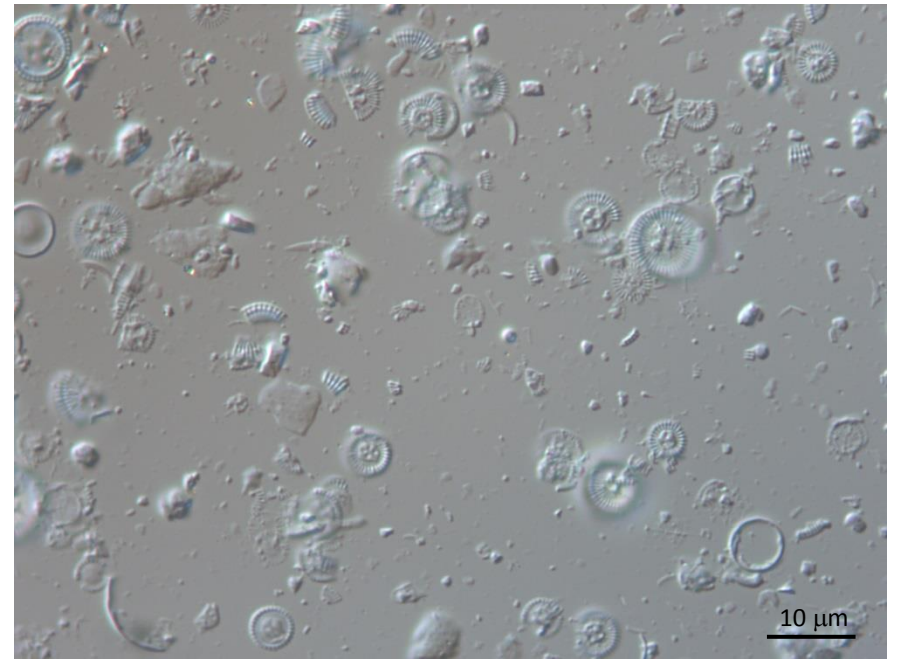
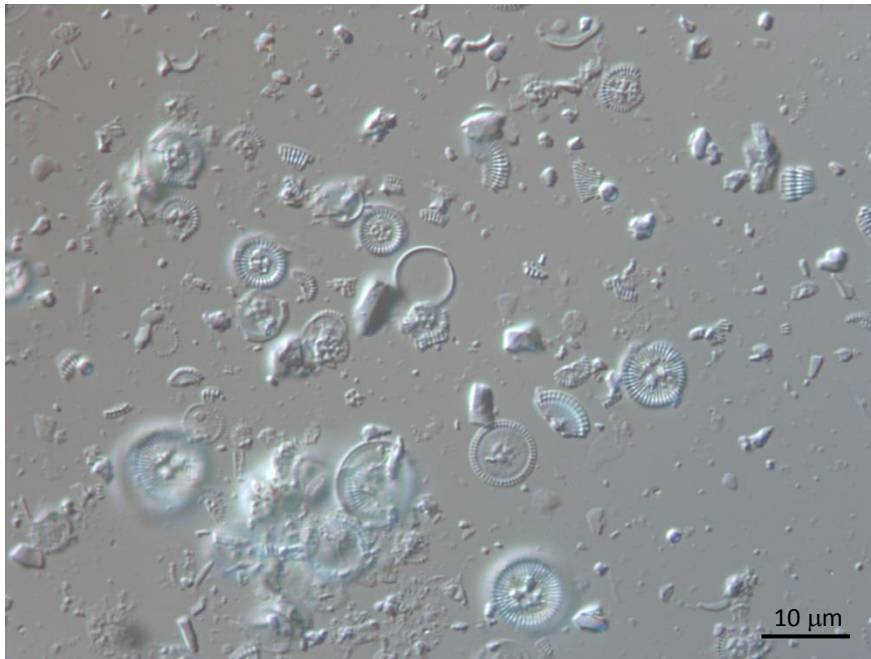
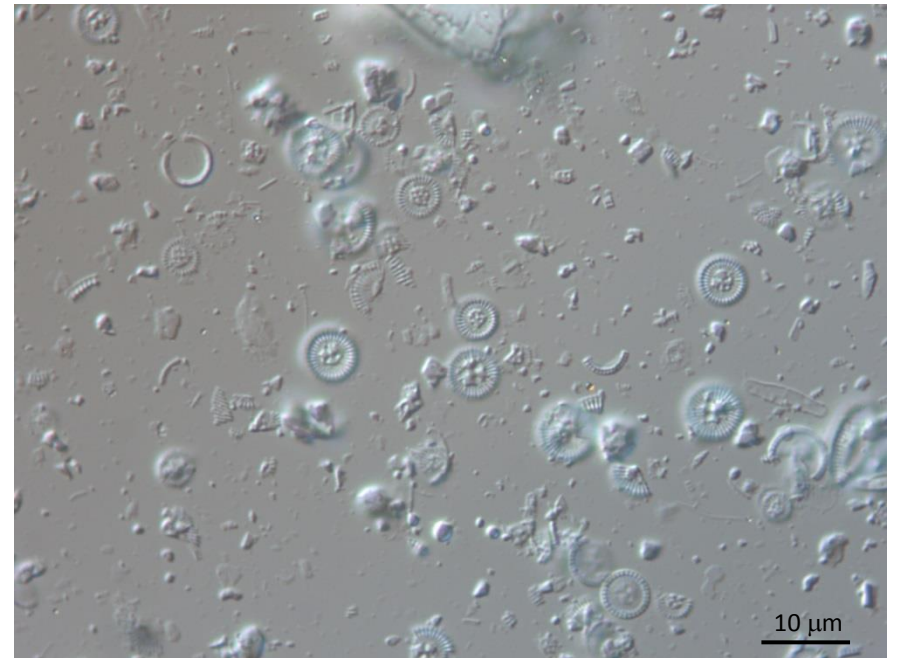
Age 411.9 ka



Lake El'gygytgyn core 5011

Sample 560

Depth 18.846 MBLF Age 419.5 ka

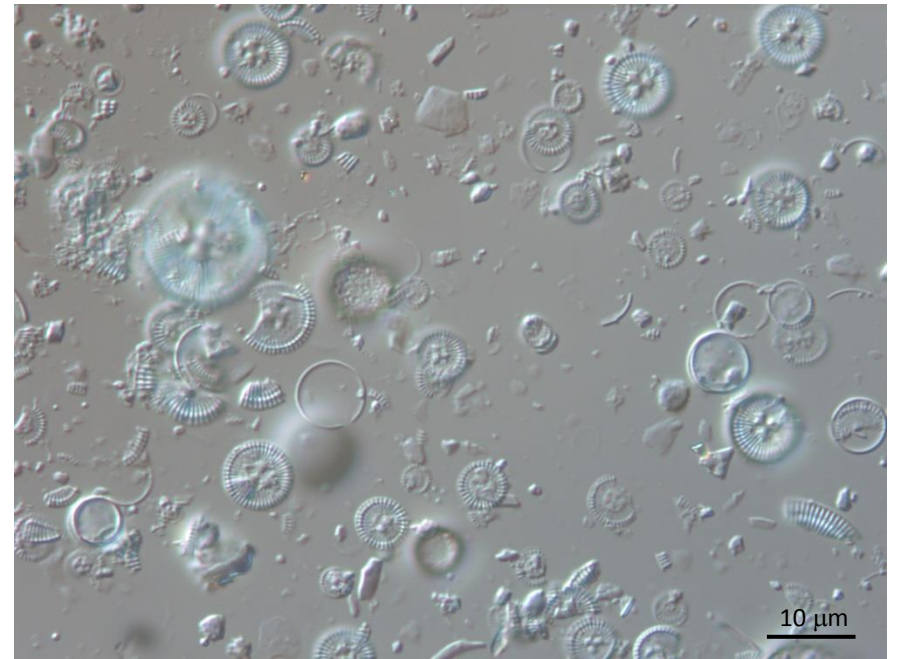
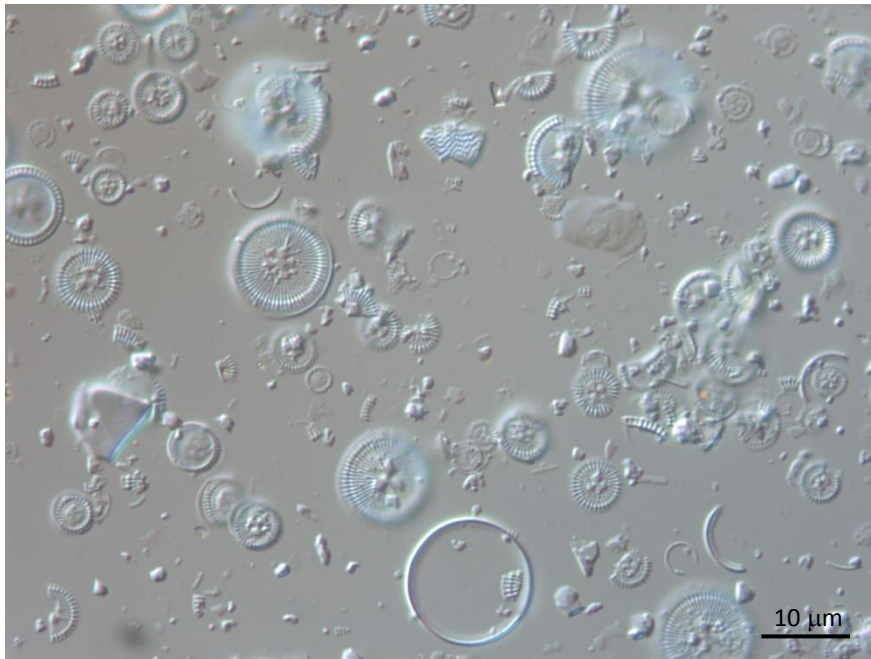
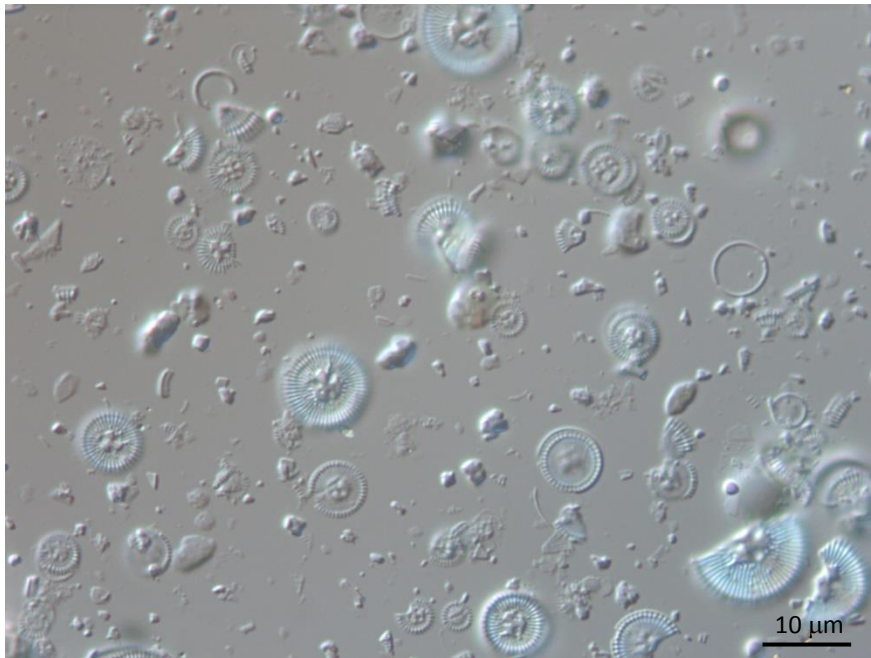


Lake El'gygytgyn core 5011

Sample 570

Depth 19.046 MBLF

Age 424.1 ka

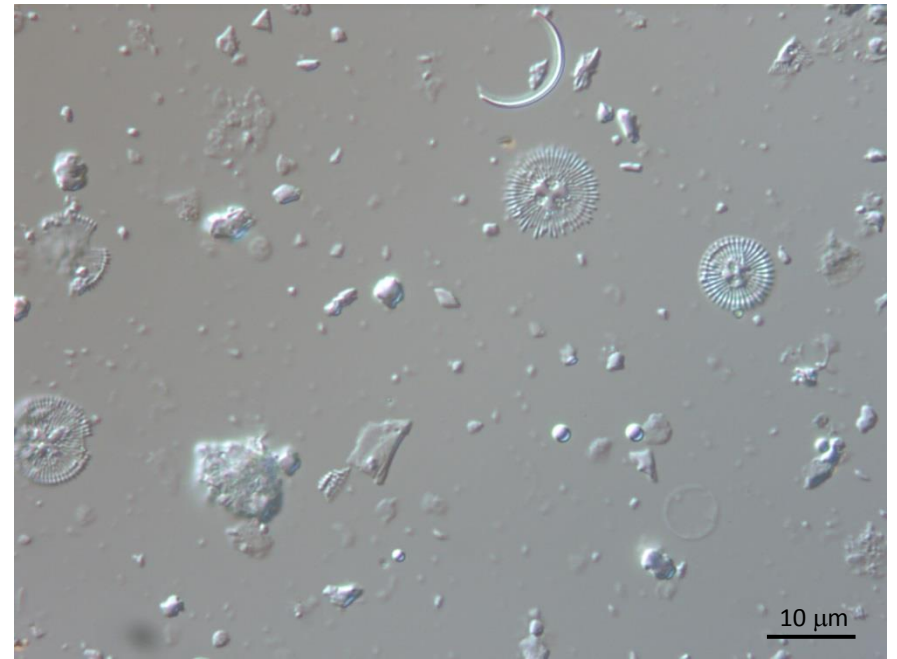
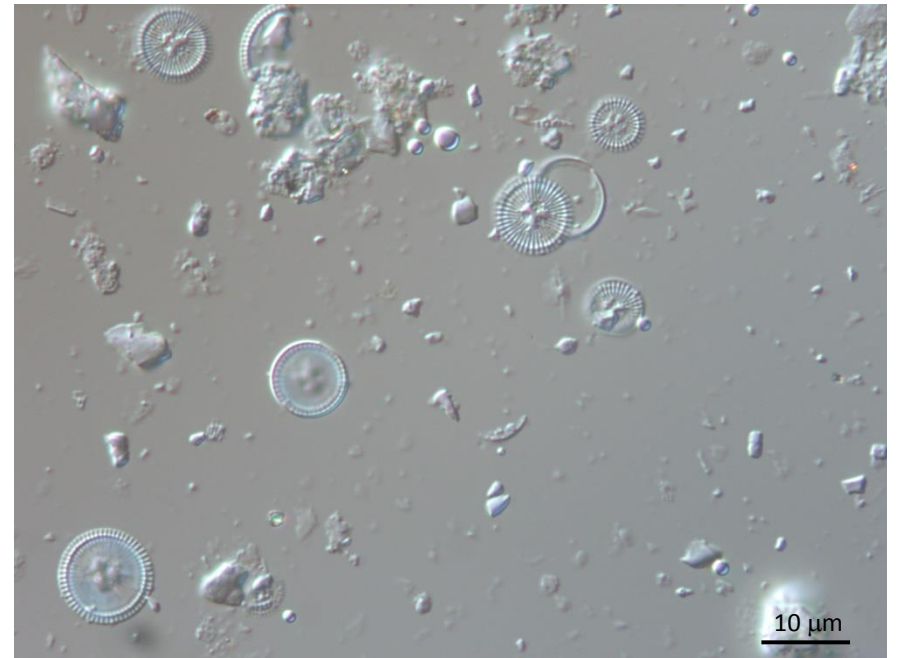
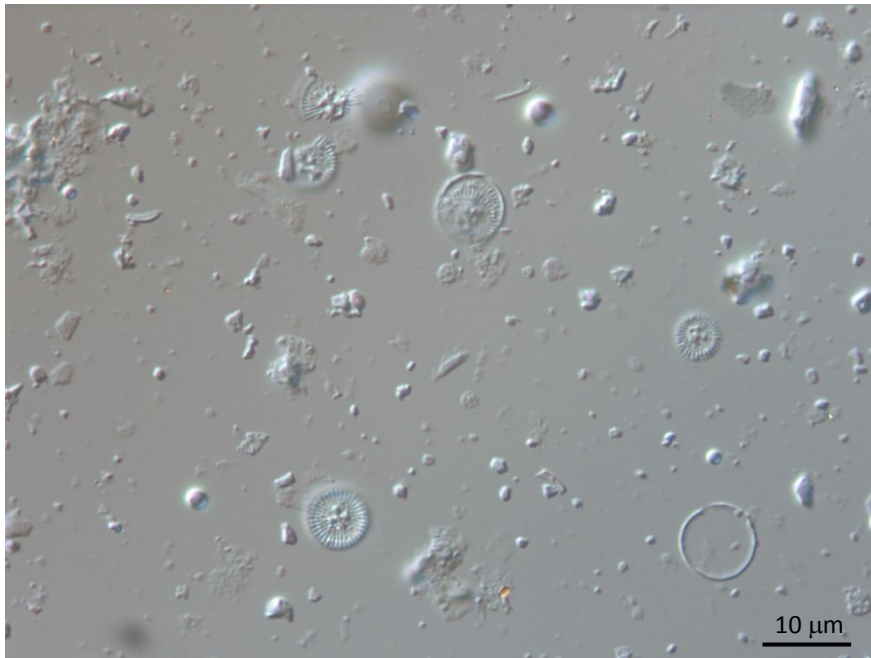


Lake El'gygytgyn core 5011

Sample 580

Depth 19.246 MBLF

Age 427.4 ka



Lake El'gygytgyn core 5011

Sample 590

Depth 19.446 MBLF

Age 429.4 ka

