

Ordovician – Jurassic Comparison

Goal: Students use the Period graph function to compare the systematic makeup of Ordovician and Jurassic marine faunas.

1. Primary Data:

Use FossilPlot (fossilplot.org) to create Period Graphs, both Phylum and Class Graphs, for the Ordovician and Jurassic Periods. If you are uncertain or have difficulty plotting in FossilPlot, *see the instructor for help!*

Submit a hard copy of the graphs.

2. Observations/Data Discovery:

a. Ordovician

i. Which Phylum has the most diversity?

1. What Class(es) are present?

2. How many Genera are present in this Phylum?

3. In the Phylum with the most Genera, what Class has the largest percentage?

4. What Class(es) has the lowest percentage?

b. Jurassic

i. Which Phylum has the most diversity?

1. What Class(es) are present?

2. How many Genera are present in this Phylum?

3. In the Phylum with the most Genera, what Class has the largest percentage?

4. What Class(es) has the lowest percentage?

3. Analysis

- a. The Ordovician and Jurassic Periods are similar because these two Periods include the two biggest radiation events and both are during a time of calcite seas. How does a calcite sea influence animals? Do animals adapt when the seas change from a calcite sea to an aragonite sea? Give examples of calcite and aragonite animals for both the Ordovician and Jurassic Periods. How do these groups of animals change throughout time?

- b. Calcite animals are more diverse than aragonite animals during calcite sea periods. Choose an aragonite animal and compare its diversity from a period during the Paleozoic with aragonite seas to the Ordovician period.

- c. Besides the seas changing from calcite to aragonite, what are some other potential causes that would cause diversity to change between the two time Periods? Refer to *peer-reviewed primary (journal) literature* (i.e. no websites, no Wikipedia!) to generate a listing of hypothesized causes for the changes in diversity. *You must cite any source you use, using the GSA format.*