

Homework Assignment 4 – Getting a Grasp of Geologic Time

Objectives: 1) to familiarize you with the major geologic events in earth history that affected Minnesota; 2) to convey the enormity of geologic time on a scale that you can relate to, and 3) to get practice on basic math skills.

Instructions: Scale the following geologic events to the span of a week (to the nearest minute). Ga (giga-annum) = billions of year; Ma (milli-annum)= millions of years. On a separate piece of paper show the method you used to calculate your answers (need not be neat; just scribble notes that show your work is fine). Turn in your assignment via email or in class by next Thursday (2/15/07). (10 points)

4.55 Ga	Earth condenses from the solar nebula	<u>Mon 12:00 AM</u>
3.65 Ga	Oldest rocks in Minnesota - MN River Valley Montevideo Gneiss	_____
3.00 Ga	Volcanic islands build out of ancient seas to form the Ely greenstone in N MN	_____
2.65 Ga	Algonian Mts form by the collision of island arcs and protocontinents to form Kenorland	_____
2.00 Ga	First life-forms discovered in MN rocks algal mats (stromatalites) in iron formation	_____
1.855 Ga	Penokean Mts form by collision of island arc Kenorland grows to form Laurentia	_____
1.109 Ga	Midcontinent Rift begins creating volcanic rocks of the North Shore	_____
1.086 Ga	MCR-related volcanism ends, rifting is aborted	_____
520 Ma	Epicontinental seas flood the interior of Laurentia depositing sand and limestone	_____
390 Ma	Last of the great Paleozoic seas encroaches on southern MN depositing fossiliferous limestone	_____
250 Ma	Dinosaurs appear and forage over the tropical jungles of Minnesota - leaving no trace	_____
80 Ma	Great Interior Seaway laps up against western MN depositing organic-rich clay deposits	_____
1.8 Ma	Continental glaciers advance out of Canada to cover most of Minnesota	_____
11,000 yrs	Last of the glaciers recede into Canada	_____
0	Today	<u>Sunday at the stroke of midnight</u>