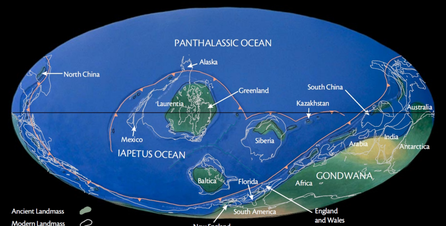
# PALEOGEOGRAPHIC MAPS

**Late Cambrian 514 million years ago**




Ancient Landmass
Modern Landmass
Subduction Zone (triangles point in the direction of subduction)
Sea Floor Spreading Ridge

>~3.8 Byo? 3 Byo: 1st fossil evidence prokaryotes/eukaryotes

~540Mya - Cambrian explosion: Origin most modern invertebrates; renewed high radiation of single-celled organisms (including decomposers) + sea life essentially modern aspect. Atmosphere:O2 -today's levels, ~20%; stratospheric O3 low

Sources: Primack (Primer of Cons. Bio), E.O.Wilson (Diversity of Life), Cancelled (Geology)

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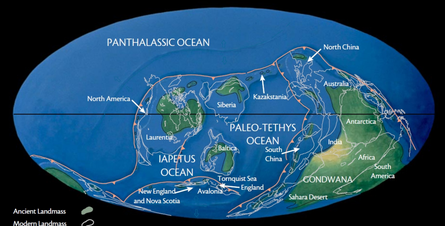
**Middle Ordovician 458 million years ago**

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Sea Floor Spreading Ridge

1st vertebrates; 1st land plants

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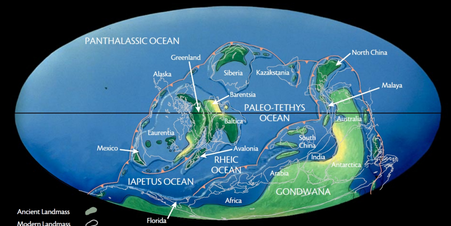
**Middle Silurian 425 million years ago**




Ancient Landmass
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Subduction Zone (triangles point in the direction of subduction)
Sea Floor Spreading Ridge

~430Mya – 1st E.extinction: 50% animal families, including many trilobites

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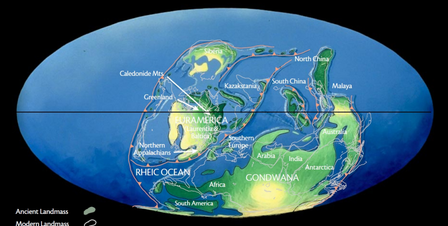
**Early Devonian 390 million years ago**




Ancient Landmass
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1st amphibians & insects

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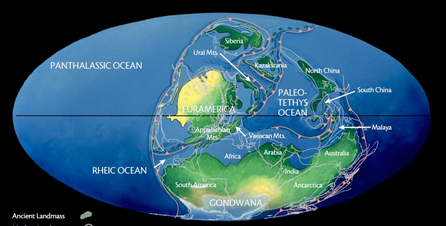
**Early Carboniferous 356 million years ago**




Ancient Landmass
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Subduction Zone (triangles point in the direction of subduction)
Sea Floor Spreading Ridge

>~ 2nd Extinction: 30% animal families including ancient fish groups, many trilobites
Origins of reptiles; amphibians dominate: 1st seed plants; development of the "coal forests"

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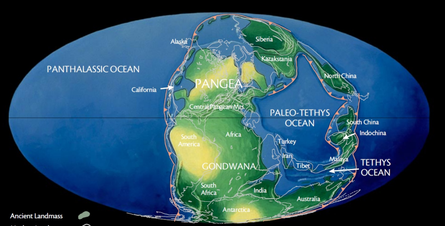
**Late Permian 255 million years ago**




Ancient Landmass
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Subduction Zone (triangles point in the direction of subduction)
Sea Floor Spreading Ridge

Origins of modern insect orders
>~3rd Extinction: 50% of animal families, including >95% marine spp; also many trees (loss of the coal forests), amphibians

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**Early Triassic 237 million years ago**

Ancient Landmass
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New radiation in reptiles.

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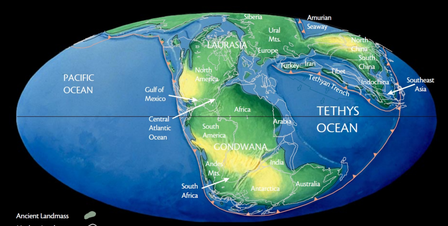
**Early Jurassic 195 million years ago**




Ancient Landmass
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Sea Floor Spreading Ridge

~4th Extinction - 35% animal families including many reptiles, marine mollusks Conifers, mammals, & birds 1st appear. Dinosaurs dominate

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**Late Cretaceous 94 million years ago**

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Flowering plants appear, become dominant components of what's becoming essentially modern vegetation

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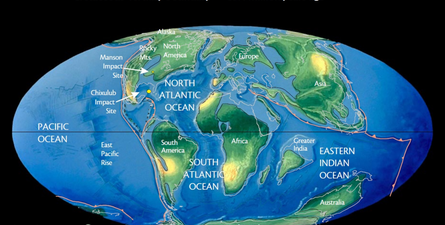
**Cretaceous-Tertiary boundary 69.4 million years ago**

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Sea Floor Spreading Ridge

K-T Boundary: Bolide impact (Yucatan) ---> 5th Extinction: Dinosaurs, many marine spp (foraminifera, mollusks)

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**Middle Eocene 50.2 million years ago**

Ancient Landmass
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coming up @ 38Mys: Origins of most modern mammals

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**Middle Miocene 14 million years ago**

Ancient Landmass
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Ape-like human ancestors appear
Coming up @ 2.5Mys: Ice ages, humans appear

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**Pleistocene 18,000 years ago**

Ancient Landmass
Modern Landmass
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Sea Floor Spreading Ridge

Last glacial maximum.
~ 30Kya - Beginnings of a 6th extinction?: Human migrations, Large mammals & birds

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**Modern World**

Ancient Landmass
Modern Landmass
Subduction Zone (triangles point in the direction of subduction)
Sea Floor Spreading Ridge

Prospects for a 6th extinction elevated - Human population, technology, resource extraction, land use, global transit explosions.

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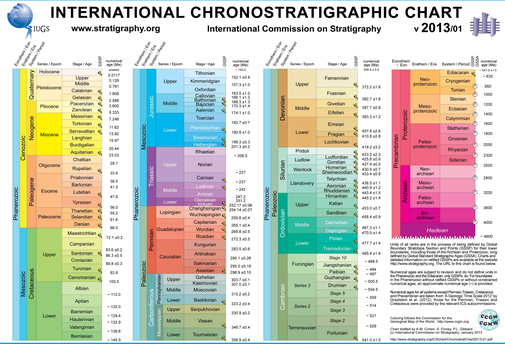



References

http://www.scotese.com
http://www.stratigraphy.org
http://culter.colorado.edu/~kittel/Biogeog_exercises/Ex6-contl_biogeog/ContDrift-animationW&P.pdf



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