

Evidence (with dates) for major geologic events recorded in Virginia's geologic provinces

older
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↓
younger

Province	Blue Ridge	Piedmont	Valley & Ridge	Appalachian Plateaus	Culpeper Basin & Triassic lowlands	Coastal Plain
Event						
Grenville Orogeny <i>1200-1000 Ma</i>	Granites & charnockites & gneisses					
Iapetan rifting of Rodinia <i>700-560 Ma</i>	Flood basalts & their feeder dikes; rift sediments (arkose; conglomerate, shale)					
Early Paleozoic passive margin sedimentation	Chilhowee Group transgressive sequence	Quartzite → schist → marble transgressive sequence in Maryland	Cambrian + Ordovician carbonates w/ stromatolites & ooids			
Taconian Orogeny <i>460 Ma</i>		Accreted metasedimentary + metavolcanic rocks, metamorphism, deformation, & partial melting	Switch to deposition of shale, graywacke, & bentonite			
Middle Paleozoic passive margin sedimentation			Quartz sandstone Silurian & Devonian carbonates			
Acadian Orogeny <i>360 Ma</i>		Some dikes; felsic intrusions like the Petersburg Granite in Richmond; metamorphism in north	Thick package of clastic sediment (Catskill)	Thick package of clastic sediment (Catskill): Pennsylvanian age		
Alleghanian Orogeny <i>300-250 Ma</i>	Folding into a broad anticlinorium; ductile shear zones. Metamorphism to greenschist facies + thrust faulting		Thrust faulting, intense folding (anticlines & synclines), & development of slaty cleavage	Slight folding: broad, open anticlines & synclines		
Atlantic rifting of Pangaea <i>200-180 Ma</i>	A few Jurassic dikes	(see <i>Culpeper Basin column</i>)	A few Jurassic dikes		Normal faulting, diabase intrusions + basalt eruptions; rift sediments (conglomerate, arkose + lake sediments)	
Cretaceous-Cenozoic passive margin sedimentation		Hilltops capped w/ Cretaceous river gravels				Thick "blanket" of conglomerate, sand, shale, and fossil debris
More recent events	Incision of rivers, formation of water gaps	Incision of rivers	Intrusion of mafic & intermediate igneous rocks in WV/VA border region. <i>47 Ma</i> Incision of rivers, formation of water gaps	Incision of rivers		Giant crater beneath Chesapeake Bay, shocked quartz & tectites; breccia, diversion of rivers <i>35 Ma</i>