

The Catskill Clastic Wedge (Acadian Orogeny) of Eastern West Virginia

Formation Description	Strip Log	Environmental Interpretation	Clastic or Carbonate Dominance	Sourceland Tectonics		
				Stable	Epeirogenic	Orogenic
<p>Mauch Chunk Marine shales with packed clam beds at base. Above, dark gray shales with abundant whole Lycopoid and Sphenopsid plants. Large scour channels with coarse, sublithic arenities; large scale cross beds and logs at the base.</p>						
<p>Greenbrier Thick beds of very large scale cross bedded oospar and abraded biospar (encrinite) sands; crinoids common, with horn corals, brachiopods, and blastoids. Carbonate sands interbedded with micrite beds. Thick beds of red calcareous shale containing marine fossils common near middle of formation.</p>						
<p>Pocono Tan to white sublithic wackes and arenites, and quartz arenites, interbedded with shales with marine fossils. Sandstone bars have abundant large scale trough cross beds, some possibly with herringbone. Abundant thinner sandstones with HVL's, small trough cross beds, linguloid and oscillation ripples. Occasional thin coal beds; plant fragments common in some beds.</p>						
<p>Hampshire Fine to medium grained lithic/feldspathic wackes interbedded with silts and shales. Point bar sequences up to a few meters thick. Some sequences with large trough cross beds, others dominated by HVL's or small troughs. Amalgamated sequences common, alternating with flood plain silts and mudstones containing climbing rippled and cross laminated sands. Some sand beds, or bundles of sand/silt beds deposited at an angle to primary bedding. Mudstone/siltstone filled scours sometimes seen. Root traces common in sandstones; plant fragments sometimes found.</p>						
<p>Greenland Gap Group Sublithic feldspathic coarse silts and fine sand wackes interbedded with silts and shales. Top is non-hummocky interbedded red and green silts and sands. Structures include large scale, low angle, trough cross beds, large scours, linguloid ripples, oscillation ripples, plane beds (HVLs?), and small flutes. Most of formation hummocky sequences bundled together in numerous overall CUS cycles up to 10's of meters thick. Each overall CUS begins with hummocky units no more than an inch or two thick which thicken and amalgamate upsection to sand bodies several meters thick. Amalgamated sections have large scale planar and shallow trough cross bed sets capped by wavy then lenticular bedding ending in shales. Occasional gutter casts. Scattered marine fossils in lower and middle of formation, including crinoids fragments, brachiopods, and traces.</p>						
<p>Brallier Fine grained sublithic wackes, silts and shales. Bouma Sequences, mostly only a few inches thick. Includes TABCDE, TBCDE, and TCDE in complex cycles. Flute and tool marks common on bottom of sandstones. Body fossils rare. Trace fossils occasionally seen on bedding planes. Badly broken, small plant fragments on some bedding planes</p>						
<p>Millboro Dark gray shales and thin bedded very fine sands. Sands sometimes show small cross laminations. Sands thicken and coarsen upsection. Convolute bedding in places. Fauna consists of dwarf (stunted) clams and brachiopods; straight shelled and coiled nautiloids to one inch in size.</p>						
<p>Needmore Laminated dark gray shales and silts. Occasional thin, black shales (condensed sections) Some beds with abundant trace and body fossils, including brachiopods, trilobites, brachiopods, and gastropods.</p>						
<p>Oriskany Quartz arenites. Thick beds of gently dipping laminations, interbedded with beds of large scale cross beds, and/or abundant thick shelled brachiopods.</p>						
<p>Helderburg Group Formations of micrite and fossiliferous micrite, some with abundant nodular chert, interlayered with formations of megarippled and large scale cross bedded biosparite and packed fossiliferous biosparite. Crinoids especially abundant, but also bryozoans and brachiopods.</p>						
<p>Tonoloway Abundant algal laminated micrites and dolomites. Some stromatolites, ostracods and beds of broken and abraded fossiliferous biomicrite. Mudcracks common; some saltcasts.</p>						

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