

Sedimentary Rocks--Common Q/A

Earth Science Essentials
by Russ Colson

But wait, if sediment particles get smaller with more weathering, then won't the smallest particles be in the highest energy environment which breaks them apart more? And won't the larger particles be where the energy is lower and therefore unable to weather the particles?

Particles size does indeed generally decreases with increasing transport/weathering. But the final event--deposition--is what gets recorded in the rock. If the energy is high, it may break the particles apart more, but the high energy then transports that sediment away from that environment to some new location, with lower energy, where it might be deposited.

It's true that sometimes particle size simply reflects "what's there", such as weathering-resistant chert nodules that weather out of the cliffs above the beach at Etretat in France (see picture), or a muddy or carbonate beach along a shoreline that is a long ways from any possible source of large-particle material.

A modern environment along a beach or river may not be a depositional environment at all but rather an erosional environment (and thus will not be recorded in the great geological record of the future). Size of particles in an erosional environment reflects what hasn't yet washed away, not what is being deposited. Even so, the absence of smaller particles usually indicates that energy is sometimes high enough to wash those particles away.



Cobble beach in Etretat, France, where weathering-resistant chert nodules weather from the more-easily weathered limestone cliffs.

I don't get the graph of sediment size thing. How can you know which one is right without someone telling you the answer?

Watch the Video: [Common_Q-A-Particle_size_graph.MP4](https://mediaspace.minnstate.edu/media/Common_Q-A-Particle_Size_Graph/1_9otfu6xt).
https://mediaspace.minnstate.edu/media/Common_Q-A-Particle_Size_Graph/1_9otfu6xt