Mineral sorting within depositional environments: a detrital petrographic study of alluvial to marine systems in the Kennebec and Penobscot drainages, Maine USA Johan P. Erikson Saint Joseph's College of Maine

b

d

0 mr

+ ms

HM/(chlor+mica+HM) vs. Distance SSE (M + e) (M + e)





(Our current, working hypothesis):
Ratio of high-density minerals (HM) to (mica + chlorite + HM) appears to decrease with increasing transport distance within the same depositional environment.

• Very fine-grained lithic fragments (volcanic and fine-grained metamorphic) significantly diminish in abundance downstream, despite that downstream areas are rich in finegrained bedrock.

=> Fine-grained rock fragments derived from upland areas are depleted during transport.

Quartz/Kspar/Plag and

Quartz/Feldspar/Rock fragment ratios show little appreciable variation over a range of transport distances (<150 km) and depositional environments.

=> Q-K-P mechanical characteristics are so

similar that any variation in Q/K/P in rock record is due to chemical alteration prior to, during, or after transport.

- Sorting within 1-6 m composite sections does not appear to correlate with transport distance.
- => Sorting has no "memory" of transport distance.
- Sorting within 1-6 m composite sections appears to be subtly influenced by mean grain size, but not in a meaningful diagnostic relationship.