

Pyroclastic Surges and Blasts

Reading:

Encyclopedia of Volcanology,
pp. 571-580

Volcanic Successions, pp. 114-126;
203-219

Characteristics

- Low density
- Low concentration
- Poor topographic constraint
- Turbulent (high flow regime)
- Shorter runout than flows

Transport Process

- Transport system
 - Dilute upper part
 - Sedimentation by diffusion law
- Sedimentation system
 - Denser lower part
 - Interaction with the ground surface

Bedforms

- Sandwaves
 - Dunes, antidunes, cross stratification
- Massive
 - No structures, lensoid form
- Planar
 - Inversely graded, coarser clasts





Other Features

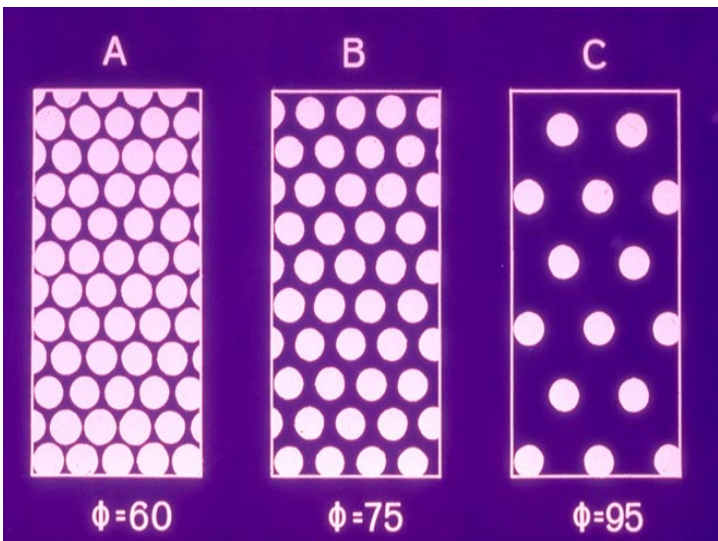
- Channels
- Ripples
- Mud cracks
- Accretionary lapilli
- Soft sediment deformation
- Bedding sags

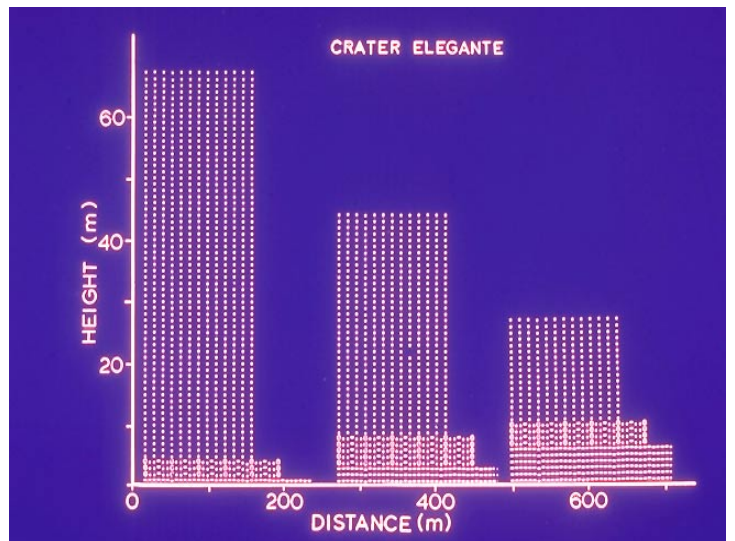
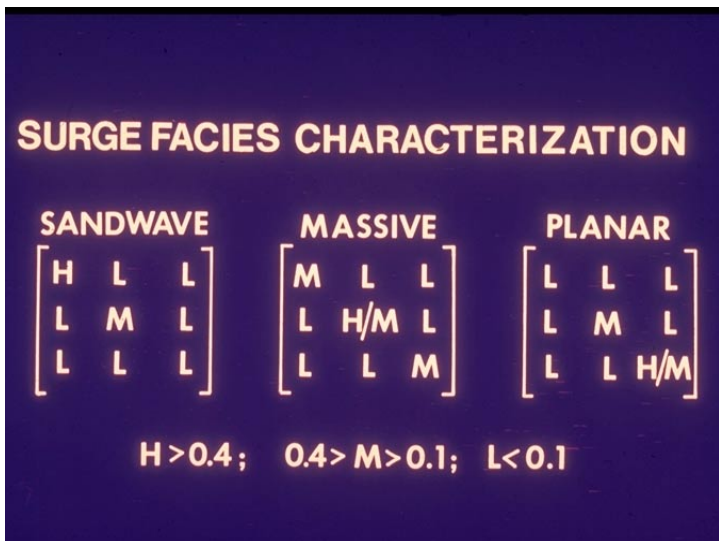
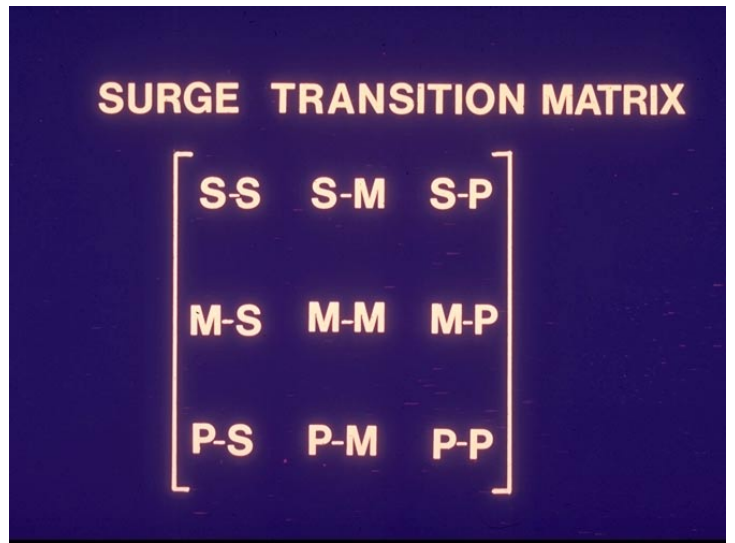
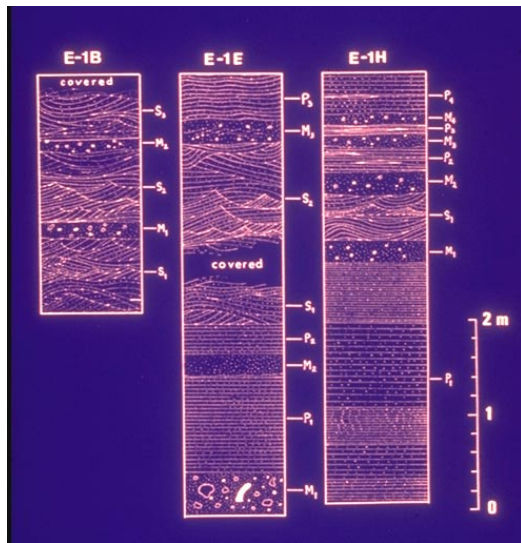
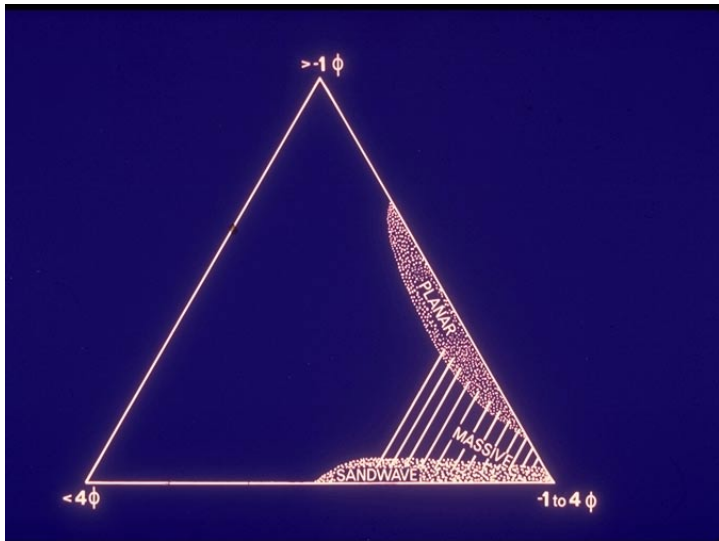




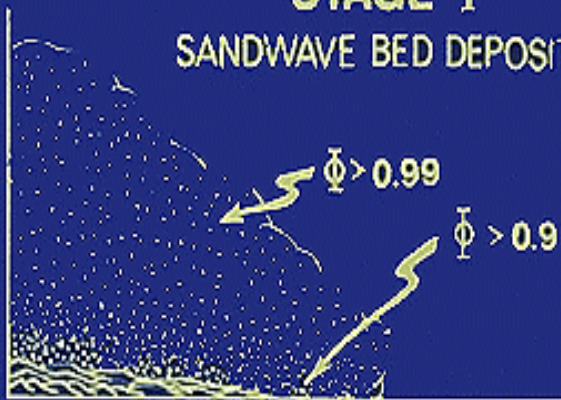
Emplacement model

- Particle spacing
 - Traction, saltation, suspension
- Grain size modes
- Markov model of stratigraphy
- Deflation model of transport





STAGE I SANDWAVE BED DEPOSITION



STAGE II MASSIVE BED DEPOSITION



STAGE III PLANAR BED DEPOSITION



A DEFLATION MODEL

