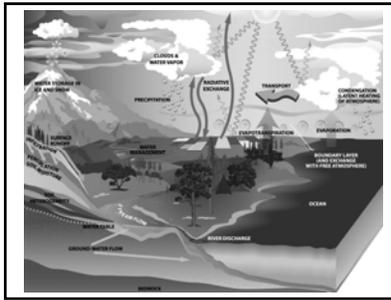




Water covers 71% of Earth's surface and is the dominant agent governing environmental processes.

The rates of human usage of water outpace the natural rates of renewal.

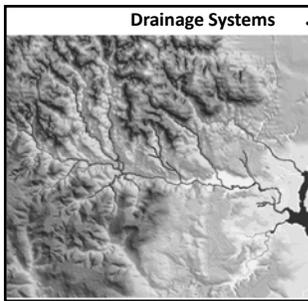



Transpiration above the Amazon rainforest

Plant stomata

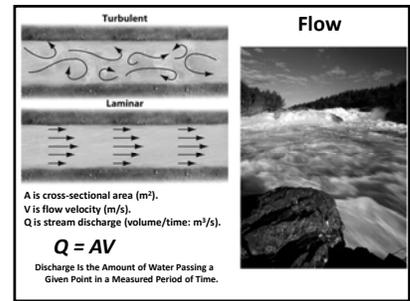


Runoff Enters Channels that Join Other Channels to Form a Drainage System.



Drainage Systems

- Stream is a flowing body of water following a channel.
- A River is a major branch of a stream system.
- A Drainage System is a network of channels.
- The total area feeding water to a stream is the Watershed.



Turbulent Flow

Laminar

A is cross-sectional area (m²).
V is flow velocity (m/s).
Q is stream discharge (volume/time: m³/s).

Q = AV

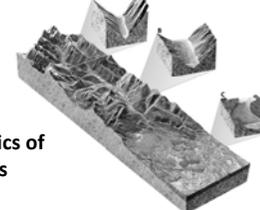
Discharge is the Amount of Water Passing a Given Point in a Measured Period of Time.

The amount of water in a river's watershed increases downstream, with the addition of tributaries.



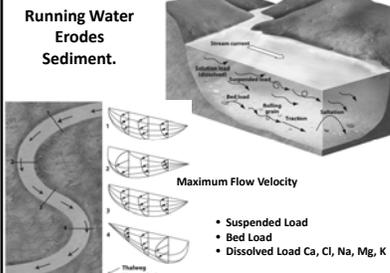
550 m³/s
1400 m³/s
2800 m³/s
4250 m³/s
8550 m³/s

- Gradient
- Discharge
- Sediment load
- Base level



Characteristics of Channels

Running Water Erodes Sediment.



Maximum Flow Velocity

- Suspended Load
- Bed Load
- Dissolved Load Ca, Cl, Na, Mg, K

Thalweg
Water velocity

