

HYDROLOGY (علم المياه)

REFERENCES:

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2. Wilson, E.M.; "Engineering Hydrology". Macmillan, London, 1983.
3. Ground Water Hydrology by Todd.
4. "الهيدرولوجيا الهندسية". ترجمة د. نزار علي سبتي ود. لبيب خليل إسماعيل.
5. "الهيدرولوجيا ومبادئ هندسة الري" د. محمد عبد الرحمن الجنابي و د. فاروق الفتياي،
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SUBJECTS:

1. The Hydrologic Cycle;
2. Precipitation;
3. Evaporation;
4. Infiltration;
5. Stream Flow;
6. Hydrograph Analysis;
7. Reservoir and Channel Routing;
8. Ground Water Hydraulics;
9. Well Hydraulics;
10. Statistical Hydrology;
11. Sediment Transport;
12. Catchment Simulation.

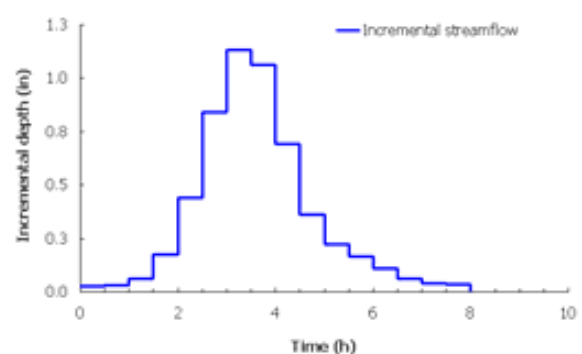
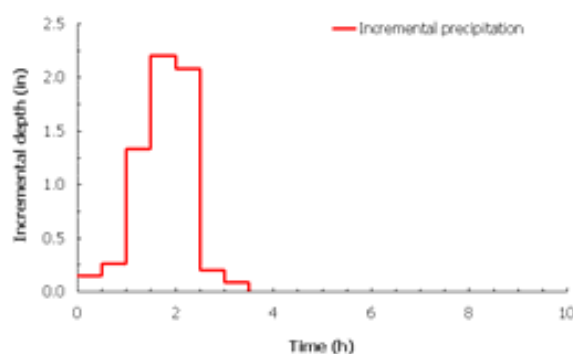
General Definitions

- **Hydrology** (from Greek: ὕδωρ, hudōr, "water"; and λόγος, logos, "knowledge") is the study of the movement, distribution, and quality of water throughout the Earth
- A practitioner of hydrology is a hydrologist
- Domains of hydrology include (but not limited to) surface hydrology, hydrogeology, drainage basin management, and water quality.

hydrological science deals with the **occurrence**, **distribution** and **circulation** and **properties** of water on the earth.

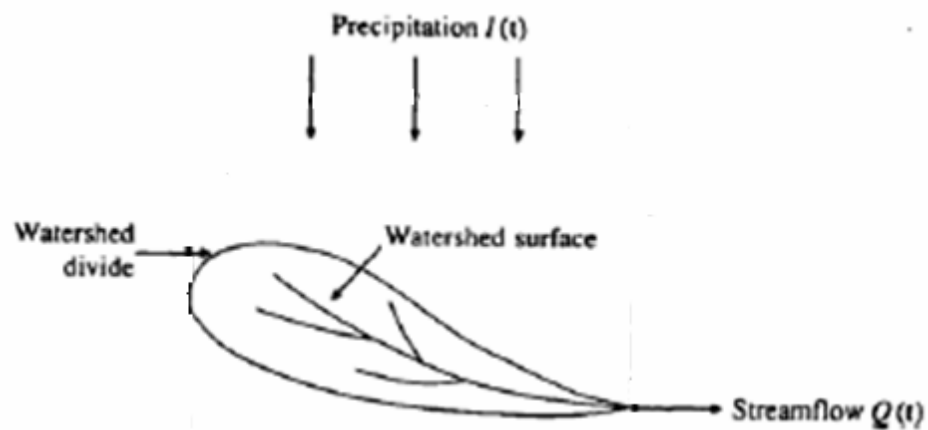
Hydrologic Systems

- A hydrologic system is defined as a structure or volume in space, surrounded by a boundary, that accepts water as an input, operates on it internally, and produces it as an output.
- Water enters the system as input, interacts with the structure and other media, and leaves as output.



Watersheds

- A watershed is the area of land draining into a stream at a given location.
- A watershed divide is a line dividing land whose drainage flows toward a given stream.
- Watershed boundary is drawn around the watershed by projecting the watershed divide .



Drainage Basins and Sub-Basins

- A drainage basin is the area within the drainage basin divide, and drains the surface runoff and river discharge of a contiguous area
- A drainage basin is a region of land where water from rain or snow melt drains downhill into a body of water, such as a river, lake, dam, wetland, sea or ocean
- The drainage basin acts like a funnel - collecting all the water within the area covered by the basin and channeling it into a waterway
- Each drainage basin is separated topographically from adjacent basins by a ridge, hill or mountain, which is known as a water divide or a watershed
- Especially in North American usage however, watershed refers to the drainage basin itself. Other terms that can be used to describe the same concept are catchment, catchment area, catchment basin, drainage area, river basin and water basin



Drainage Basins and Sub-Basins

