

FOREST HYDROLOGY

Hydrologic Entities/Processes

Hydrologic Measurements.

Wind, Temperature, Humidity, Solar radiation. Precipitation, Evaporation, Transpiration, Soil moisture, Infiltration, Streamflow.

Statistical Methods In Hydrology

Probability Distributions, Distribution Statistics, Probability Applications: Frequency and Return Period, Probability Distribution Functions, Frequency Analysis, Flow Duration Analysis, Linear Regression and Correlation.

Precipitation

Geographic and Temporal Variation, Precipitation Types and Variability, Precipitation Analysis, Distribution of Precipitation, Point Precipitation, Areal Precipitation, Precipitation Probability, Precipitation Frequency Analysis, Layout of Rain Gauges, Precipitation Disposal (Interception, Through Fall, Stem Flow, Depression Storage), Forest Influence on Precipitation, Forest Influence On Rain Drop Size Modification.

Vaporization Processes.

Evaporation and Transpiration, Estimating Evaporation, Evaporation control, Transpiration Control, Forest Transpiration, Impact Of Vegetative Parameters Like Species, Canopy Density, Leaf Area Index On Forest Transpiration, Estimating Evapotranspiration. Forest Influence on Vaporization Process.

Surface Water Hydrology.

Stream flow, Stream Gauging, Weirs, Processes & Measurement by Direct and Indirect Methods, Slope-Area Method, Stage-Discharge Rating Curves. Runoff; Watersheds And Drainage Basin Characteristics, Rainfall-Runoff Process, Curve Number Method, Rational Method, Snowmelt Hydrology, Forest Influence on Surface Water Hydrology/ Stream Discharge, Forest Age- Water Yield Relationship,

Subsurface Flow

Soil water, Interflow, Base flow, Infiltration Process, Measuring Infiltration, Temporal and Spatial Variability of Infiltration Capacity, Subsurface Storage, Phi Index, Forest Influence on Subsurface Hydrology

Hydrograph

Hydrograph Components, Baseflow Recession, Baseflow Estimation, Hydrograph Time Relationship, Unit Hydrographs, Synthetic Unit Hydrograph, Hydrograph Routing.

Groundwater Hydrology:

Hydrostatics And Pore Water Pressure, Groundwater Flow, Flow To Wells: Steady and unsteady flow, Groundwater Storage

Soil Erosion

Types of Soil Erosion, Water erosion, Estimation of Soil Erosion, Soil Mass Movement and Land Slides, Soil Loss Models, Sediment Yield Models, Bed Load Models, Soil and Water Conservation Practices, Forest Influence Soil Erosion, Land Slides.