

Changes in the Soil Physico-chemical properties of the cold arid Soils after Leh Cloud Burst

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Abstract

Cloudbursts usually signify a sudden, heavy fall of rain over a small area, not exceeding 20–30 km² in a short period at a very high rate of the order of 100mm per hour. Cloudburst represents cumulonimbus convection in conditions of marked moist thermodynamic instability and deep, rapid dynamic lifting by steep orography. The phenomenon occurs due to sudden upward drift of moisture-laden clouds as a tall vertical column termed “Cumulonimbus clouds.” The ascending moisture-laden clouds become heavier and at certain point, they produce violent rainstorm within a short interval. The orographic lifting of moist, unstable air releases convective available potential energy necessary for a cloudburst. Cloud burst is actually a situation when the intermolecular forces between the water molecules get very high due to the rapid decrease in the temperature or excess of electrostatic induction in the clouds causing the lightning to remain inside the cloud only, which causes hyperactive energy inside the cloud. The water molecules get denser and denser and get condensed but do not leave the cloud due to excess of electro forces. The water concentration gets higher and higher and the weight gets heavier, thus water is no longer able to maintain the force within the clouds and so they fall and gets precipitated. As the water content is so high and also (as per the law of conservation of energy) the electricity remains in it, the cloud seems to be burst. The air currents rushing upwards in a thunder cloud hold up a large amount of water. If these currents suddenly cease, the entire amount of water descends over a small area with catastrophic force all of a sudden and causes mass destruction. The topographical conditions such as steep hills favour the formation of these clouds. This leads to flash floods, landslides, soil erosion, soil sealing and negative changes in soil properties non- conducive for proper crop growth.

Biography

Dr. Inayat Mustafa Khan, is doctorate in Soil Science with expertise in Soil fertility and Chemistry, he has started his career with working at Central Soil Salinity and Research Institute Karnal and worked in waste water utilisation under US-AKI project. He has been teaching as Assistant Professor, at UG,

and PG level , guided the students of Soil Science (Master’s and Ph.D) in Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir He has both national and international papers to his credit during his 11 years career