

Navigation with Indian Constellation (NavIC), will be advantageous in the field of Agriculture

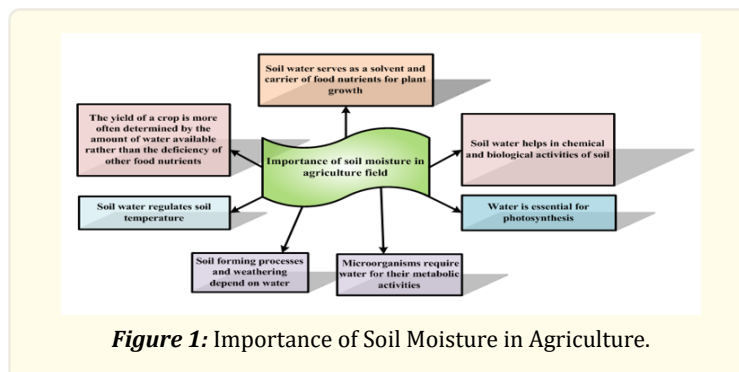
Vivek Chamoli*, Rishi Prakash, Anurag Vidyarthi

Department of Electronics and Communication, Graphic Era Deemed to be University Dehradun, India

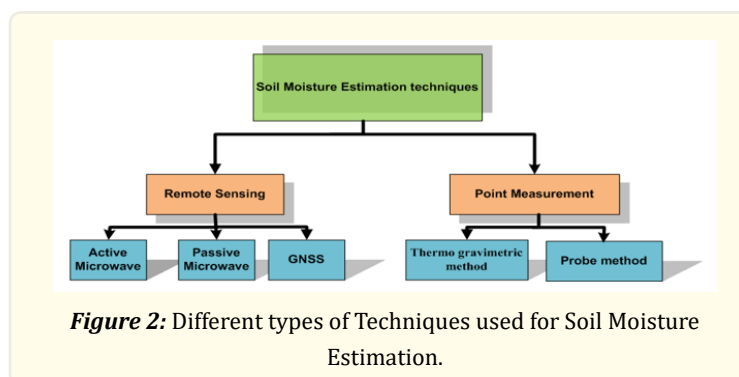
***Corresponding Author:** Vivek Chamoli, Department of Electronics and Communication, Graphic Era Deemed to be University Dehradun, India.

Received: September 20, 2021; **Published:** October 01, 2021

Many natural calamities have affected our country in recent years, such as the draught in Maharashtra and Gujarat, flood in Kerala, cyclone (fani) in Orissa, flash flood in Uttarakhand and several other part of the country. Continues monitoring of soil moisture can predict this situation well in advance to take corrective measure. Reliable, durable, and automated systems for measuring soil moisture content have long been recognized as being highly helpful, if not necessary, in hydrologic, environmental, and agricultural applications. The amount of moisture in the soil determines how well the region's soil supports plants and crops. Plants may rapidly absorb soil water if the moisture content of the soil is optimal for plant growth. Plants do not have access to all of the water trapped in the soil. Even after rain, there's still a thin layer of water on the earth. When salts are dissolved in soil water, they form the soil solution, which is vital as a medium for adding organic matter to crop growth. Fig 1. shows the importance of soil moisture in agriculture.



Many techniques are used for the soil moisture estimation as shown in fig .2.



The investigation of NavIC multipath signal sensitivity toward soil moisture over bare land and agricultural land is our primary motivation for utilizing India's indigenous GNSS technology, i.e., NavIC. Estimation of a target's position was the primary goal of GNSS system development. The previous study has demonstrated that the signal reflected from the soil surface would be used to estimate the moisture content of the soil. Currently we had published some work-related sensitivity of the soil moisture in bare land and vegetated land using NavIC [1-6]. These research results show that NavIC will be useful for research in the field of agriculture.

References

1. Vivek Chamoli., et al. "Sensitivity of NavIC signal for soil moisture variation". Emerging Trends in Computing and Communication Technologies (ICETCCT), International Conference on IEEE (2017): 1-4.
2. Vivek Chamoli., et al. "Analysis of NavIC multipath signal sensitivity for soil moisture in presence of vegetation". Advances in Intelligent Systems and Computing (2021): 353-364.
3. Vivek Chamoli., et al. "Mathematical Regression Model to predict Navigation with Indian Constellation (NavIC) Geo Synchronous Satellite System" 2020 Global Conference on Wireless and Optical Technologies (GCWOT) (2020): 1-5.
4. V Chamoli., et al. "Capability of NavIC, an Indian GNSS Constellation, for Retrieval of Surface Soil Moisture". Progress In Electromagnetics Research 106 (2020): 255-270.
5. S Shekhar., et al. "Development of Soil Moisture Inversion Model for Bare Soil Using Navigation with Indian Constellation (NavIC)". IEEE Geoscience and Remote Sensing Letters (2021).
6. Shekhar., et al. "Sensitivity analysis of Navigation with Indian Constellation (NavIC) derived Multipath Phase towards surface soil moisture over agricultural land". 2020 6th International Conference on Signal Processing and Communication (ICSC) IEEE (2020): 138-142.

Volume 1 Issue 2 October 2021

© All rights are reserved by Vivek Chamoli., et al.