[Analysis of drone assisted network coded cooperation for next generation wireless network](https://ieeexplore.ieee.org/abstract/document/8823061/)

In this paper, use of drone as a relay node in Network Coded Cooperation (NCC) for upcoming wireless networks is proposed to achieve additional diversity as well as improve throughput. Unlike static relay cases, in drone assisted scenarios, better performance can be achieved simply by changing the position of relay. In order to quantify the network performance in drone assisted NCC, analytical closed form expression of outage probability has been calculated using two approaches namely, Analytical and Semi-analytical. Using a generalized system model, Probability Density Function (PDF) of Signal to Noise Ratio (SNR) of the path from source to destination via drone (relay) is derived. Closed form expression for outage probability in absence of direct link is also investigated. By analysing Analog Network Coding (ANC) noise, statistical parameters of variance of ANC-noise have been obtained. Analytical findings have been verified through extensive simulations using MATLAB. Effects of drone height on system performance is also investigated through simulations. Framework presented here can be useful while analysing networks having resource constraint devices. PDF of SNR of relay path can be utilized for performing diversity calculations. Two outage expressions derived may be useful in determining system parameters for achieving any particular Quality of Service (QoS) in next generation wireless networks. Valuable insights obtained through the analysis of optimum height of drone are conducive while deploying the nodes in deterministic fashion for NCC.