



Commercial microwave networks as an opportunistic system for monitoring dense fog

Pinhas Alpert (1), Noam David (1), and Hagit Messer (2)

(1) Tel-Aviv University, Tel-Aviv University, Geophysical, Atmospheric & Planetary Sciences, Tel-Aviv, Israel
(pinhas@post.tau.ac.il, +972 3 640 9282), (2) Tel-Aviv University, Electrical Engineering, Tel-Aviv, Israel

Extreme visibility reductions during fog episodes is a subject of great importance as this phenomenon may lead to schedule delays, acute transportation accidents and loss of lives as a result. However, present monitoring instrumentation often provides only point observations (e.g. visibility meters) or suffers from lack of precision while conducting measurements near the Earth's surface (satellite systems). In addition, these monitoring techniques are costly for maintenance and implementation. On the other hand, it has been recently shown that commercial microwave links, forming the infrastructure for data transmission between base stations in cellular networks, can be potentially utilized to identify fog and estimate its intensity (David et al., 2013). The already existing microwave networks are widely spread across the surface and provide observations from ground level at minimal costs, as the microwave data needed are logged by the cellular providers routinely anyway. The monitoring potential of the proposed methodology will be exemplified based on heavy fog events occurred in Israel during the recent years.