Atmosphere turbulence causes small-scale fluctuations in the refractive index of air. In turn, such variations lead to rapid and difficult to predict changes in the atmospheric propagation delay of radio signals. Thus, it is obvious that atmospheric turbulence can significantly degrade the performance of ground-based microwave instruments in terms of accuracy and precision. Therefore, versatile tools to understand such effects are of high interest for the scientific community. Within this master thesis project the candidate should develop software, which is capable to simulate refractivity fields based on the Kolmogorov turbulence theory. The output from such a simulator should then be used to study signal propagation effects. In addition, stochastic properties of simulated refractivity fields shall be compared to observational data from real measurements.

**Prerequisites**

Programming skills in Python and/or C/C++ are required and knowledge in Linux and shell scripting would be an asset. A strong interest in mathematics or physics is a good prerequisite for a successful completion of this thesis project.

**Interested? Please contact**

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