

Numerical simulations of Optical Turbulence at low and high horizontal resolution in Antarctica with a mesoscale meteorological model

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It has already been demonstrated that a mesoscale meteorological model such as Meso-NH is highly reliable in reproducing 3D maps of optical turbulence. Preliminary measurements above the Antarctic Plateau have so far indicated a pretty good value for the seeing: around 0.3" at Dome C. However some uncertainties remain. That's why our group is focusing on a detailed study of the atmospheric flow and turbulence in the internal Antarctic Plateau. Our intention is to use the Meso-NH model to do predictions of the atmospheric flow and the corresponding optical turbulence in the internal plateau. The use of this model has another huge advantage: we have access to informations inside an entire 3D volume which is not the case with observations only. Two different configurations have been used: a low horizontal resolution (with a mesh-size of 100 km) and a high horizontal resolution with the grid-nesting interactive technique (with a mesh-size of 1 km in the innermost domain centered above the area of interest). We present here the turbulence distribution reconstructed by Meso-NH for 16 nights monitored in winter time 2005, looking at the the seeing and the surface layer thickness.

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