TURBULENCE PROFILING IN MULTI-CONJUGATE ADAPTIVE OPTICS SYSTEMS FOR NON-KOLMOGOROV STATISTICS

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ABSTRACT. The atmospheric turbulence strength at different altitudes can be estimated using the slopes from wavefront sensor of Multi-Conjugate Adaptive Optics (MCAO) systems. Techniques such as SLODAR assume that the turbulence behaves according to a Kolmogorov model. Using data from Gemini South's MCAO system it is shown that significant errors are obtained using this assumption when implemented in very large telescopes. A different approach, based on temporal cross-correlations is proposed showing significant improvements.

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