

**ANALYSIS OF ACCELERATION TECHNIQUES FOR LINEARIZED RADIATIVE
TRANSFER CODES**

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ABSTRACT. Several acceleration techniques for linearized radiative transfer codes are analyzed in this paper. We performed the linearization of the left eigenvector matrix approach and the telescoping technique to investigate their impact on the computational time. For ozone retrieval, the presented methods provide a relative speedup of about 15 % and 40 %, respectively. We presented the optimization of the radiative transfer computations in which the cloud layer is involved. It provides almost a double speed-up of computations. We also compared two techniques of treating a multilayer system: the whole atmosphere approach and the matrix operator method. The numerical simulations showed that the linearized version of the whole atmosphere approach is 3 times faster than the linearized matrix operator method in the case of 40 layer atmosphere.