

# A New Finite Difference Scheme Based on Centroidal Mean Averaging for the Goursat Problem

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## ABSTRACT

*The Goursat partial differential equation arises in the simulation and modeling of several physical problems. Several finite difference schemes have been formulated for the Goursat equation. In this paper we develop a new finite difference scheme based on centroidal mean averaging of functional values and apply the scheme to solve two Goursat problems.*

**Keywords:** *Goursat problem, Finite difference schemes, Centroidal mean*