On fast greedy block Kaczmarz methods for solving large consistent linear systems

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Abstract: The Kaczmarz method is a classical and popular iterative method for solving the system of linear equations, which cyclically projects the estimation onto each of the solution spaces defined by a single equation. In this paper, a fast greedy block Kaczmarz method combined with general greedy strategy and averaging technique is proposed for solving large linear systems. Theoretical analysis of the convergence of the proposed method is given in details. Numerical experiments show that the proposed method is efficient and faster than the existing methods.