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Perturbed proximal point algorithm for generalized nonlinear set-valued mixed quasi-variational inclusions. (English) Zbl 1167.49304

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Summary: The purpose of this paper is to study a class of generalized nonlinear set-valued mixed quasi-variational inclusions which includes the known class of generalized set-valued variational inclusions, introduced and studied by Shang et al., as a special case. Using the technique of resolvent operators, we establish the equivalence between the generalized nonlinear set-valued mixed quasi-variational inclusions and the fixed point problems, where the resolvent operators $J_\rho^{A(\cdot,x)}$ are Lipschitz continuous with constant $1/(1+c\rho)$, and also suggest some perturbed iterative algorithms. Further, we provide the convergence criteria for approximate solutions generated by the algorithms. The algorithms and results presented in this paper improve and generalize the corresponding algorithms and results of Shang et al.

MSC:

49J40 Variational inequalities
47J20 Variational and other types of inequalities involving nonlinear operators (general)

Keywords:

Generalized nonlinear set-valued mixed quasi-variational inclusions; Set-valued mapping