2007 Vol.47 No.3 pp.413-420 DOI:

Numerical Solutions of Fractional Boussinesq Equation

WANG Qi

School of Mathematical Sciences, Fudan University, Shanghai 200433, China
Key Laboratory of Mathematics Mechanization, the Chinese Academy of Sciences, Beijing 100080, China
(Received: 2006-4-12; Revised:)

Abstract: Based upon the Adomian decomposition method, a scheme is developed to obtain numerical solutions of a fractional Boussinesq equation with initial condition, which is introduced by replacing some order time and space derivatives by fractional derivatives. The fractional derivatives are described in the Caputo sense. So the traditional Adomian decomposition method for differential equations of integer order is directly extended to derive explicit and numerical solutions of the fractional differential equations. The solutions of our model equation are calculated in the form of convergent series with easily computable components.

PACS: 03.40.Kf, 03.65.Ge, 05.45.Yv

Key words: fractional Boussinesq equation, Adomian decomposition method

[Full text: PDF]

Close