

Solitary wave solutions of the boussinesq equation and its improved form

ABSTRACT

This paper presents the general case study of previous works on generalized Boussinesq equations, (Abazari, 2011) and (Kilicman and Abazari, 2012), that focuses on the application of G' / G -expansion method with the aid of Maple to construct more general exact solutions for the coupled Boussinesq equations. In this work, the mentioned method is applied to construct more general exact solutions of Boussinesq equation and improved Boussinesq equation, which the French scientist Joseph Valentin Boussinesq (1842-1929) described in the 1870s model equations for the propagation of long waves on the surface of water with small amplitude. Our work is motivated by the fact that the G' / G -expansion method provides not only more general forms of solutions but also periodic, solitary waves and rational solutions. The method appears to be easier and faster by means of a symbolic computation.

Keyword: Boussinesq equations; Expansion methods; Improved boussinesq quation; Model equations; Rational solution; Small amplitude; Soli-tary wave solutions; Symbolic computation.