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Construction of soliton solutions and periodic solutions of the Boussinesq equation by the modified decomposition method. (English) [Zbl 1022.35051](#)
Chaos Solitons Fractals 12, No. 8, 1549-1556 (2001).

Summary: We present a reliable algorithm to study the known model of nonlinear dispersive waves proposed by Boussinesq. The modified algorithm of the Adomian decomposition method is used with an emphasis on the single soliton solution. New exact periodic solutions and polynomial solutions are obtained. The results of numerical examples are presented and only few terms are required to obtain accurate solutions.

MSC:

[35Q35](#) PDEs in connection with fluid mechanics
[76B25](#) Solitary waves for incompressible inviscid fluids
[35Q51](#) Soliton equations
[35B10](#) Periodic solutions to PDEs

Cited in **97** Documents

Keywords:

nonlinear dispersive waves; Adomian decomposition method; exact periodic solutions; polynomial solutions

Full Text: [DOI](#)

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