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James B Collins* (jbcoll12@gmail.com), **Don Estep** and **Simon Tavener**. *A posteriori error estimates for explicit time integration methods.*

In this work we consider a posteriori error analysis of approximations of ordinary differential equations obtained via an explicit finite difference method. Two classes of finite difference methods are considered. An equivalent finite element scheme is derived to allow for this analysis. The error representation formula is separated into various contributions, each corresponding to a different type of approximation used in the method. Numerical results are given to demonstrate the accuracy of the error estimator and an example of adaptivity. (Received September 24, 2012)