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Various kinds of dynamic equations have been used recently in modeling important natural phenomena, including the population or epidemic growth with unpredictable jump sizes, motion control of impulsive robot movements, and prediction of irregular option pricing markets. Since dynamic derivatives are basic building blocks of the dynamic equations, to solve the equations numerically, we will have to approximate the dynamic derivatives for yielding computable discrete systems for computers. This discussion will show one of our recent investigations. A class of feasible approximation methods for first and second order non-crossed dynamic derivatives will be proposed. Applicable local error analysis will be given. Some numerical experiments will be carried out to illustrate our results. (Received September 11, 2009)