

Abstract. P_{eff} is regarded as a generalized force, which is caused by the hydrodynamic effects from the surrounding flow, together with the local flow field. In this paper, the hydrodynamic effects from the surrounding flow, together with the local flow field, are taken into account in the calculation of the effective force. The results show that the effective force is significantly affected by the surrounding flow field, and the effective force is significantly affected by the local flow field.