

Fig.3 Influence of time step

The results show that, there are some differences in shapes of water-entry cavitation because of the different time step. And the movement parameters have some differences, too, but as a whole, the trends of the two time step are the same. In practical application, there is a pair of illogicality with precision and economization, so the suitable time step is chose according to the overall consideration.

3) Turbulence model influence

The RNG k-e and SST k-w model are used to calculate the flow field separately to investigate the influence of the turbulence model on the result. The simulation results are shown in Fig.4.

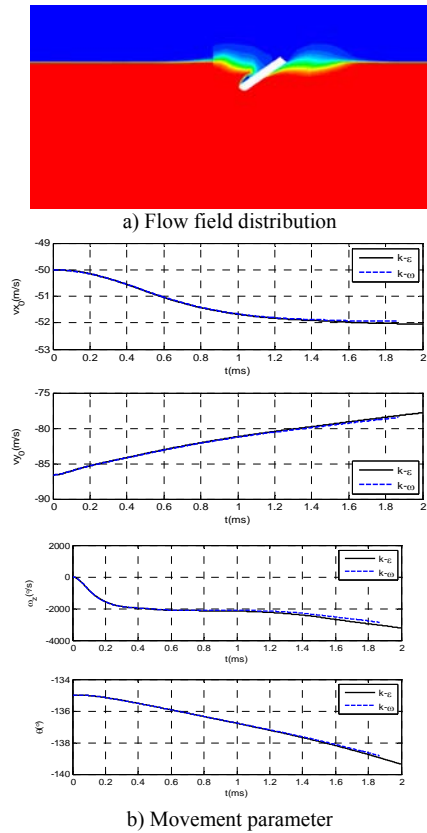
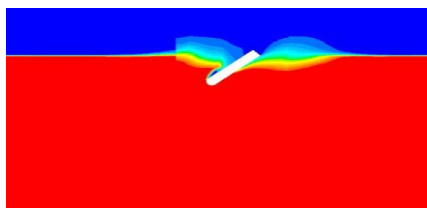


Fig.4 Influence of turbulent model

By contrasting, the results inosculate very well. The simulation result of the two different turbulent model are consistent on the whole, but the k-e model has better calculating speed.

IV. CONCLUSION

In this paper, a calculating model was given to simulate the six-DOF high speed water-entry flow field. By changing the time step and the turbulent model, the influent of the parameters setting were analyzed. Via the figures shown above, it comes to the conclusions: 1) the smaller time step the more exact numerical results are and the higher calculating cost. The choose of the time step should have a overall consideration. 2) The turbulent model have almost no influence on the calculating result, between the RNG k-e and the SST k-w model, but the k-e model has advantage in calculating speed.

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