

Center for Fluid Mechanics Seminar

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The Aerodynamics of Parachute Canopy

Abstract

Even though parachutes have been in routine use for over 50 years, there is relatively little known about the flow field around the canopy. Even G.I. Taylor and Von Karman were interested in parachutes and published in this area. The subject can be divided into two regimes: that during the inflation of the canopy, and the other during terminal descent. Both regimes possess complex fluid dynamic phenomena and a better understanding of the key flow features would help with the modeling efforts.

A series of PIV experiments on small-scale parachute canopy models was conducted in a water tunnel to investigate in detail the flow field in the near wake during the inflation phase as well as the steady descent. The near wake is particularly important since the forces and moments experienced by the canopy are due primarily to the flow dynamics in the near wake. Temporal evolution of the vorticity field in the vicinity of the canopy and the integral measures of the wake will be discussed in this talk. It turns out that the rate of increase of fluid impulse in the wake is responsible for a major portion of the shock force experienced by the canopy during the inflation phase.

**October 29, 2002
Barus & Holley, Room 190
4:00pm**

