



## Three-Dimensional (3-D) Reconstruction of Solar-Wind Structure at the Inner Planets and in the Inner Heliosphere

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### Abstract

We are able to reconstruct the inner heliosphere in three dimensions through the use of a Computer Assisted Tomography (C.A.T.) algorithm which incorporates a kinematic solar-wind model. This C.A.T. technique uses input from multiple lines of sight from either Thomson-scattered white-light brightness recorded by the Solar Mass Ejection Imager (SMEI) in Earth orbit, or from ground-based observations of interplanetary scintillation (IPS), or indeed from both combined. We present an overview of the results of three-dimensional (3-D) reconstructions of the inner heliosphere along with evaluations of velocity and/or density at various “points” in the inner heliosphere (such as the inner planets and deep-space spacecraft). Various large-scale features can be reconstructed, such as interplanetary coronal mass ejections (ICMEs), co-rotating features, and also the ambient fast and slow solar wind streams.