



## SURVIAC Success Story

### Geometric Modeling for HC/MC-130J Vulnerability Analysis

<http://iac.dtic.mil/surviac>

<b>Customer:</b>	United States Air Force - Aeronautical Systems Center - Combat Effectiveness and Vulnerability Analysis Branch (ASC/ENDA).
<b>Challenge:</b>	The Aeronautical Systems Center (ASC/ENDA) needed a geometric computer model of the HC/MC-130J aircraft for a future ballistic vulnerability analysis. Generating the model from scratch would require several man-years of effort to adequately develop.
<b>Approach:</b>	SURVIAC's approach was to first research and evaluate if there was an existing geometric model available. SURVIAC found the C-130H2 geometric model – owned by ASC/ENDA – to be most suitable. Though similar in appearance, the hardware configuration between the C-130H2 and HC/MC-130J aircrafts is different due to age and hardware related to specific mission requirements. These differences had to be addressed in the geometric model. The process of modifying the geometry required removing and adding components to the C-130H2 so that the end product was a correct geometric model of the HC/MC-130J. Since there were limited specifications available, SURVIAC travelled to the assembly facility of the HC/MC-130J aircraft. SURVIAC was able to complete the geometry with Computer-Aided Design (CAD), using data and measurements gathered from components such as the engines and cockpit.
<b>Value:</b>	Throughout the process, SURVIAC engineers designed, developed, and implemented analysis tools /processes to streamline the development of the HC/MC-130J geometry. The tools/processes reduced file sizes, computer hardware requirements, and potential errors that could become evident during ASC's ballistic vulnerability analysis. SURVIAC engineers produced the required aircraft model in less than a man-year – saving the program several man years and completing the analysis ahead of schedule.

SURVIAC is operated by Booz Allen Hamilton under contract SP0700-03-D-1380.