

The FHWA/NHTSA National Crash Analysis Center

On October 1, 1992, the Federal Highway Administration/National Highway Traffic Safety Administration (FHWA/NHTSA) National Crash Analysis Center (NCAC) was established through a three-way contract between the Federal Highway Administration's Office of Safety and Traffic Operations R&D, the National Highway Traffic Safety Administration's Office of Crashworthiness Research, and the School of Engineering and Applied Science at George Washington University (GW).

The center was established with two main goals: first, to conduct research for assisting government researchers and managers in resolving transportation safety issues; and second, to combine the FHWA and NHTSA crash test films and documentation collected over the past two decades into a single national library. The center also provides an environment for visiting scholars to interact with the NCAC research team and to conduct research using the data and facilities available there.

Experts at the center use highway-use data, on-the-road crash data, vehicle crash test data, and models of vehicles and occupants as resources in their research. The center maintains, validates, and applies vehicle and occupant models developed by FHWA and NHTSA. In addition, the center's experts conduct research in the development of new computer simulation models. Experts use finite element and multibody

dynamics programs including HVOSM, GUARD, NARD, INGRID, NIKE3D, and DYNA3D. The ability to combine and employ all available resources is a unique feature of the center.



The NCAC library provides a national resource for crash test reports and films, current computer models used by FHWA and NHTSA, and access to accident data bases such as the Fatal Accident Reporting System, National Accident Sampling System, and General Estimating System. The film library includes the following collections; the FHWA's Roadside Safety Library, NHTSA's New Car Assessment Program (TRD/Docket), the Office of Crashworthiness Research series, and the Compliance Films collections. The library currently has more than 14,000 crash test films. Furthermore, accident study data files from several hospitals including Jackson Memorial's Ryder Trauma Center in Miami, Florida, and Children's National Medical Center in Washington, DC, are maintained by the library.

Visiting Scholars

The Visiting Scholars Program is available to national and international researchers, and provides interaction between the NCAC researchers and the invited scholars. Visitors are provided with a 486-based PC equipped with desktop publishing software, simulation codes, and remote communication capability. This allows access to data bases maintained by the NCAC, and computer mainframes and workstations at the GW Washington, DC, and Virginia campuses. Furthermore, full access is provided to the multimedia equipment and motion analyzers for viewing, editing, and digitizing films and other data forms.

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CRASH ANALYSIS CENTER

Laboratory



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special emphasis on using advanced commercial and special purpose implicit and explicit finite element codes are currently being created.

A comparison of computer models and test data will validate simulation codes and establish further insight into modelling of high impact mechanics and dynamic phenomenon.

Research, investigation, and traffic injury studies and effectiveness analysis on safety improvements are activities at the center.

Research on highway safety issues using crash test films, on-the-road crash statistics, and vehicle crash test data is performed at the center with the purpose of reducing traffic accidents and mitigating accident injuries. Correlating film and statistical data with results obtained through deterministic computer modelling and simulation at the center helps in this effort.

Library Services

In addition to being a national library containing FHWA and NHTSA crash test films and documentation, the library and other associated services provided at the center complete the research environment. Maintenance and improvement of the available vehicle and road-side object models is an ongoing project at the library. Support to researchers and others using these models is also provided.

Validating, archiving, and engineering data services for existing and new programs are available at the library along with assistance to execute these programs.

Assistance is always available at the library to respond to user inquiries on computer programs, crash films, test data base searches, reports, test data, and slides. For information on the FHWA/NHTSA National Crash Analysis Center, located at the George Washington University Campus in Ashburn, Virginia, please call (703) 729-8236.

RESEARCH ACTIVITIES

Researchers at the center are currently working on a number of important projects.

Modelling and computer simulation of vehicles and road-side objects continues as a priority at the center. Impact analysis with



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