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At the Scene of the Crash

More and more, when it comes to investigating vehicle crashes, distance measuring tapes and wheels, hand-drawn sketches, and ink pens are out and computers and lasers are in.

"The days of going out and measuring skidmarks and using calculus to determine speed are over," says Troy Krenning, a program manager at the National Institute of Justice's National Law Enforcement and Corrections Technology Center (NLECTC)–Rocky Mountain in Denver, Colorado. "These data are now captured in the vehicle's black box."

According to William Mael, a transportation safety consultant in Fort Collins, Colorado, the technology for analyzing vehicle crashes had long remained relatively unchanged. However, Mael says, "Starting about 3 to 5 years ago, much of the technology became computer-related or laser-related, requiring a higher level of training and exposure for law enforcement personnel."

"Onboard vehicle data recorders and other high-tech tools promise to make crash scene investigation faster, more efficient, and more cost effective, but many departments lack the expertise to use them," Krenning says. To help bring law enforcement agencies up to speed on current crash scene technologies, NLECTC–Rocky Mountain last year initiated a technology assistance program titled "Crash Scene Technologies," which is available to law enforcement agencies at no cost.

Last year, Krenning says, approximately 120 officers from Colorado, Montana, and Kansas took the week-long course, a mix of classroom presentations and hands-on exercises designed for experienced crash scene investigators dealing with major accidents. NLECTC–Rocky Mountain also is offering technology assistance in specific areas, such as motorcycle crash analysis and advanced reconstruction techniques. The crash scenes technology course is presented by Mael along with Bob Rood, a Colorado State Patrol specialist in major collision investigations. It presents a broad spectrum of technologies, but without promoting specific products. "There are probably 10 different companies that make measuring devices and 30 different companies that make computer-aided drafting (CAD) programs for law enforcement," Mael says. "Police agencies are inundated with these things and don't necessarily know how to choose which they want to use."

The course, Mael says, covers three basic areas:

- Mapping technology, including tools that capture data on the scene, and computer-aided drafting or mapping software that diagrams the scene. "We actually go outside and do a mock scene," says Mael. "Then participants have to create a usable map."
- Black box technology, including a field trip to a salvage yard to extract data from a black box onboard a wrecked vehicle. Depending on the manufacturer, the black box yields such information as how many people were in the car, how fast it was going on impact, and whether or not the seatbelts were buckled.
- Reconstruction management and calculation software that performs the calculations and analysis of field data. Mael says that one of the CAD programs that is demonstrated has the capacity to do the velocity equations as you do diagrams.

In the past, low-tech tools such as measuring tapes and scratch pads led to less-than-accurate results, Krenning notes. Today, a point-and-shoot laser rangefinder about the size of a radar gun can measure distances to within one-tenth of an inch and then download the data into a handheld unit similar to a personal digital assistant. With proper training, a single officer can diagram and chart an entire scene in a fraction of the time it would have taken a team of investigators using manual methods. The techniques also can be applied to other types of crime scenes.

This year, NLECTC–Rocky Mountain is offering the course throughout its 10-State region that includes Colorado, Kansas, Montana, Nebraska, New Mexico, North and South Dakota, Oklahoma, Texas, and Wyoming. In addition, courses geared toward prosecutors are in development.

For more information about "Crash Scenes Technologies," including scheduling, contact Mandy Jones at NLECTC–Rocky Mountain, 800–416–8086, or Mandy.Jones@du.edu.

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