

## Oscar Franzese and Bill Kn  e receive Pyke Johnson Award

CTA researchers **Oscar Franzese** and **Bill Kn  e** received the Pyke Johnson Award for the Best Paper in the Area of Planning and Environment. They received their award for the paper, "Effect of Tires on Class-8 Heavy Truck Fuel Efficiency," at the Thomas B. Deen Distinguished Lecture during the annual Transportation Research Board (TRB) Award Ceremony. This paper presents the results of a year-long project sponsored by the U.S. Department of Energy's Office of Vehicle Technologies. It focuses on the analysis of some of the extensive real-world information collected, specifically on the assessment of the effect that different types of tires (i.e., dual tires vs. new generation wide-based single tires or NGWBST's) have on fuel efficiency of Class-8 trucks.

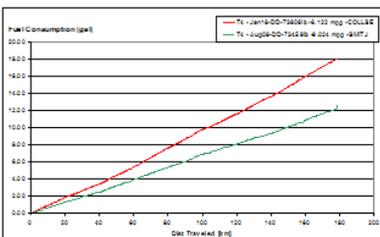
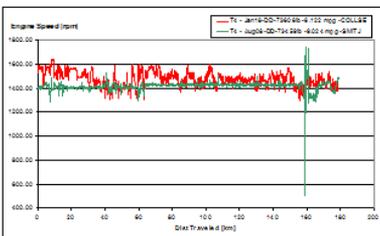


**Robert C. Johns, Chair, TRB Technical Activities Council, Bill Kn  e, CTA Transportation Systems Research Group Leader, Oscar Franzese, CTA Researcher**

Research results show that the fuel efficiency improvement increases as the number of NGWBST's on the truck increases, with observed improvements of around 6% when either the tractor or the trailer was equipped with NGWBST's and more than 9% when both were mounted with these types of tires. Michelin Americas Research Company (Greenville, S.C.) and Schrader Trucking (Jefferson City, Tenn.) participated in the study. CTA researchers **Gary Capps** and **Mary Beth Lascrain** also contributed to the study. The paper will be published in the TRB Transportation Research Record.

### Driver-specific effects can be seen in fuel economy:

*Opportunity to dynamically change behavior with in-cab info*



### Key findings

Tires: up to 10% better fuel economy

Driver impacts on fuel efficiency can be significant

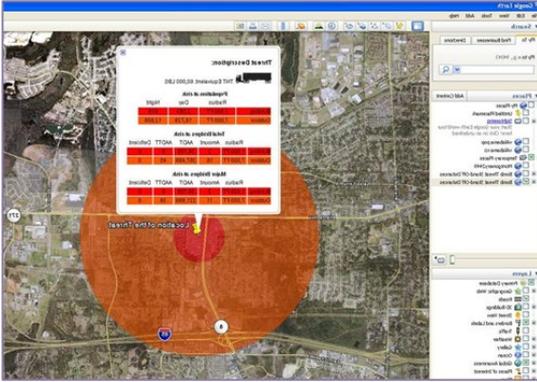
Effects of load and road terrain measured



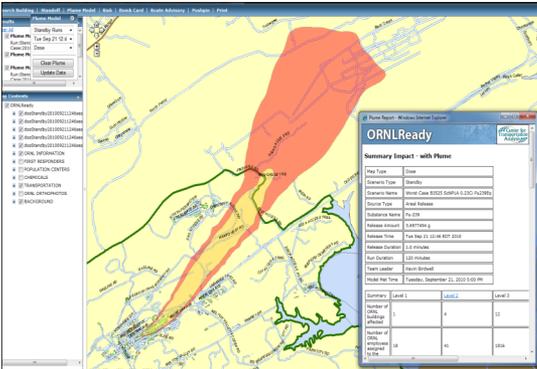
### Looking Ahead...

- ORNL Sustainability Summit (March 31–April 1)
- Cinemassive installs the Transportation Analysis and Visualization Wall at NTRC II (April 11–15)
- Earth Day is April 20—visit our booth and get matched for a carpool or vanpool!
- Bill Arrington, Director of Transportation Security Administration Highway and Motor Carrier Division visits CTA (April 20)
- Move to NTRC II office complex—May
- May is National Transportation Month

## ORNL is ready with **ORNLReady!**



**Bomb Threat Stand-Off Card**



**Summary impact with Plume model**

ORNLReady, a web-based, data-driven interactive computer tool, won a DOE –sponsored award for being the most useful and transferable emergency management training product in 2010. ORNLReady was developed jointly by the CTA research staff and the Facilities & Operations Directorate. It combines state-of-the-art information integration and an intuitive interface that helps the Laboratory Shift Superintendent, the Emergency Operations Center and other ORNL operations be just that: Ready during any type of event that could endanger Oak Ridge Complex facilities, employees or the inhabitants of the five surrounding counties.

ORNLReady uses real-time and stored data to visualize a virtual world. It integrates detailed maps of all ORNL and nearby facilities, employee populations, locations of hazardous materials, weather tracking and more, all in a single portal—everything that is needed to help crisis managers visualize and quantify potential consequences of events and make informed, safety-based decisions. At DOE's 2010 Emergency Management Issues Special Interest Group annual conference, ORNLReady received the TRADEing Post Award as the most useful training product currently available and transferable to other DOE facilities. **Ho-Ling Hwang** is the project manager.

## Project Corner



A number of CTA staff has been involved in the Technical Support for U.S. Marine Corps (USMC) Light Armored Vehicle (LAV) Sustainability Program this last year. LAVs are used by the USMC. The LAV is an eight-wheeled amphibious reconnaissance vehicle used for combat, communications, and logistics operations. This project is doing an evaluation of the maintenance activities on the LAVs to help the USMC move toward Sustainable Vehicle Maintenance. **Ingrid Busch, Glen Harrison, Pete Lloyd** (Measurement Science & Systems Engineering Division), **Mike Schultze**, and Major Ginger Whitehead (U.S. Army) wrote an initial report on the LAV maintenance process supply chain operations. This was followed by a report that reviewed Alternatives for LAV Life Cycle Management Analysis Tools for the LAV written by **Ingrid Busch, Glen Harrison, Mike Hilliard, and Ike Patterson**. The report reviewed a number of software packages used by the Defense Department to estimate the need for spare parts and their placement in the maintenance supply chain based on different operational scenarios. **Mike Schultze** and **Neil Thomas** have also been involved in the development of visualization software tools to help determine the topography over which the LAVs are being driven and associate that with the engine, transmission, and other component operations measured by sensors. **Rick Schmoey** has also been involved in the analysis of the sensor data from the LAV operations.



## Wireless Roadside Inspection Testing Completed



During the week of January 17, **Oscar Franzese, Mary Beth Lascrain, Adam Siekmann, and Gary Capps** collected field data from 12 of the test vehicles participating in the Federal Motor

Carrier Safety Administration's (FMCSA's) Wireless Roadside Inspection (WRI) effort. These vehicles wirelessly pass vehicle, driver, and carrier information to a government-based inspection system as they encountered geo-boundaries established at the Greene and Knox County Commercial Vehicle Inspection Stations.



Since mid-October, these vehicles have passed over 1,200 test messages to the government back-office system based at the Volpe National Transportation Systems Center in Cambridge, Mass. The Tennessee portion of the WRI Pilot Test officially ended on January 31, 2011. The data collected from the Pilot Test will be analyzed by ORNL and the University of Tennessee to feed the FMCSA decision making process concerning the execution of a WRI Field Operational Test. The initial results are very promising for the WRI concept.



## Public Release of 2009 National Household Travel Survey (NHTS) Data

During the last six months, CTA has assisted the Federal Highway Administration (FHWA) in enhancing the quality of the 2009 NHTS data; and in developing the NHTS Web site (<http://nhts.ornl.gov/index.shtml>), the associated documents, and the on-line analysis tools. The Department of Transportation (DOT) announced the public release of this dataset in late-November 2010. This is the authoritative source of national data on the travel and driving behavior of the American public. **Frank Southworth** and **Rick Goeltz** are the NHTS leads.

## NHTS is listed as one of the 70 Online Databases that Define Our Planet

The Physics arXiv Blog on MIT's Technology Review Web site (<http://www.technologyreview.com/blog/arxiv/26097/>) recently listed the NHTS database as one of "The 70 Online Databases that Define Our Planet" in the category of Logistics Data.



## New equipment for the CMVRTC

**Gary Capps** participated in an operational training session for the Vehicle Inspection Systems' portable performance-based brake tester (PBBT). This two-day course covered site selection, setup, and operation of the PBBT. This machine was recently purchased by the Tennessee Highway Patrol (THP) and will be used to gather research data on vehicle brake performance within the Commercial Motor Vehicle Roadside Technology Corridor (CMVRTC).

## Dynamometer Testing Update

The Dynamometers Testing on US Postal Service (USPS) Electric Vehicle Conversion continued through the month of January. All five Vehicles have been received; the first two vehicles completed testing in December and were shipped to USPS for Deployment. A third vehicle has completed tested this month and is ready to ship. The final two vehicles will complete testing early in February. **P.T. Jones** is the PI for this effort.



## Staff Superlatives

**Diane Davidson** was appointed to serve a second term on the Transit Rail Advisory Committee for Safety (TRACS) that assists the Federal Transit Administration (FTA) with developing national safety standards for rail transit. Diane serves as the chair for the TRACS Working Group 2.



**David Greene** received a Certificate of Appreciation from the Transportation Research Board in recognition of for his cosponsoring and presiding over Session 544, Climate Change and Energy Security-Role of Biofuels.

**Stacy Davis** received a Certificate of Appreciation from the Transportation Research Board in recognition for her continuing excellent work on the TRB Transportation Energy Committee website. **Susan Diegel** assists with website programming. The effort is supported by Stacy's Department of Energy sponsor, Phil Patterson.

**Bruce Peterson** was appointed as a member of the Steering Committee for the Transportation for the Nation (TFTN) Strategic Planning Effort.

**Rick Goeltz** was appointed to the SHRP2 Reliability Expert Task Group.

OAK RIDGE NATIONAL LABORATORY

Center for Transportation Analysis



CTA News is produced by the Center for Transportation Analysis and posted on the CTA website (<http://cta.ornl.gov/cta/>). Editors are Diane Davidson (946-1475) and Lori Frye (946-1349). E-mail your announcements, news, and suggestions to [fyela@ornl.gov](mailto:fyela@ornl.gov).



**Frank Southworth** has been nominated to the TRB NCHRP Long Distance and Rural Travel Transferable Parameters for Statewide Travel Forecasting Models (Project o8-84 B-20) Panel.

**Diane Davidson** was recently appointed to a 3— year term on the TRB Committee on Local and Regional Rail Freight Transport, AR040.

**Jing Dong** was appointed as Young Member on TRB Committee on Traffic Flow Theory and Characteristics, AHB45 .

## R&D Focus Areas

- Visualization & analysis of diverse data sets
- Tool development for data management of transportation systems
- Military logistics planning
- Policy impact analysis
- Decision support for homeland security
- Simulation and data-intensive analysis tools
- Integrated enterprise modeling
- Traffic engineering
- Technology integration
- Testing and evaluation of engineering systems