

THE Interface

NEWSLETTER OF THE
HUMAN FACTORS &
ERGONOMICS SOCIETY
SOUTH JERSEY
CHAPTER

OCTOBER 2010

President's Column, Cell Phones and Driving, Wind Farm Visit, Science Fair Talk, Whale Watching

President's Column

By Mike McAnulty

Photos by: Kate McDevitt



Earl Stein: The Man, The Myth, The Legend

Transitions

One of the founding members (1992) of the South Jersey Chapter and its president in 1994, Earl Stein, retired June 1st after 11 years as the manager of the Human Factors Team and 29 years total service with the Federal Aviation Administration. Earl also worked for the Army Research Institute for 4 years and served on active duty in the US Army for 6 years. Earl was known for his contributions to the measurement of air traffic controller performance and workload (e.g., air traffic workload input technique, over-the-shoulder rating forms) and work on controller memory aids. Earl

was also known for his somewhat acerbic wit. I remember a presentation he gave to the chapter at a dinner meeting in the mid 90s (the chapter originally held dinner meetings a few times a year with only limited attendance, so we transitioned to lunchtime meetings during my first term as president in 1997) about his Army experiences, and it was hilarious. He talked about being stationed in Georgia and having difficulty understanding the locals (I suspect they also had difficulty with his New England accent), about flying by helicopter to remote locations in Alaska in the winter to do surveys about food quality, and being "ordered" to find desired correlations in another study.

Retirement was a difficult transition for Earl, despite the fun and well attended farewell party we threw for him. After so many years of working, he was reluctant to move on, but family matters decided the issue. He emails me regularly and wishes to send his hellos to everyone he knew here. He will begin teaching again this September, and that will likely help make retirement a little easier.

On a happier note, chapter member and former president, Kenneth Allendoerfer, recently graduated from Drexel University with a PhD in Information Science and Technology. Kenneth has worked very hard for 8 years on a part time basis (in addition to his regular job) to achieve this milestone. So our heartiest congratulations to him. Kenneth presented his dissertation to the chapter earlier this year. One of Earl's long-stated criteria

for retirement was that Kenneth had to graduate first.

Finally, I guess I must be transitioning into the senior Human Factors cohort. One of my doctoral classmates, Ed Salas, and our former colleague here at the lab, Mica Endsley, are competing for the HFES presidency along with Joel Warm of the US Air Force Research Lab. Ed's early career was as a research psychologist with the US Navy but has since transitioned to become a professor at the University of Central Florida. Our chapter program chair, Jen Ross, knew Ed when she was a student there. Amazing all the connections within a relatively small discipline. Among his other contributions to the Society, Ed served as the Editor of the Human Factors journal. Mica is the founder and president of SA Technologies and is well known for her work in situation awareness. I also note that one of chapter member Sehchang Hah's Ohio State classmates, Sheryl Chappell, is a candidate for the Executive Council.



Talks: Jersey Shore Science Fair Winner

By Michael Cluff

Photo by: Kate McDevitt



Angela Zhou speaks to the HFESSJ

As reported in the last Newsletter, members of our chapter served as judges for Behavioral and Social Science entries in the annual Jersey Shore Science Fair at Stockton College. The winner of the 9th-10th grade division, Angela Zhou of High Technology High School, gave her winning presentation at our August meeting.

Her talk, entitled Effect of Social Networking Conducted by Incoming Freshmen Students on Acclimation to a New School described her research designed to determine if new students' efforts to socialize improved their level of adaptation to their new environment.

She defined acclimation as having three factors level of stress, reported level of comfort, and degree of positive feeling toward the school. Though her results were inconclusive, her approach to researching her topic impressed judges.

Also speaking at the meeting was Dr. Atul Deshmukh, reporting on his study, *User-Centric Evaluation of Voice over Internet Protocol (VoIP) Codecs for Use in Air Traffic Control Communications*.



In the study, the researchers wanted to determine whether five different internet-based voice coders would provide acceptable levels of intelligibility and acceptability to Air Traffic Control users. Intelligibility tests such as the Modified Rhyme Test and the Message Completion Task three codecs may be suitable for ATC use.

Talk: Cell Phones and Driving

By Michael Cluff



Countless studies have shown how terrible humans are at assessing their own cognitive capabilities. Though Human Factors experts are familiar with information-processing limitations, are we overlooking them when we use our cell phones while driving? Given the lively discussion prompted by Dr. Jeff Dressel's talk in April on his thesis and dissertation work on this topic, we are pretty sensitive to the issue.

Jeff described research on this timely topic aimed to explain why drivers who

converse on mobile phones are at greater risk of an accident. His research suggests that the cognitive processes used in conversation lead to a reduction of a driver's Useful, or Functional, Field of View, which in turn increases risk of accident. The nature of the content of a conversation also affects this Field of View; especially conversations involving negative emotional words.

Treasury Report for September 2010

By Atul Deshmukh, Treasurer

Checking and Savings: \$624.65
Petty Cash: \$56.00

Security Lab Tour

By Jennifer Ross



On June 15, 2010, 16 members of our chapter attended a tour of the Transportation Security Laboratory (TSL) at the William J. Hughes Technical Center. Drs. Bill Maguire and Joshua Rubinstein briefed attendees on recent R&D work TSL has completed as well as some projects the lab are currently investigating. TSL's mission is that of researching, developing, and validating solutions to detect and mitigate the threat of explosives and weapons. Their unique R&D facility is integral in the development of next generation security and evaluating current systems and prototypes.

May Social Outing: Whale-Watching

By Kate McDevitt

Photo by: Kate McDevitt



It was a warm and beautiful sunny day when we set out in the Cape May Whaling ship from none other than Cape May, in hopes of spotting a whale. We had a great turnout with thirty-six people on board. Each of us received a clever hand out with items of interest and useful for the trip thanks to our program chair and hostess, Jennifer Ross.

The scenery was amazing with the ships and sails surrounding the harbor. We had an opportunity to view some baby ospreys in two of the passing nests. The children were delighted and giggled at the site. We headed out for deeper water and found a beautiful view of the coastline with the Cape May lighthouse and huge red roof convent of the St. Joseph order. The shore line was full of bathers and jet skis raced by but no sign of whales yet so our Captain took us further out into the deep blue ocean.

And then to our surprise we spotted a few dolphins and then several more and finally hundreds of the friendly grey mammals surrounded the boat. We learned many things including that dolphins were related to the whale. Dolphins sleep with one eye open and close to the surface. For every one dolphin you see on the surface of the water there is usually a pod of five or more under the sea. Dolphins are very smart and are friendly to humans.

We were out in the water for over a

three-hour tour and our fate was known. We returned to the dock and several of us ended our day with dinner at the Lobster House on the bay.

Here are some other facts about dolphins from internet sites:

How long do dolphins live?

The maximum age for bottlenose dolphins is between 40 and 50 years. The average age a dolphin can get (the life expectancy) can be calculated from the ASR Annual Survival Rate (the percentage of animals alive at a certain point that is still alive one year later). For the dolphin population in Sarasota Bay, the ASR has been measured to be about 0.961. This yields a life expectancy of about 25 years. For the population in the Indian/Banana River area, the ASR is between 0.908 and 0.931. This yields a life expectancy between 10.3 and 14 years. So the actual life expectancy differs per region.

How much do dolphins eat? Bottlenose dolphins eat several kinds of fish (including mullet, mackerel, herring, cod) and squid. The composition of the diet depends very much on what is available in the area they live in and also on the season. The amount of fish they eat depends on the fish species they are feeding on: mackerel and herring have a very high fat content and consequently have a high caloric value, whereas squid has a very low caloric value, so to get the same energy intake (calories) they will need to eat much more if they feed on squid than if they feed on mackerel or herring. On average an adult dolphin will eat 4-9% of its body weight in fish, so a 250 kg (550 lb) dolphin will eat 10-22.5 kg (22-50 lb) fish per day.

Do dolphins drink salt water?

Most dolphins live in the ocean and the ocean water is too salty for them to drink! If they would drink sea water, they would actually use more water trying to get rid of the salt than they drank in the first place. Most of their water comes from their food (fish and squid). Also, when they metabolize (burn) their fat, water is released in the process. Their kidneys are also adapted to retain as much water as possible. Although they live in water, they live as desert

animals with no direct source of drinkable water.

How deep can a dolphin dive?

The deepest dive ever recorded for a bottlenose dolphin was a 300 meters (990 feet). This was accomplished by Tuffy, a dolphin trained by the US Navy. Most likely dolphins do not dive very deep, though. Many bottlenose dolphins live in fairly shallow water. In the Sarasota Bay area, the dolphins spend a considerable time in waters that are less than 2 meters (7 feet) deep. Other whale and dolphin species are able to dive to much greater depths even. The pilot whale (*Globicephala melaena*) can dive to at least 600 meters (2000 feet) and a sperm whale (*Physeter macrocephalus*) has been found entangled in a cable at more than 900 meters (500 fathoms) depth. Recent studies on the behavior of belugas (*Delphinapterus leucas*) has revealed that they regularly dive to depths of 800 meters. The deepest dive recorded of a beluga was to 1250 meters.

Why do mass strandings occur?

If a single whale or dolphin strands, it usually is a very sick (and exhausted) animal. Such an animal often has some infections (pneumonia is almost always one of them) and a lot of parasites (worms in the nasal passages are very common). Sometimes these animals can be rehabilitated, but often they are so sick they won't make it.

Some species of whales and dolphins occasionally strand in groups. A stranding of 2 or more animals is usually called a mass stranding. There are a number of theories that try to explain the occurrence of mass strandings. No theory can adequately explain all of them. In some cases it will be a combination of causes.

The most common explanations are

- deep water animals (the species that most often are the victim of mass strandings) cannot "see" a sloping sandy beach properly with their sonar. They detect the beach only when they are almost stranded already, and they will panic and run aground.
- whales and dolphins may be navigating by the earth's magnetic field. When the magnetic field is dis-

turbed (this occurs at certain locations) the animals get lost and may run into a beach.

- in some highly social species, the group leader may be sick and wash ashore. The other members try to stay close and may strand with the group leader when under severe stress or in panic, the animals may fall back to the behavior of their early ancestors and run to shore to find safety.

Dolphin reproduction:

Mature female dolphins will give birth every 2 to 3 years and could give birth as many as eight times during their lifetimes. They can give birth at any time of year but most commonly calve in the spring and summer. Females mature sexually at 8 years and dolphins are sexually promiscuous with males competing for females.

How big are dolphins?

Dolphin calves, usually born in the spring, are 2.5- to 3-feet long and 25- to 40-pounds. Feeding on its mother's milk, a calf will double in size in the first few weeks. Adult males are larger than females. The Mid-Atlantic dolphins will reach 7 to 10 feet in length and 300 to 500 pounds by their early teens.

References:

- [DolphinEar](#)
- [Beach-Net.com](#)

Highlights of Recent SJHFES Meetings

By Sonia Alvidrez, Secretary

September was a big month for HFES and our local chapter. At the annual meeting in San Francisco, members from our chapter presented four papers and were on two panels and one symposium. Congratulations to our all of our presenters!!!

Our chapter will be supporting World Usability Day in November. Members will serve as judges and a gift certificate will be given to the winning team.

Fall Outing: Wind Farm Tour

By Jennifer Ross

Coming soon! Our chapter will be attending a free tour of the Atlantic County Utilities Authority's (ACUA) Wastewater Treatment, Wind Farm, Solar Project Facility on October 26th at 11:45 am. The wastewater, wind, solar tour takes approximately 1 hour. Please RSVP ([at this linked address](#) or contact Jennifer Ross at 609-485-6814) to let us know if you can attend. (Food will not be provided.)

The Wastewater Treatment Facility has become world-renowned as the largest hybrid wind and solar powered treatment facility. It is home to the nation's first coastal and urban setting wind farm and New Jersey's first commercial wind farm. Also located on site is a 500-kilowatt solar generation facility.

The treatment facility was vital in reclaiming the area's back bays. At one time fishing, shellfishing, and swimming were off limits in Atlantic County's back bays. Thanks to the treatment facility, all of these activities are once again part of the region's economic backbone.

The ACUA Wastewater Treatment Facility operates 24 hours a day, every day, to meet clean water standards and ensure the purity of the County's marine and fresh water environments. Visitors will learn the crucial role the ACUA Wastewater Treatment Facility plays in this process and the need to protect vital natural resources.

The tour of the facility will include:

- Wastewater video presentation;
- Description of the facility;
- Laboratory tour and demonstration;
- Wind and solar energy presentation and outdoor tour

Talk: Unmanned Aircraft Systems

By Michael Cluff



Karen Buondonno spoke to our chapter in July on her agency and inter-agency operational concept validation projects supporting the safe, secure, and efficient integration of Unmanned Aircraft Systems (UAS) into the National Airspace System. She also discussed her representation of the agency on a FAA / EUROCONTROL Action Plan to foster international working relationships, explore valuable research opportunities, share technical experience, and cooperate on a framework for UAS developmental work, with the ultimate goal of ensuring global interoperability and harmonization.

