



THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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Volume 43 - No. 10

October 2000

IEEE MTT/AP/ED October Meeting

"SeaWinds Scatterometer Geophysical Measurements - Ocean Surface Winds, Rain Rate and Sea Ice"

WHEN: Tuesday, October 10th, 6:00PM

SPEAKER: Professor W. Linwood Jones, Central Florida Remote Sensing Center
University of Central Florida

ABSTRACT: The SeaWinds scatterometer on the QuikSCAT Mission has been successfully operating on-orbit for over 15 months. The instrument is a conical scanning microwave imager that obtains simultaneous active and passive measurements from the Earth's surface. SeaWinds is being used to provide valuable operational and scientific data for weather forecasting and global climate change research. This paper presents an overview of the SeaWinds hardware, the satellite sensor measurement geometry and the geophysical parameter retrieval algorithms. Results of SeaWinds geophysical measurements are presented for ocean surface wind vector, rain rate over oceans, and sea ice extent classification. Comparisons of SeaWinds geophysical measurements with independent "surface truth" demonstrate the accuracy of this microwave remote sensor.

BIOGRAPHY: Dr. W. Linwood Jones is a Professor with the School of Electrical Engineering and Computing at the University of Central Florida in Orlando. At UCF, he teaches undergraduate and graduate courses in communications, satellite remote sensing and radar systems. Also he is the Director of the Central Florida remote sensing Laboratory where he performs research using satellite microwave remote sensors for Global Climate Change Research. Presently, he is a member of the science teams for the Jet Propulsion Laboratory's SeaWinds Scatterometer Program and the NASA Goddard Space Flight Center's Tropical Rainfall Measuring Mission.

LOCATION: Raytheon Systems Company St. Petersburg, 1501 72nd Street North, St. Petersburg.
Gill Robb Wilson Conference Room

PLEASE RSVP: Leave name & country of citizenship with Greg Bonaguide at (727) 302-3367. e-mail: g.bonaguide@ieee.org Bring a guest; non-members welcome!

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Chair's Comment

by Al Rosenheck

By now you should have received your IEEE year 2000 annual election and IEEE-USA election package. I hope you are diligently studying the candidates' biographies, activities, statements, and rebuttals contained in the election package. Please take the time to study the package and vote for the candidates of whom you approve or whom you find acceptable in each category indicated on your form. Your vote is important to the IEEE membership as and the candidates. To be counted your signed ballot must be received by noon, November 1, 2000 and properly signed.

As an added incentive to increase voter participation, a drawing will take place in November when ten winners, one from each of the ten Regions, will be selected to win a Palm Pilot hand held computer. Remember, to validate the ballot it must be signed in the appropriate box and received by the election vendor by the deadline date.

Nominations for 2001 Officers

by John Twitchell

The Florida West Coast Section solicits nominations for the following positions for the calendar year 2001: Section Chair, Vice Chair, Secretary and Treasurer. If you are interested in serving your Section, or would like to encourage another IEEE member to serve, please contact John Twitchell during the month of October. The pay is low, but the satisfaction you will receive from furthering the goals of IEEE in our Tampa Bay area is priceless!

Students' Corner

by Daniel Faria

Our first meeting was successfully held on Monday, September 11th. Total of 34 people attended this meeting. A USF alumni working at Motorola came and spoke about the opportunities for new engineers at his company. From this meeting, we welcomed 14 new student members.

The preparations for next year's EXPO have already begun. We will have a humorous skit about the History of Communications from the cave man days till today. EXPO will be held in February 23-24, 2001. To participate in this year's EXPO, please contact our EXPO Chair, Ms. Mariana Raimondo.

Thanks for the support.

Daniel Faria
IEEE President
USF Student Branch



Second MTT/AP/ED October Meeting

"Health Effects of Radio and Microwaves?"

WHEN: Thursday, October 26th, 6:00PM

SPEAKER: Dr. Frank S Barnes, University of Colorado Boulder

ABSTRACT: The rapid proliferation of cell phones and allegations that their use could lead to an increased risk of cancer and interfere with brain functions has led to public concerns both about cell phone use and the siting of base stations. In this talk we will begin by considering some of the problems in setting safety standards. Next we will review the coupling of radio frequency power from cell phones and base stations in to the body in order to estimate the power levels that are likely to occur. This will be followed by a description of some of the mechanisms of interactions between RF and microwaves with biological materials and observations of biological effects that have been observed. We will finish by talking about some of the problems of relative risk and experiments to be done in the future.

BIOGRAPHY: Dr. Frank S. Barnes (F '70) received his BSEE at Princeton in 1954 and his Ph.D. in Electrical Engineering in 1958 from Stanford University in Palo Alto, California. He joined the University of Colorado in 1959, where he is currently a Professor of Electrical and Computer Engineering. Dr. Barnes is a Fellow, respectively, of the IEEE (1970), the American Association of the Advancement for Science (1977), and the International Engineering Consortium. His research interests include the applications of electron devices, microwaves, and low frequency electrical and magnetic fields and ultrasound to biological systems. He has served as Distinguished Lecturer for the IEEE Electron Device Society from 1994 to 1997. Professor Barnes is a member of the Board of Directors of the Bioelectromagnetics Society (BMS), and has also served as V.P. for IEEE Publications.

LOCATION: Raytheon Systems Company St. Petersburg, 1501 72nd Street North, St. Petersburg.
Gill Robb Wilson Conference Room

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High Performance Globe Valves, Improving Control Loop Response - Joint with ISA

DATE/TIME: Monday, October 16, 2000
5:45 to 6:45PM Social Hour
7:00 to 8:00PM Program

PRESENTATION: Rick Spreter
Power Industry Manager Leslie Controls, Inc.;
Tampa, FL

LOCATION: Sheraton Inn Four Points Hotel
Tampa East, 7401 E. Hillsborough Ave., Tampa
(813) 626-0999 (Off I4 exit at Orient Road)

WHO: Anyone with an interest in instrumentation measurement and control. Non-members are very welcome also.

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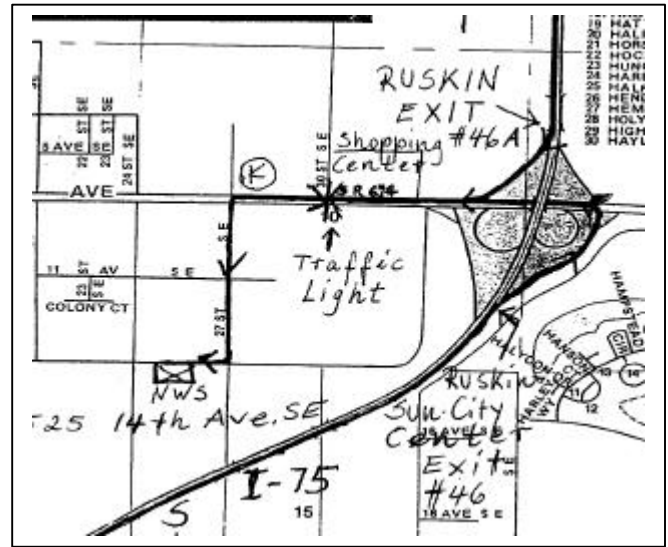
Life Member Meeting Notice

The next Life Member meeting will be a tour of the **National Weather Service facilities at Ruskin, Florida**, at **10:30 a.m., Thursday, 2000 November 02**. The tour will include technical information on the NEXRAD doppler weather radar. Space is limited to 20.

After the tour, we will gather at Buddy Freddy's Country Buffet in the Shopping Center at the I-75 interchange for an informal lunch.

We have a space reserved for our group. Cost will be \$5 to \$8, paid individually to the restaurant.

Make your tour reservations by E-mailing Bob Ashley at j.ashley@ieee.org or phoning 813-961-7617 and leaving a message including a phone number. (Bad weather could cause rescheduling this tour.)



PE/IA Chapter Meeting - High Nines Electric Power

- DATE/TIME:** Tuesday, October 24, 2000, 11:30am (Lunch will be provided)
- LOCATION:** Tampa Electric Company - TECO Hall, 702 N. Franklin St. (Downtown Tampa)
- RESERVATIONS REQUIRED:** Contact Paul Leal at 813-630-6334 (Bring a guest; non-members welcome!)
Email: PGLEAL@TECOENERGY.COM
- SPEAKER:** Bill Cratty, Executive Vice-President & Chief Technology Officer, Sure Power Corporation
- LUNCH COST:** \$10 Members, \$5 IEEE Students, \$15 Non-Members

Everybody is talking about it - the Energy Secretary, Wall Street, the Digital Power Report – today’s electricity transmission and distribution system is “third world” compared to the digital age electricity needs. Can the power industry do anything to day to meet the Digital Age need for six “9s” electricity? What is six “9s” anyhow? Who needs it and why? Is this all Wall Street talk to hype stocks of little companies that no one knows that will burn out as another good idea but no application?

Find out the answers to these and other 21st century issues affecting the intersection of the electric power system and the Digital Age. After all, electrons are a computer’s raw materials.

Sure Power designs, manufactures, installs and maintains six nines high availability power systems for web hosting centers, financial institutions and other business computer users who must operate computers 24x7x365. Bill is the creator of the 800 kW Sure Power System that since May 1, 1999 has been the primary electricity source for the seventh largest credit card processor, the First National Bank of Omaha. Mtechnology, Inc., probabilistic risk consultants, calculated the installation at seven nines and a five.

The Sure Power System uses the IFC/ONSI 200 kW PC25 phosphoric acid fuel cell power plant as its generating source. The Company applies proprietary technology (four patents pending) to join the PC25 and Piller rotary motor generators and flywheels to create installations from 200 kW to 50+ MW. Bill will explain the technology, the markets and the economics.

Sure Power Corporation began business in February 1998. The company recently completed a \$13.8 million private equity placement. Bill is a co-founder of the company. Bill is a US Merchant Marine Academy engineering graduate. Bill moved up through Exxon’s management ranks for fourteen years. Bill left Exxon to start a demand side management company. Bill sold the company to a Northeastern utility in 1995 and began the research that led to Sure Power.



LCN 2000

The 25th Annual IEEE Conference on Local Computer Networks (LCN)



Tampa, Florida
November 8-10, 2000

Conference Web site:
<http://www.ieeelcn.org>

The IEEE LCN conference is the premier conference on leading edge and practical computer networking. LCN 2000 will have three tutorials, two keynote addresses, three panels, and 105 papers (72 full and 33 short) in six sessions and four tracks. The preliminary program in abbreviated form is shown below. The full program is available at <http://www.ieeelcn.org>.

Wednesday 11/8				
9:00 - 5:00	Tutorial #1: Security Topics and Techniques (Gary Kessler, Champlain College)			
9:00 - 12:30	Tutorial #2: Virtual Private Networks (Dr. Tim Strayer, BBN, and Dr. Ruxi Yuan, GTE Internetworking)			
12:30 - 1:30	Lunch for tutorial participants			
1:30 - 5:00	Tutorial #3: Managing Internet Quality of Service (Dr. Sanjay Jha, University of New South Wales)			
Thursday 11/9				
8:30 - 9:00	Welcome			
9:00 - 10:00	Keynote #1: IPsec: How and Why (Dr. Stephen Kent, BBN)			
10:00 - 10:30	Best paper presentation - Anonymization Services for IP Multicast (Christian Grosch, University of Hagen)			
11:00 - 12:00	Panel #1: Security (chair: Gary Kessler)			
12:00 - 1:20	Lunch (sponsored by the University of South Florida, College of Engineering)			
1:20 - 2:20	Panel #2: Home access methods			
2:40 - 4:00	Session #1 (tracks A, B, C, and D)			
1	Wireless LANS	Differentiated services 1	Network security 1	Reliability
4:30 - 5:50	Session #2 (tracks A, B, C, and D)			
	Wireless LANS	Differentiated services 2	Network security 2	Resource control
7:00	Dinner			
Friday 11/10				
8:30 - 9:30	Keynote #2: The Care and Feeding of Network Interfaces (Denton Gentry, Sun Microsystems)			
9:40 - 10:40	Panel #3: Multicast			
11:10 - 12:30	Session #3 (tracks A, B, C, and D)			
	Wireless LANs	Differentiated services 3	Network security 3	Reliability
12:30 - 1:50	Lunch			
1:50 - 3:10	Session #4 (tracks A, B, C, and D)			
	Wireless LANs	Differentiated services 4	Network security 4	Reliability
3:40 - 4:40	Session #5 (tracks A, B, C, and D)			
	Wireless LANs	Differentiated services 5	Network security 5	Reliability
4:50 - 5:50	Session #6 (tracks A, B, C, and D)			
	Wireless LANs	Differentiated services 6	Network security 6	Reliability
			Routing	
		Load balancing	Traffic characterization	High-speed switching

This is LCN's first year in the Tampa Bay area, and we hope to keep LCN here for many years. Come join us for an exciting conference. Take advantage of this "no travel" opportunity to attend a major IEEE conference in 2000 and then plan to submit a paper for LCN 2001. If you have any questions on the conference, please contact Ken Christensen (at 813 974-4761 or christen@csee.usf.edu). See the conference web site at <http://www.ieeelcn.org>.

Conference Pre-registration: The conference fees include a copy of the proceedings, four breaks, two luncheons, and the Thursday evening dinner. The pre-registration deadline is **October 31, 2000**.

	IEEE member	Non-member	Student	
Conference	\$495	\$610	\$300	Online registration and full information is available at http://www.ieeelcn.org . Contact Ken Christensen at christen@csee.usf.edu for additional information.
Tutorial #1	\$645	\$745	\$645	
Tutorial #2	\$350	\$500	\$350	
Tutorial #3	\$350	\$500	\$350	

Hotel Pre-registration: Hotel registration is through the USF Embassy Suites (rooms are \$114 US per night). See <http://www.ieeelcn.org> or call the hotel at 1 813-977-7066. **The hotel pre-registration deadline is October 15, 2000.**

Conference Supporters:



Brain Teaser Challenge Column

by Butch Shadwell

September BTC Solution

The answer to last month's BTC is as plain as the sunglasses on your face. Darby's shoeshine tester was depending on the fact that when light is reflected from a smooth horizontal surface, it tends to be horizontally polarized along a plane that includes the reflected ray. The simplest way to observe this phenomenon firsthand is with a pair of polarized sunglasses. These glasses are designed to transmit vertically polarized light and to restrict horizontally polarized light. If you look at the hood of a shiny car and tilt your head in either direction about 90 degrees, you will see the glare get much brighter. Voila!

October BTC

Long before CBS decided to put a survivor TV show together, human beings have been surviving all sorts of challenges. The biggest difference is that in life there are no immunity challenges. Everyone has to live everyday with the possibility that a turn of fate could suddenly make life very hard, or even bring it to an end. A case in point is the story of Melvin Gish. Melvin grew up in a small mid-western community. You know the sort of place, where your newspaper is delivered by a kid on a bicycle, and every 4th of July the entire town shows up for the fireworks display. From this stable beginning, Melvin entered manhood believing that he had life pretty well figured out. He knew he would work at the fertilizer plant until he retired, that he would marry Helen Jones, his childhood sweetheart, and that he would eventually have 2.5 children including Melvin, Jr. All seemed in order until that fateful day when "it" arrived in the afternoon mail. That strange object, that on the face of it may not have seemed all that menacing. But, as time would disclose, it would become an evil talisman to erase all that Melvin had grown to believe his life should be. Yes the harbinger of evil I am speaking of, was an odd sized envelope with the face of a smiling man and the words "You may have already won \$10,000,000" emblazoned across the top.

It started innocently enough, as Melvin so deftly tore off the end of the envelope without damaging the contents. A skill his Uncle Fester had passed on as part of his family legacy. But as Melvin read the contents and was impressed by the great care that Publisher's Clearinghouse had used in preparing his notice, and the involved forms and many peculiar adhesive components he had to apply, he was convinced that he must be the winner. Surely P.C. would not force everyone through such machinations over a simple magazine advertisement. Why the cost of all that colored-paper alone would be prohibitive, he thought to himself. As Melvin stood there in his living room, with his election of payment form and all those stickers and notices and release forms and colorful magazine ads scattered around him, he suddenly realized that he had been transformed. Unfortunately, he chose to celebrate his evolution with alcoholic beverages down at Lulu's Bar and Feed Store, and as he was leaving he tripped on the top step and fell hit his head on a rock and died. A sad story to be sure but of course Melvin was an idiot, and the gene pool is better off without him.

Before he died Melvin had designed a free running pneumatic oscillator for the fertilizer plant to control ash injection. The question for this month is what pneumatic components correspond to the resistor and capacitor in an electronic oscillator?

Questions or comments to the Brain Teaser Challenge, please contact Butch Shadwell at 904-223-4465 (v), 904-223-4510 (fax), b.shadwell@ieee.org (email), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. <http://www.se.mediaone.net/~butchs/>



The International Council on Systems Engineering
CENTRAL FLORIDA, ORLANDO, AND SPACE COAST CHAPTERS

present

OBJECT ORIENTED SYSTEMS ENGINEERING METHOD

A One Day Tutorial, Saturday, November 4, 2000

Instructor: Dr. Abe Meilich

The instructor will introduce an Object Oriented Systems Engineering Method (OOSEM) that bridges the gap between systems methods and object oriented software engineering. Based upon the widely known Unified Modeling Language (UML), this method brings object oriented modeling to the systems engineering community, and adapts it for modeling systems-level requirements and design. A major goal of OOSEM is ease of integration with object oriented methods for software engineering. Models developed by this method simultaneously serve the needs of systems engineers and facilitate the systems-to-software transition. This tutorial will introduce the student to the OOSEM method by describing the basic object oriented concepts, system level activities, use of UML and how they integrate with object oriented software engineering activities. It will cover ways UML can be adapted to address systems-level concerns. This is an intermediate level course. It assumes some rudimentary knowledge of Object Oriented Analysis (although there will be a basic review of OOA concepts) and Systems Engineering activities.

Time: Registration begins at 8:30 a.m., workshop is 9:00 a.m. until 6:00 p.m.


Place: Orlando, Florida (detailed location information not yet available)

Cost: Space is limited. Be sure to enroll early. **Early registration deadline is October 20, 2000.**

	Early Registration	Late Registration
INCOSE Member:	\$50	\$60
Non-Member:	\$60	\$75
Student (full time)	\$25	\$40

(Attendees joining INCOSE and one of the sponsoring Chapters as first-time new members at the Tutorial will receive half off their first annual membership fee.) For additional workshop information, phone Ben Berauer at 727-302-7693 or email bfb@eci.esys.com.

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October 2000 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 <i>EXCOM Meeting TECO Data Center 6:00 PM</i>	4	5	6	7
8	9	10 <i>MTT/AP/ED "Seawinds... Sea Ice at Raytheon, 6PM</i>	11	12	13 <i>Material Due For Next Month's SIGNAL</i>	14
15	16 <i>Joint Meeting PE/IA & ISA Sheraton Inn Four Points Hotel - 5:45 PM</i>	17	18	19	20	21
22	23	24 <i>PES/IAS Chapter Meeting "High Nines Electric Power" TECO, 11:30AM</i>	25	26 <i>MTT/AP/ED "Health Effects of Radio and Microwaves?" at Raytheon, 6PM</i>	27	28
29	30	31	November 1	2 <i>Life Member Meeting – National Weather Service Center, Ruskin, FL Space is limited 10:30 AM</i>		

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