

## IEEE AESS Radar Systems Panel

Minutes of the Radar Systems Panel meeting held on 30 April 2013 at the 2013 IEEE RADAR Conference, Ottawa Can.

Present:

Mark E Davis (Chair)	Member	Consultant, Prospect NY
Maria Greco (Vice Chair)	Member	Univ. Pisa, Italy
Hugh Griffiths (Past Chair)	Member	University College London UK
Yuri Abromovich	Member	WRSsystems, Arlington VA
Ravi Adve	Member	Univ. Toronto, Canada
Shannon Blunt	Member	Univ Kansas, Lawrence KS
Joseph Bruder	Member	GaTech, Atlanta GA
Gerald Capraro	Member	Capraro Assoc. Rome NY
Gerald Crain	Member	Univ Oklahoma, OK
James Day	Member	LMCO, Syracuse NY
Antonio DeMaio	Member	Univ. Napoli, Italy
Joseph Fabrizio	Member	DSTO, Adelaide AUS
Alfonso Farina	Member	Selex, Rome Italy
Scott Goldstein	Member	Dynetic, Arlington VA
Michael Inggs	Member	Cape Town Univ. SA
Marc Lesturgie	Member	ONERA, France
Chuck Livingstone	Member	DRDC, Ottawa CA
Pierfrancesco Lombardo	Member	Univ. Roma, Italy
Teng Long	Member	BIT, Beijing China
Bill Melvin	Member	GTRI, Atlanta GA
John Milan	Member	Retired, Los Angeles CA
Michael Picciolo	Member	Dynetic, Arlington VA
Tony Ponsford	Guest	RadarCon13 Co-chair
Brian Rigling	Member	WSU, Fairborn OH
Daniel Sego	Member	Boeing, Seattle WA
Dan Thomas	Member	SRC, Syracuse NY
Iram Weinstein	Member	SAIC, Arlington VA
Mark Yeary	Member	Univ Oklahoma OK
David Zasada	Member	Retired, Rome NY
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Elaine Chapin	Member	JPL, Pasadena CA
Joseph Guerci	Member	Consultant, Arlington Va
Eric Mokole	Member	NRL, Washington DC
John Smith	Member	Consultant, Philadelphia PA

### 1. Introduction; RSP Chair

Panel Chair Mark Davis gave a discussion on the objectives of the Radar Systems Panel meeting and new initiatives for 2013. The main points are:

- Strengthen the RSP Membership roles – Active members should be participants in at least one Committee. It is anticipated that we will be replacing inactive members with new members in late 2013. Jim Day will be leading that process again.
- Expand existing Committees with active members to better accomplish their roles and missions – need more depth in the initiatives of RSP to satisfy the Panel Charter objectives. The RSP sign-in sheet is asking for updates on members preferences for their participation.
- Established new Committees to address evolving Civilian/Commercial Radar technology and Waveform Diversity. Mark Yeary has volunteered to lead the former, and Dan Thomas the latter. Thanks to these two new members of the RSP.
- Maintain and Strengthen the Global reach of Radar System Panel and expand membership in AESS – IEEE objectives are to expand membership in emerging countries. Maria Greco is leading the effort to attract more international and women members to the RSP.

The Nominations and Appointments panel, chaired by Jim Day, recently completed the selection of 5 new members of the Radar Systems Panel. Those new members are:

- Yuri Abramovich, WR Systems Arlington VA
- Elaine Chapin, Jet Propulsion Lab, Pasadena CA
- Michael Inggs, Univ Cape Town South Africa
- Dan Segó, Boeing Seattle WA
- Mark Yeary, Univ Oklahoma OK

We welcome them to the Radar Systems Panel, and look forward to their active participation.

The Chair expressed strong appreciation to the RSP membership for supporting the new initiatives, and looks forward to a productive 2013. The objective of the RPS Terms of Reference is to have Chair and Vice-chair elections after 2 years of serving. Jim Day will be establishing the elections later this year for a new leadership term. This will be accomplished by electronic vote prior to the May RSP meeting at RadarCon14.

The Panel Chair expressed our great appreciation to the RadarCon13 Organizing Committee for their excellent preparation of the Conference, as well as hosting the RSP Meeting. The venue was new and very productive for this important AESS and RSP exchange of radar technical capabilities. We all appreciate the hospitality shown by the Canadian hosts.

2. RadarCon13 Initial Report: Tony Ponsford gave a brief summary of the 2013 IEEE Radar Conference attendance and performance. There were 290 registrations and 168 tutorial attendees at the start of the conference. It is

expected that late registrations will significantly exceed the goal of 300 attendees. There was attendance from 26 countries, making this a very international event. The surplus stands at 17 percent, and should easily exceed the goal of 20 percent, when all of the late registrations are counted.

There was a strong Industry Partner program with 4 Platinum (\$20,000), 1 Gold (\$10,000) and 6 Bronze (\$5,000) Partners. They especially appreciated the Platinum participation by Lockheed Martin, MDA, Raytheon Canada, and Rutter as Platinum Partners.

3. Vice Chair Report: Maria Greco participated in the Women in Engineering (WIE) and Work Life panel at RadarCon13. At this meeting she explained the objective of AESS and the importance to women of radar engineering careers.

As an editor of the AESS publication board, she made the RSP aware of special editions to the magazine coming up. And the new look and feel of the Magazine is providing a new attraction to membership.

There is an emphasis on trying to attract new members to AESS from the largest growing segments of IEEE: China and India. Hugh Griffiths had a copy of the AESS Brochure translated to Chinese for use by AESS members visiting that country. We should consider the same for India.

#### 4. Committee Reports

There was representation by all of the Committee chairs at the RSP meeting, with the exception of Awards which does not have a chair. The notes below are a brief description of their main initiatives and planning for future activity.

- 4.1 Standards Committee (Joe Bruder): The Plans and Procedures for RSP participation in IEEE Standards will expire in October. John Milan submitted an update to IEEE, but it was using an old model that has been expired. It will be updated with the new IEEE format.

Each standard needs to be updated on a 5 year cycle. RSP has responsibility for two standards:

- Std 521 Letter Band needs to be updated in 2019. The Committee is starting to work the standard.
- Std 686 Radar Definitions, Dave Zasada has volunteered to follow this update due in xxxx.
- We also have interest in the Std 1672 for Ultra Wideband, led by James Taylor. The Committee needs members to work on this for proper representation of the Radar community.

4.2 Awards Committee (Gerald Capraro, presenting): This committee has two primary awards sponsored by RSP. The primary comments are:

- This Committee has been operating without a Chair. The objective of 2013 is to more completely staff this important activity within the RSP, publish a Terms of Reference, and appoint a Chair.
- The Fred Nathanson and Warren D White awards are being chaired independently by Gerald Capraro and Joe Guerri, respectively. This process is well established. However, Joe Guerri is stepping down. Braham Himed has volunteered to take over the Warren White roles.
- There are other AESS Awards that should be of interest to RSP, such as the Pioneer and Picard Awards.
- The Awards Committee needs a Terms of Reference. This will include documentation of the procedures used for selection of Awards, as well as advertising and notification in the AESS Magazine.
- The Awards Committee needs more members, and a coordinating chair. The N&A Committee will facilitate the selection of a Committee chair this year.

4.3 Education Committee (Mike Picciolo)

Mike Picciolo summarized the objectives of the reconstituted Education Committee. The primary objective is to foster radar interests and education at all levels on an international scale. They have several members now and have been discussing the initiatives that can be carried out from High School to Undergraduate levels. Of particular note is a partnership with the Graduates of Last Decade (GOLD) efforts within AESS. It was pointed out that Cosimo Stallo of University of Rome is the AESS GOLD coordinator.

The committee presented a list of many ideas, that were deemed to be too broad. They were given the suggestion that the list should be prioritized to help with the focus.

Mark Davis pointed out that AESS Board of Governors have available funds for new initiatives that can assist in furthering the Education objectives and attract new members. The Committee was encouraged to get an initiative together (potentially centered around the 2014 RadarConference in Cincinnati) and send to Mark for consideration by the BoG. Hugh Griffiths encouraged the effort.

One area that brought a lot of discussion was an initiative to get more publication for Radar. This could be articles for the AESS Magazine. Included in the discussion were:

- Story of radar technology and the radar museum

- Festival of Science – where there has been no special place for radar
- Provide Industry with opening to provide ideas or challenge problems to Universities or High Schools. The Kansas Section had been doing this for unmanned aircraft sensing with great success.

4.4 Nomination and Appointments Committee (James Day): The Committee is comprised of former RSP Chairs: Jim Day, Mike Wicks, Dale Ausherman, and Hugh Griffiths. As a result of the review of long standing members, the number of members were reduced to 40 active members, 5 emeritus, and 5 new members

A Terms of Reference (TOR) for this Committee was published in early 2013, outlining the process for nomination of new Members, and appointment by vote of the RSP membership. We need to send the TOR to the AESS web site for visibility of all AESS members.

A discussion of the selection process for RSP Chair concluded:

- A slate of candidates for RSP Chair needs to be compiled based on inputs from the membership.
- The N&A Committee will publish this list prior to the election. Nominations “from the floor” will be allowed, prior to the formal election.
- The candidates need to provide a declaration of objectives and initiatives for their prospective term.
- The method of election was debated and needs to be advertised. The objective is to have the election prior to the next RSP meeting in May 2014.

A very brief discussion on Fellow nominations and endorsement by the RSP to AESS occurred in the May 2012 meeting. Jim Day and Mike Wicks were to discuss the process and make recommendations to both the RSP Chair and Hugh Griffiths (AESS President). This is still an open action item, with March 2014 as the deadline for new nominations.

4.5 Civilian Radar Committee (Mark Yeary):

The purpose of the **Civilian Radar Committee** is to promote civil and commercial radar, whereby:

- (1) new markets are explored for these radars;
- (2) when possible, technologies between these radars may be symbiotically shared between traditional defense, tactical, and/or reconnaissance radars; and
- (3) global problems may be addressed, e.g., shared spectrum, remote sensing for natural hazards, etc.

- There were a large number of ideas to be covered in this new Committee. They spanned weather radar, air traffic control, remote monitoring from space and air for disaster relief, spectrum issues and non-traditional commercial radars.
- Yuri Abramovich raised the issue as to whether segregating this Committee for civilian radar only, to the exclusion of military radar, was too restrictive. It is important that the scope of the Committee complement the rest of the radar research, and track the flow of technology and applications between the military, academic and commercial areas.
- Spectrum access is important to all radar applications. It is anticipated that the newly formed Waveform Diversity Committee will lead the spectrum allocation aspects. The Civilian Radar Committee will collaborate and track the needed focus on shrinking spectrum, but not duplicate the efforts.
- It was recommended that this Committee work with the organizers of RadarCon14 and have a special session on Civilian Radars. There should be an outreach to GRSS and European Space communities to attract new papers and people for attendance.

#### 4.6 Waveform Diversity (Dan Thomas):

The Waveform Diversity Committee is in the middle of extending the efforts initiated under the series of Wave Form Diversity Conference to identifying initiatives that can benefit the wider radar community. Those initiatives include:

- Spectrum Allocation issues due to shrinkage of the radar spectrum
- Spectrum Policy, how to engage with the governing bodies within US, Europe and rest of the world for future radar development
- New radar performance developments, such as MIMO, Cognitive Radar
- Education initiatives with these new areas such as workshops and special sessions during the IEEE Radar Conference
- Joe Guerci pointed out that John Chapin at DARPA is initiating a Cognitive Radar program, and would be a good invited talk to RadarCon14.
- The actions that this Committee need to carry out are publishing a Terms of Reference, and deciding what we do with the Waveform Diversity Conference.

#### 4.7 Conferences Overview: Shannon Blunt summarized the current status of Conference planning. Bill Melvin has agreed to be the Vice Chair of Conference committee, and Shannon has a list of 8 RSP members who have agreed to help. But since this is a major part of RSP activity, more members need to find a way to help.

There is now a full slate of IEEE Radar Conferences through 2016: Ottawa (2013), Cincinnati (2014), Washington DC (International, 2015), Philadelphia (2016).

The attendance at Radar Conference is a concern to all, with the drawdown of US and other country Government support of conference attendance. Shannon discussed the need for more collaboration with other IEEE Societies to attract attendance, in particular: APS, MTS, GRS. There is also a concern of the large number of other radar conferences around the world, which detract from participation in IEEE or the International Series of Radar Conferences.

The International Radar Conference series is still quite strong. The next conferences in this series are: 2013 Adelaide Australia – Andrew Shaw Chair; 2014 Lille France – Marc Lesturgie Chair; 2015 Washington DC – Joe Guerci Chair

Shannon next introduced the Organizers for future Radar Conferences:

- a) 2012 Radar Conference Update: Joe Bruder summarized the initial results from the 2012 IEEE Radar Conference in Atlanta GA. Key points are:
  - There were over 324 registrants.
  - There were 11 Tutorials with 131 attendees
  - There were 16 Exhibitors with 22 booths
  - The paper submission was 257 abstracts with 187 accepted (123 oral, 64 posters) for an acceptance rate of 73 percent
  - The unaudited surplus was \$111K, split 50:50 between AESS and the Atlanta Section. This surplus was 35 percent, significantly better than the IEEE goal of 20 percent.
  
- b) 2013 International Radar Conference (Joe Fabrizio): The next in the International Radar Conference series will be held in Adelaide, Australia, from 9 to 12 September 2013.
  - The theme is “*Beyond Orthodoxy: New Paradigms in Radar*”
  - The conference will be hosted at the Hotel Grand Chancellor Adelaide on Hindley.
  - The Call for Papers has been closed and 135 submissions were received. This is 20 percent fewer than 2008. A final programme is in progress with notifications by the end of May.
  
- c) 2014 Radar Conference (Brian Rigling): The 2014 Conference will be in Cincinnati OH 19-23 May 2014. The theme is “From Sensing to Information” – building on a major push to get more automated

information content out of radar sensing for military and civilian applications.

- The committee is formed and session planning (including special sessions) is underway.
- The Call for Papers has been prepared and will be distributed through IEEE to participating society members.
- There are agreements with APS, GRS, AMTA and ION for Technical Cosponsorship. SPS is considering a TCS.
- The venue is the Cincinnati Marriott (in Covington KY, across a short pedestrian bridge from Cincinnati Riverfront).

d) 2014 International Radar Conference (Marc Lesturgie): The 2014 international conference will be held 13-17 October 2014 in Lille France, with the theme "Catching the Invisible". Current planning and status include:

- The Technical Cosponsorship has been signed with IEEE
- There is an anticipation of 350 participants
- A Call for Papers is being released, and the web page is [www.radar2014.org](http://www.radar2014.org)
- There will be a special historical session.

e) 2015 International Radar Conference (Joe Guerci): The conference will be held May 10-15, 2015 at the Crystal Gateway Marriott, Arlington VA, where it has been held the last 2 times. The theme is "From Underground to Outerspace", emphasizing recent major advances in use of radar for characterizing terrain and objects in difficult environments.

- The key committee participation has been obtained with Conference Co-Chair -- Dr. Yuri Abramovich, and Conference Technical Chair -- Dr. Braham Himed
- Joe Guerci is looking for other volunteers to step up and help make this a strong conference. A key position that needs to be filled immediately is the Finance Chair.
- Joe is trying to get a very international participation in this conference. He has started to build the organization team with a US and International based co-chairs of each committee.
- The goal is to expand the Tutorials such that there are 50 percent from the international community.
- A major initiative will be to get stipends for supporting international students to the conference.

f) RadarCon17 Proposal: Dan Seago expressed Seattle's strong interest in hosting the 2017 IEEE Radar Conference. That is the 100th Anniversary of Boeing Company. There is also strong interest by MacDonald Dettwiler Associates and NASA Jet Propulsion Laboratory



supporting the conference. Boeing has a new conference center next to their history of flight museum. After a brief discussion, it was moved and approved that Seattle would host the 2017 IEEE Radar Conference.

- g) South Africa Radar Conference: Michael Inggs expressed South Africa's interest in hosting an IEEE Radar Conference in 2015. That is a year after the 75<sup>th</sup> Anniversary of Radar in South Africa. They recently hosted a Geoscience and Remote Sensing conference and attracted over 1300 attendees. Current planning for the conference is:
- The proposed dates are 5-8 October 2015, with the theme "Radar Solutions for a Developing World".
  - To be held at the Sandton Convention Center near Johannesburg. This is a business and cultural area with a fast train connection to the international airport.
  - AESS and the South Africa AESS/GRSS will be cosponsors of the event.
  - An organizing committee is being formed from CISR and Univ. Capetown personnel. South Africa has a growing radar industry, and other participants from Africa will be solicited.
  - After a thorough discussion of the impact on radar conferences that year and implication of an "out of cycle" IEEE conference, it was moved and accepted that South Africa is be encouraged to submit a full proposal for this event.

## 5. Action Items

- a. RadarCon12 needs to submit its final report to AES Web site, and close out the books as soon as possible – Joe Bruder and Bill Wilson.
- b. Education Committee needs to prioritize the number of initiatives and publish the Terms of Reference – Mike Picciolo
- c. Awards Committee needs to find a Chair, consider other IEEE Awards, and establish a charter. – Jim Day and Mark Davis
- d. Civilian Radar Committee to publish a Terms Of Reference, that will focus the scope of efforts, along with priorities – Mark Yeary
- e. Waveform Diversity Committee needs to publish a Terms of Reference, that will address the future of the Waveform Diversity Conference – Dan Thomas
- f. Make recommendations on future IEEE Fellow nominations and endorsements by the RSP – Jim Day and Mike Wicks

There being no further business, the meeting closed at 2230.

Mark E Davis, RSP Chair