



Commission F

2008-2011 Triennial Report

Madhu Chandra, Chairman Commission-F

Overview and General Observations

Key Activities that took place during the reporting period may be classified under the following headings:

1. Sponsoring and Support of Commission-F Related Conferences Worldwide
2. Role-Defining Conferences of Commission-F
3. Special Contributions to the General Assembly
4. Promotion of Young Scientist Participation and Activities
5. Nuances Introduced into Commission-F Activities
6. Inter-linking of Commission-F Activities with ITU, ISPRS, and IEEE-GRSS
7. Election of the Vice-Chair
8. Salient Highlights, Emerging Issues and Outlook

Generally, it may be noted that Commission-F was actively involved in all major international events in the field of wave propagation and remote sensing, at large. The proliferation of national and international conferences relating to Commission-F topics continued unabated into the reporting period. Noteworthy examples of such conferences include IGARSS, EUCAP, EUSAR, COPSAR, and EURAD. The traditional URSI Commission-F feature conferences specific to the commission activities, namely the Triennial Symposium and Microwave Signatures have nevertheless retained their standing and continued to provide impetus to the other now established conferences mentioned afore. Members of the commission were well represented in

the planning and organization of all these conferences, thereby ensuring cross connections to other international societies and learned bodies. A noteworthy development, which the Commission-F particularly brought into being are the tutorial workshops and courses, as exemplified by the Twelfth URSI Commission-F Triennial Symposium, held in Garmisch-Partenkirchen, Germany. The Commission sees this development as an effective factor for promoting the international visibility of URSI.

1. Sponsoring and Support of Commission-F Related Conferences Worldwide

Commission-F lent its support, under either sponsorship A or sponsorship B, to tens of conferences worldwide. Pertinent examples not only include major events like IGARSS, EUSAR, EUCAP, COPSAR, and EURAD, but also new and upcoming forums in the developing nations. A noteworthy example in this regard is the ICMARS conference that is held annually in Jodhpur, India. This conference may be seen as a spawn of the traditional Commission-F conferences such as the Triennial Symposium. The Commission-F also adopted a “reaching-out approach” by sponsoring conferences with an inter-commission character. A complete list of all conferences sponsored by the Commission-F is given in Appendix B.

2. Role-Defining Conferences of Commission-F

It is not without a degree of satisfaction that Commission-F is pleased to report the successful planning and execution of its two traditional feature conferences:

- (I) The Twelfth URSI Commission-F Triennial Symposium on Remote Sensing and Wave Propagation, held in Garmisch-Partenkirchen, Germany during March 2011. Prof. Wolfgang Keydel, the General Chair, and the author, the Commission Chair, personally organised the conference in close collaboration with the Commission-F community. In consultation with the Radio Science Editor, Dr. Paul Cannon, papers emerging from the conference will be submitted for consideration towards formal publication following the standard review procedure. This activity is scheduled to follow shortly.
- (II) Microwave Signature 2010, held in Florence, Italy, under the capable leadership of Dr. Simonetta Paloscia.

These conferences stood their grounds despite competing interest posed by other international conferences, such as IGARSS and EUCAP. At the Triennial Symposium in Garmisch-Partenkirchen, approximately 60 – 70 delegates took part. A major fraction of the conference attendees were invited guests who gave review lectures in support of the Young Scientists Programme. A programme overview of the Twelfth Triennial Symposium is appended to this report.

3. Special Contributions to the General Assembly

Commission-F took a lead in the organization of one of the general lectures. Originally, late Prof. Aldo Paraboni was named as the speaker for the general lecture in the area of space-borne application of microwave devices/instruments. Following the sad demise of Prof. Paraboni, Commission-F, in close consultation with the URSI President, Prof. Francois Lefeuvre, re-organised the general lecture now scheduled to be given by Prof. Y. Kerr on the topic of SMOS campaign. In the same vein, the Commission-F scientific programme features a highly topical tutorial talk on the TANDEM-X and TerraSAR missions.

A further noteworthy feature added to the Commission-F programme is a special inter-union session on the topic of disaster management, organized under the aegis of Commission-F and ISPRS. The session consolidates the newly formed partnership between URSI Commission-F and ISPRS. This highly symbiotic cooperation was a result of fruitful consultations between the President of ISPRS, Prof. Orhan Altan, URSI President, Prof. Francois Lefeuvre, and the Commission-F Chair, the author himself.

As a final point, I should like to add that the commission, in keeping with its effort to generate and bolster contacts with young scientists, will be offering a workshop at the forthcoming General Assembly. The title of the workshop is ‘Aspects of Wave Propagation in Remote Sensing, Navigation, Wide-Band and Millimeter Wave Communications’.

4. Promotion of Young Scientist Participation and Activities

Commission-F takes pride in reporting that a major portion of the available funding was put to use for supporting the participation of young scientists from all over the world at key Commission-F sponsored conferences. In this regard, more than 25 young scientists, excluding the awardees for the General Assembly, were supported over the reporting period. Major beneficiaries include not only young scientists from developing nations but also highly deserving early-stage researchers from the industrialised nations. The prime example of this policy is afforded by the Commission-F Triennial Symposium held in Garmisch-Partenkirchen, at which more than ten young scientists were supported to the extent that their participation was financially viable. The nationalities of the awardees include countries like Indonesia, India, Brazil, Italy, Spain, and Germany. The individual participants are named in Appendix A of this report.

5. Nuances Introduced into Commission-F Activities

5.1 Links to Ongoing International Projects

As the members of the commission are actively involved in diverse campaigns in remote sensing and wave propagation, the commission has established links with major international projects such as TANDEM-X, TerraSar, COST IC0802 on 'Propagation tools and data for integrated Telecommunication, Navigation and Earth Observation systems'. These links are expected to play an increasingly decisive role in the future evolution of the Commission-F activities.

5.2 White Paper on Radar Remote Sensing

Based on an initiative by the French National Committee, a White Paper action came into being at the last General Assembly. Prof. Jean Isnard and the Commission Chair, the author himself, took upon themselves to dwell on the matter. The activity has gained the interest of Prof. Wolfgang Keydel, an URSI radar expert. This team of three persons has progressed to the extent that initial findings have been presented at the German URSI national meeting, the ISPRS conference of title Gi4DM2011, held in Antalya, Turkey, this year, and in the special radar group COST IC0802.

The COST action has this URSI initiative and proposed that the scope of the White Paper action be widened and the results of the study be made available under the joint aegis of URSI and the COST action. This cross-linking with the COST action offers a good opportunity to link the White Paper action with the community that is actively involved in the ITU circles. This cross-connection with ITU via the COST action should augur well with the directives of the URSI Council that cooperation between URSI and the ITU be strengthened. *The Commission-F therefore proposes the White Paper action should continue into the next reporting period under a broadened scope. It will serve the community well to grant the White Paper team the status of a working group under the topic 'Next Generation Remote-Sensing Radars'. The continuation of the White Paper action in this form within the proposed working group would put the radar activities on a firm footing and permit the White Paper team to expand if required.*

6. Inter-linking of Commission-F Activities with ITU, ISPRS, and IEEE-GRSS

During the reporting period, activities have been noted that have made inroads to establish links between the Commission, the ITU, the ISPRS, and the IEEE-GRSS. Links between the Commission and the ITU are poised to establish a new dimension via the good offices of a key ITU office bearer, Bertram Arbesser-Rastburg, an office bearer of the Benelux National Committee. At the URSI Triennial Symposium in Garmisch-Partenkirchen held during March 2011, Bertram Arbesser-Rastburg pointed out the need to re-vitalise the currently under-used cooperation between the Commission and the ITU. Bertram Arbesser-Rastburg suggested that Commission representatives should avail the opportunity given to URSI to have its named representative attend the ITU meetings. Prof. Carlo Capsoni, member of the Italian National Committee and an experienced Commission-F member, kindly expressed his willingness to serve for this purpose. These developments were also passed on directly by Arbesser-Rastburg to members of the URSI Council.

Regarding collaboration with ISPRS, notable progress can be reported. The URSI President, Francois Lefeuvre, the president of ISPRS, Prof. Orhan Altan, and the author arranged to meet in Vienna in order to cement collaboration between ISPRS, URSI, and, in particular, with commissions F and G. The three office bearers formally agreed to work towards a sustained collaboration. As a first step, the Commission-F, under the guidance of Prof. Lefeuvre, organized

one of the first URSI Commission-F-organised sessions at the Gi4DM2011 conference in Antalya, Turkey, one of the major ISPRS meetings. Also, Prof. Lefeuvre and the author served as review speaker and keynote speaker, respectively. This cooperation has also led to the first ever inter-union session that will take place at the forthcoming General Assembly in Istanbul. *Commission-F would like to endorse with gratitude the help and advice provided by our President, Prof. Francois Lefeuvre and the President of ISPRS, Prof. Orhan Altan. The Commission recommends that the bridge established between ISPRS and URSI, particularly Commissions F and G, be maintained and further strengthened in the future.*

In relation to cooperation with IEEE-GRSS and Commission-F, we would like to report that discussions between the Commission Chair, the author, and the ex-IEEE-GRSS President, Tony Milne, took place on the sidelines of the ICMARS meeting held in Jodhpur during December 2010. Prof. Milne agreed to look into the possibility of establishing a collaborative link with URSI in mutual discussion with Commission-F and members of the URSI Council. Prof. Lefeuvre was informed about this readiness on the part of IEEE-GRSS. The author recommends that the incoming Chair, Prof. Roger Lang, pursues this matter.

7. Election of the Vice-Chair

The Commission-F is fielding three candidates towards the election of the next incoming Vice-Chair. The candidates are active members of the URSI community. The three contestants are:

Dr. Simonetta Paloscia, Florence, Italy;

Dr. Cesar Amaya, Ottawa, Canada;

Dr. Aminesh Maitra, Calcutta, India.

At the time of reporting, several ballots have already been received. The final balloting will take place during one of the earliest business meetings scheduled to take place at the General Assembly in Istanbul.

8. Salient Highlights, Emerging Issues and Outlook

The commission was able to successfully organise and host two of its feature and 'role-defining' conferences: (I) The Twelfth URSI Commission-F Triennial Symposium on Remote Sensing and Wave Propagation, held in Garmisch-Partenkirchen, Germany during March 2011, and organised personally by the author in close collaboration with the Commission-F community; (II) Microwave Signature 2010, held in Florence, Italy, under the capable leadership of Dr. Simonetta Paloscia.

The Commission-F introduced training workshops on the sidelines of its meetings and carried out an active campaign of supporting the participation of young scientists at its meetings.

In the reporting period, foundations for establishing links with ITU, ISPRS, and IEEE-GRS were laid and initial actions taken. Likewise, links were established with ongoing projects such as COST IC0802, and the TerraSAR/TANDEM-X missions. It may be noted that trends in the area of propagation and remote sensing are defined more on the basis of scientific projects that come into being rather than by the latest scientific research. This observation should be taken into account in developing a long-term strategy for the Commission activities.

The commission would be served well in increasing the number of its working groups. This would ensure continued association of scientific experts actively engaged in the diverse areas of wave propagation and remote sensing. In this regard, the commission would like to suggest a working group on next-generation remote sensing radars. This working group should include the development of a White Paper on the subject, an action already in force from the present reporting period. Further working groups may be formed in areas of Millimeter Wave Propagation and Wide-Band systems. The Commission will seek and develop cooperation with the Radio Science Journal for publishing deserving papers presented at its conferences, particularly the Triennial Symposium. In consultation with Dr. Paul Cannon, this action will be carried further.

There are two further points that the Commission would like to draw attention to:

- (I) At the end of the Commission-F Triennial Symposium in Garmisch-Partenkirchen, a survey was conducted in order to ascertain whether the institution of triennial symposia be retained or altered in favour of a mid-term assembly. The consensus of opinion was unanimous and all members without any doubt pleaded for the continuation and retention of triennial symposia.
- (II) Under the good offices of the Benelux National Committee and Bertram Arbesser-Rastburg, the Commission Chair was invited to attend the national meeting held at ESTEC in 2011. At this meeting, it was proposed that the German National committee and the Benelux National Committee could explore the possibility of holding a joint event. This proposal deems the attention of the national committees and the URSI Council.

Appendix A

12th URSI Commission-F Triennial Open Symposium on Radio Wave Propagation and Remote Sensing Garmisch-Partenkirchen, Germany

Venue	Dorint Sport-Hotel, Mittenwalder Straße 59 82467 Garmisch-Partenkirchen, Germany (www.dorint.com/de/dorint-hotels-resorts),
Dates	7 th March 2011, Training Workshops 8 th – 11 th March 2011, Conference
Conference Contacts	Prof. Dr. rer. nat. Madhukar Chandra Dr. Andreas Danklmayer Conference Assistants Mr. Johannes Reindl Mr. Narathep Phruksahiran Professur für Hochfrequenztechnik und Theoretische

	<p>Elektrotechnik Fakultät für Elektrotechnik und Informationstechnik TU Chemnitz Reichenhainer Str. 70 09126 Chemnitz Germany Email: madhu.chandra@etit.tu-chemnitz.de Email: ursi-2011-a@infotech.tu-chemnitz.de Tel.: +49 (0)371 - 531 33168/38727 Fax: +49 (0)371 - 531 833168 See Website : http://www.tu-chemnitz.de/etit/hf/ursi/index.htm</p>
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Conference Board

General Chairman

- Prof. Dr. rer. nat. Wolfgang Keydel
(Ex Director of the Institute for Radiofrequency Technology, DLR, Oberpfaffenhofen, Germany)

Chairmen of the Organisation and Technical Committee

- Prof. Dr. rer. nat. Madhukar Chandra (TU Chemnitz)
- Dr. Manfred Zink (DLR, Oberpfaffenhofen)

Technical Committee

All national representatives of URSI Commission-F:

- | | |
|------------------------------------|---|
| • Dr. D.A. GAGLIARDINI (Argentina) | • Prof. Y. YAMAGUCHI (Japan) |
| • Dr. D.A. NOON (Australia) | • Prof. dr. ir. L.P. LIGTHART (Netherlands) |
| • Prof. W. RIEDLER (Austria) | • Dr. E. M. POULTER (New Zealand) |
| • Prof. P. SOBIESKI (Belgium) | • Dr. I.A. ADIMULA (Nigeria) |
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| • Prof. K-S CHEN (China, SRS) | • Prof. I. BALAZ (Slovakia) |
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- Prof. M.T. HALLIKAINEN (Finland)
- Prof. M. CHANDRA (Germany)
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- Dr. R. SELLER (Hungary)
- Prof A.J.S. MAITRA (India)
- Prof. A. COHEN (Israel)
- Dr. PAOLO PAMPALONI (Italy)
- Prof. J. MARGINEDA PUIGPELAT (Spain)
- Prof. G. ELGERED (Sweden)
- Mr. D. VERGERES (Switzerland)
- Prof. O. ARIKAN (Turkey)
- Prof. G.P. KULEMIN (Ukraine)
- Dr. R.J. WATSON (United Kingdom)
- Prof. Dr. R.H. LANG (USA)
- Dr. A. GASIEWSKI (USA)

Local Organisation Committee

All members of the German URSI Commission-F, and all members of VDE-ITG Section 7.5 "Wave Propagation".

Programme Matrix

Monday, 7th March 2011:	
Pre Conference Training Workshops Day	
08:00 - 08:30	Registration and Welcome - Room Starnberg
08:30 - 09:50	Sessions: Workshop-1 Modern Radar-Concepts for Remote Sensing: Engineering Aspects, Multi-Parameter Measurements and their Interpretation.
09:50 - 10:20	Coffee Break
10:20 - 12:30	Sessions: Workshp-1
12:30 - 13:40	Lunch Break
13:40 - 15:10	Sessions: Workshops-1,2
15:10 - 15:40	Coffee Break
15:40 - 19:30	Sessions: Workshop-2: Modern Concepts of Propagation for Automotive, Remote Sensing, and Space Applications

Day 1: Tuesday, 8th March 2011	
All Sessions in Room München	
08:00 - 09:30	Get-together and Registration (Conference Desk)
09:30 - 10:00	Opening Ceremony
10:00 - 11:00	Inaugural Session: Keynote Speech 1
11:00 - 11:30	Coffee Break
11:30 - 12:30	Inaugural Session: Keynote Speech 2
12:30 - 13:45	Lunch Break
13:45 - 15:50	Session 1A: Young Scientists Presentations - 1
15:50 - 16:20	Coffee Break
16:20 - 18:00	Session 2A: Young Scientists Presentations - 2
19:00	No-Host Get Together, Hotel Foyer

Day 2: Wednesday, 9th March 2011	
08:30 - 10:30	Session 3A: Topical Issues in Propagation : Review Talks Room München
10:30 - 11:10	Coffee Break
11:10 - 12:50	Session 4A: SAR and related Aspects – 1 Room München Session 4B: Weather Radar - 1 Room Starnberg
12:50 - 14:00	Lunch Break
14:00 - 15:30	Session 5A: SAR and related Aspects – 2 Room München

15:30 - 16:00	Coffee Break	
16:00 - 17:15	Session 6A: Trees : Propagation and Scattering Room München	Session 6B: Antenna Engineering and Radar Systems Room Starnberg
18:45	Conference Dinner	

Day 3: Thursday, 10th March 2011		
08:30 - 10:30	Session 7A: Topical Issues in Weather Radar Applications Room München	
10:30 - 11:00	Coffee Break	
11:00 - 13:05	Session 8A: Satellite Propagation and Propagation Models Room München	Session 8B: Propagation Effects and Measurement in Mobile, fixed, rural, and GNSS Scenarios Room Starnberg
13:05 - 14:15	Lunch Break	
14:15 - 16:15	Session 9A: Review and invited Presentations on Channel Characterisation, Space Applications, MM-Wave Radiometry and Frequency Allocation Room München	
16:15 - 16:45	Coffee Break	
16:45 - 18:00	Session 10A: Radiometry Room München	Session 10B: Engineering and System Aspects of Aerospace Systems Room Starnberg

Day 4: Friday, 11st March 2011		
08:30 - 10:10	Session 11A: Satellite SAR-1 Room München	Session 11B: Weather Radar-2: Modeling, Systems, Applications Room Starnberg
10:10 - 10:40	Coffee Break	
10:40 - 12:20	Session 12A: Satellite SAR-2 Room München	Session 12B: Propagation Effects in Remote Sensing and Communications Room Starnberg
12:20 - 13:30	Lunch Break	
13:30 - 14:30	Discussion and Closing Ceremony	

Programme Overview

Pre Conference Training Workshops Day : Monday, 7th March 2011 All Day Room Starnberg	
08:00 - 08:20	Registration, Front desk
08:20 – 08:30	Welcome
Room Starnberg	Training Workshop 1 : Title: Modern Radar-Concepts for Remote Sensing: Engineering Aspects, Multi-Parameter Measurements and their Interpretation.
08:30 - 09:00	Prof. Dr. M. Chandra : Modern Principles of Radars, A Wave-Form Approach
09:00 – 09:50	Prof. Dr. W. Keydel : Principles of Modern SAR and SAR Applications
09:50 - 10:20	Coffee Break
10:20 – 11:00	Prof. Dr. V. Chandrasekar : Modern Aspects of Weather Radars
11:00 – 11:30	Dr. M. Hagen : Polarimetric Weather Radar Measurements
11:30 – 12:00	Dr. F. Gekat : Commercial Weather Radars Today
12:00 – 12:30	Mr. T. Otto : Principles and Applications of FMCW Weather Radars
12:30 – 13:40	Lunch Break
Room Starnberg	Topics common to Workshops 1 and 2
13:40 – 14:10	Prof. Dr. M. Chandra : Fundamentals of Microwave Propagation for Radars and Communication Links (with special reference to satellite links)
14:10 – 14:40	Prof. Dr. C. Simmer : Atmospheric Remote Sensing
14:40 – 15:10	Reiner Bossert, Agilent Technologies : Demonstration of Microwave Measuring Equipment for Aerospace and Radar Applications, Part-1
15:10 – 15:40	Coffee Break
Room Starnberg	Training Workshop 2 : Title: Modern Concepts of Propagation for Automotive, Remote Sensing, and Space Applications
15:40 – 16:20	Prof. Dr. O. Fišer : Budget Planning for Microwave Links
16:20 – 16:50	Prof. Dr. Gerd Wanielik: Multi-Sensor Automotive Applications
16:50 – 17:40	Prof. Dr. T. Kürner : Essentials of Millimeter Wave Propagation
17:40 – 18:20	Dr. A. Hornbostel : Propagation Aspects of GNSS Applications
18:20 – 18:50	Dr. A. Danklmayer : Propagation Effects for Satellite-Mounted Radars
18:50 – 19:30	Reiner Bossert , Agilent Technologies : Demonstration of Microwave Measuring Equipment for Aerospace and Radar Applications, Part-2

Day 1: Tuesday, 8th March 2011

All Day in Room München

08:00 - 09:30	Get-together and Registration (Conference Desk)
09:30 - 10:00	Opening Ceremony: Prof. Dr. Wolfgang Keydel (General Chairman) Prof. Dr. Madhu Chandra (Chairman, URSI Commission-F) Prof. Dr. Roger Lang (Vice Chairman, URSI Commission-F) Dr. Manfred Zink (Co-Chairman)
	Inaugural Session: Keynote Speech 1 Session Chairs: Prof. Dr. Wolfgang Keydel and Prof. Dr. Roger Lang
10:00 – 11:00	The TanDEM-X Mission: Challenges and Innovation <i>Dr. Manfred Zink</i> DLR, Oberpfaffenhofen, Germany
11:00 - 11:30	Coffee Break
	Inaugural Session: Keynote Speech 2 Session Chairs: Prof. Dr. Fernando Perez Fontan and Prof. Dr. Roger Lang
11:30 – 12:30	Propagation Aspects for Millimeter and Sub-Millimeter Short-Range Communication <i>Prof. Dr. T. Kürner</i> Institut für Nachrichtentechnik, TU Braunschweig, Braunschweig, Germany
12:30 – 13:45	Lunch Break
	Session 1A: Young Scientists Presentations - 1 Session Chairs: Dr. Andreas Reigber and Dr. Andreas Danklmayer
13:45 – 14:10	Analysis of the Anisotropic Behaviour of Scatterers Using Polarimetric Circular SAR Data <i>Octavio Ponce(1), Andreas Reigber(1), Pau Prats(1), and Muriel Pinheiro(2)</i> (1) DLR, Microwave and Radar Institute, Wessling, Germany, (2) Instituto Tecnológico de Aeronáutica (ITA), Sao José dos Campos, Brazil
14:10 – 14:35	Compressed Sensing for Polarimetric SAR Tomography <i>E. Aguilera, M. Nannini, and A. Reigber</i> DLR, Microwaves and Radar Institute, Wessling, Germany

14:35 – 15:00	<p>Model Based Scattering Mechanism Decompositions of Polarimetric SAR Data for Global Forest Mapping at L-Band</p> <p><i>Oleg Antropov(1,2), Yrjö Rauste(1), Jaan Praks(2), Tuomas Häme(1), and Martti Hallikainen(2)</i></p> <p>(1) VTT Technical Research Centre of Finland, Finland, (2) Aalto University, Finland</p>
15:00 – 15:25	<p>Parameter based SAR simulator improvement with accurate antenna beam pattern</p> <p><i>Narathep Phruksahiran, Madhu Chandra</i></p> <p>Chemnitz University of Technology, Professur Professur für Hochfrequenztechnik und Theoretische Elektrotechnik, Chemnitz, Germany</p>
15:25 – 15:50	<p>Flood Monitoring in Sundarban Delta by Using Multi-Frequency AMSR-E Signatures</p> <p><i>R. Chakraborty, R. Rahmoune, P. Ferrazzoli</i></p> <p>Department of Computer Science, Systems and Industrial Engineering, University of Rome, Roma, Italy</p>
15:50 – 16:20	Coffee Break
<p>Session 2A: Young Scientists Presentations - 2</p> <p>Session Chairs: Dr. Frank Gekat and Prof. Dr. Ondrej Fiser</p>	
16:20 – 16:45	<p>Effect of Rain Type on Rain Attenuation Modeling at a Tropical Location</p> <p><i>Marzuki(1,4), Walter L. Randeu(1), T. Kozu(2), T. Shimomai(2) and H. Hashiguchi(3)</i></p> <p>(1) Institute of Broadband Communications, Graz University of Technology, Graz, Austria (2) Interdisciplinary Faculty of Science and Engineering, Shimane University, Japan (3) Research Institute for Sustainable Humanosphere (RISH), Kyoto University, Japan (4) Department of Physics, Andalas University, Padang, Indonesia</p>
16:45 – 17:10	<p>Trends in Antenna Technology for the Space-borne Microwave Radiometers</p> <p><i>Dhaval Pujara(1), and S. B. Sharma(2)</i></p> <p>(1) Department of Electronics & Communication Engineering, Institute of Technology, Nirma University, Ahmedabad, Gujarat, India (2) Indus Institute of Technology & Engineering, Ahmedabad, Gujarat, India</p>
17:10 – 17:35	<p>Angular and RMS Delay Spread Modeling in View of THz Indoor Communication Systems</p> <p><i>S. Priebe, M. Jacob, and T. Kürner</i></p> <p>Institute for Communications Technology (IfN), TU Braunschweig, Braunschweig, Germany</p>
17:35 – 18:00	<p>On Multi-Polarisation Calibration of Weather Radar Systems</p> <p><i>Jens Reimann, Martin Hagen</i></p> <p>DLR, Institute of Atmospheric Physics, Wessling, Germany</p>
<p>Day 2: Wednesday, 9th March 2011</p>	
Room München	Session 3A: Topical Issues in Propagation : Review Talks

	Session Chairs: Prof. Dr. Carlo Capsoni and Prof. Dr. Madhu Chandra
08:30 – 09:00	Distinguished Speaker Presentation: Free-Space Optical Links: Tutorial on Developments in the Area of Free-Space Optical Links <i>Erich Leitgeb</i> Institute of Broadband Communications, Graz University of Technology, Graz, Austria
09:00 - 09:30	Distinguished Speaker Presentation: Sensor Data Fusion in Automotive Applications <i>Gerd Wanielik</i> Chemnitz University of Technology, Professorship of Communications Engineering, Chemnitz, Germany
09:30 - 10:00	Distinguished Speaker Presentation: Propagation Effects in Navigation Systems <i>Achim Hornbostel</i> DLR, Institute of Communications and Navigation, Oberpfaffenhofen, Germany
10:00 - 10:30	Distinguished Speaker Presentation: Microwave Radiometry For Obtaining Atmospheric Parameters <i>Simmer C(1), Crewell S(2), and Lohnert U(2)</i> (1) Meteorological Institute, University of Bonn, Bonn, Germany (2) Institute for Geophysics and Meteorology, University of Cologne, Cologne, Germany
10:30 – 11:10	Coffee Break
Room München	Session 4A: SAR and related Aspects - 1 Session Chairs: Dr. Andreas Reigber and Prof. Dr. Wolfgang Keydel
11:10 – 11:35	The Sentinel-1 Mission Concept and Status <i>Paul Snoeij, Ramon Torres, and Malcolm Davidson</i> European Space Agency, ESTEC, Noordwijk, The Netherlands
11:35 – 12:00	Propagation Effects for Satellite Mounted Radars and Remote Sensing by Active Microwave SAR Sensors for Frequencies of X-band up to Ka-band <i>Andreas Danklmayer(1), Madhu Chandra(2)</i> (1) DLR, Microwaves and Radar Institute, Weßling, Germany (2) Technische Universität Chemnitz, Professur für Hochfrequenztechnik und Theoretische Elektrotechnik Chemnitz, Germany
12:00 – 12:25	An investigation of Cosmo-SkyMed potential in detecting hydrological features <i>S.Paloscia, P.Pampaloni, G.Fontanelli, S.Pettinato, and E.Santi</i> CNR-IFAC, Firenze, Italy
12:25 – 12:50	A Hysteresis Technique for SAR Change Detection Based on the Generalized Minimum-Error Thresholding Algorithm

	<p><i>Quang Huy Nguyen(1), Ian McLoughlin(1), and Timo Bretschneider(2)</i></p> <p>(1) Nanyang Technological University, Singapore (2) EADS Innovation Works, Singapore</p>
Room Starnberg	<p>Session 4B: Weather Radar-1</p> <p>Session Chairs: Dr. Frank Gekat and Prof. Dr. Herman Russchenberg</p>
11:10 – 11:35	<p>On Clutter Classification for the Hazardous Weather Detection and Display Capability (HWDDC)</p> <p><i>Nathan Fuhrer, Amalia Barrios</i></p> <p>SPAWAR Systems Center (SSC) Pacific, San Diego, CA, USA</p>
11:35 – 12:00	<p>Weather radar: a tool for the remote sensing of birds</p> <p><i>Carlo Capsoni(1), Roberto Nebuloni(2), Dario Baccellieri(1)</i></p> <p>(1) Politecnico di Milano, Milano, Italy (2) IEIT-CNR, Milano, Italy</p>
12:00 – 12:25	<p>Processing of X-band weather radar data with an extended Kalman filter framework</p> <p><i>Marc Schneebeli and Alexis Berne</i></p> <p>Environmental Remote Sensing Laboratory, École Polytechnique Fédérale de Lausanne, Switzerland</p>
12:25 – 12:50	<p>Drop Size Measurement Applied to Weather Radars and Microwave Link Design—First Results from Czech Republic</p> <p><i>Ondrej Fiser</i></p> <p>Institute of Atmospheric Physics Prague, Prague, Czech Republic</p>
12:50 – 14:00	Lunch Break
Room München	<p>Session 5A: SAR and related Aspects - 2</p> <p>Session Chair: Dr. Manfred Zink</p>
14:00 – 14:30	<p>Distinguished Speaker Presentation:</p> <p>Principles of Modern SAR and SAR Applications</p> <p><i>Wolfgang Keydel</i></p> <p>DLR Microwaves and Radar Institute , Hechendorf, Germany</p>

14:30 – 15:00	<p>Distinguished Speaker Presentation:</p> <p>State-of-the-Art Review on “Future perspectives of Radar Polarimetry with applications to Multiparameter POLSAR Remote Sensing”</p> <p><i>Wolfgang-Martin Boerner Professor Emeritus</i></p> <p>University of Illinois, Chicago, USA</p>
15:00 – 15:30	<p>Distinguished Speaker Presentation:</p> <p>High-resolution multi-frequency polarimetric SAR imaging with DLR’s new airborne sensor F-SAR</p> <p>A. Reigber, R. Horn, R. Scheiber, P. Prats, A. Nottensteiner, J. Fischer and M. Jäger</p> <p>DLR, Microwaves and Radar Institute, Wessling, Germany</p>
15:30 – 16:00	Coffee Break
Room München	<p>Session 6A: Trees : Propagation and Scattering</p> <p>Session Chairs: Prof. Dr. Roger Lang and Dr. Saúl A. Torrico</p>
16:00 – 16:25	<p>Specific Attenuation Through a Tree Canopy: 3-D Vector Radiative Transport Approach</p> <p><i>Saúl A. Torrico(1) and Roger H. Lang(2)</i></p> <p>(1) Comsearch, Ashburn, Virginia 20147</p> <p>(2) Department of Electrical and Computer Engineering, The George Washington University, Washington, DC, USA</p>
16:25 – 16:50	<p>Wideband tree shadowing and scattering modeling in slant paths</p> <p><i>M.Cheffena(1) and F.Perez-Fontan(2)</i></p> <p>(1) Gjøvik University College, Gjøvik, Norway</p> <p>(2) University of Vigo, Vigo, Spain</p>
16:50 – 17:15	<p>Modelling of Tree Scattering in Rural Residential Areas at 3.5 GHz</p> <p><i>Kin Lien Chee(1), Ferran Catalán(1), Saúl A. Torrico(2) and Thomas Kürner(1)</i></p> <p>(1) Institut für Nachrichtentechnik, Technische Universität Braunschweig, Braunschweig, Germany</p> <p>(2) Comsearch, Ashburn, VA, USA</p>

Room Starnberg	Session 6B: Antenna Engineering and Radar Systems Session Chair: Prof. Dr. Lorenz-Peter Schmidt
16:00 – 16:25	Fast Multistatic Measurement System for Short-Range Imaging Radar Development <i>Andreas Schiessl(1), Sherif Sayed Ahmed(1), Andreas Genghammer(1) and Lorenz-Peter Schmidt(2)</i> (1) Rohde & Schwarz, Munich, Germany (2) Chair for Microwave Engineering and High Frequency Technology (LHFT), University of Erlangen-Nuremberg, Erlangen, Germany
16:25 – 16:50	Development of a Planar Interweaved Antenna with a High Gain and a High Angle Unambiguity for Automotive Applications Based on 24 GHz <i>Matthias Reinlein</i> InnoSenT GmbH, Donnersdorf, Germany
16:50 – 17:15	Application of Printed Antenna Technology <i>Ralf Zichner(1) and Reinhard R. Baumann(1,2)</i> (1) Fraunhofer Institute for Electronic Nano Systems ENAS, Department Printed Functionalities, Chemnitz, Germany (2) Chemnitz University of Technology, Institute for Print and Media Technology, Chemnitz, Germany

Appendix B

These meetings were supported by Commission-F in this triennium:
details meeting mode allocation in Euro

ISAR-NCU 2008 meeting, Chung-li, Taiwan, 6-18 October 2008 B EUR 500 from previous triennium budget

Microwave-08, Jaipur, India, in late November 2008 A EUR 0

URBAN 2009, Shanghai, China, 20-22 May 2009 A EUR 0

EMC 2009, VIII International Symposium and Exhibition on Electromagnetic Compatibility and Electromagnetic Ecology, St Petersburg, Russia, 16-19 June 2009 A EUR 0

ICEAA'09 - International Conference on Electromagnetics in Advanced Applications, Torino, Italy, 14-18 September 2009 A EUR 0

International Conference on Radar 2009, Bordeaux, France, 12-16 October 2009 A EUR 0

ICMARS 2009 - International Conference on Microwave, Antenna, Propagation and Remote Sensing 2009, Jodhpur, India, 19-21 2009 B EUR 500

META'10, Cairo, Egypt, on 22-25 February 2010 A EUR 0

MicroRad 2010, Washington, DC, USA, 1-4 March 2010 A EUR 0

MSMW'10 Symposium, Kharkov, Ukraine, 21-26 June 2010 B EUR 500

OCOSS 2010 - Ocean and Coastal Observation: Sensors and observing systems, numerical models and information systems, Brest, France, 21-23 June 2010 A EUR 0

COSPAR Scientific Assembly, Bremen, Germany, 18-25 July 2010 B EUR 500

ICEAA'10 - International Conference on Electromagnetics in Advanced Applications, Sydney, Australia, 20-24 September 2010 A EUR 0

AP-RASC'10: 3rd Asia-Pacific Radio Science Conference, 22-25 September 2010, Toyama, Japan B EUR 700

URSI Commission-F Microwave Specialist Symposium on Microwave Remote Sensing of the Earth, Oceans, Ice, and Atmosphere, Florence, Italy, 4-8 October 2010 B EUR 1,000

12th URSI Commission F Triennial Open Symposium on Radio Wave Propagation and Remote Sensing, Garmisch-Partenkirchen, Germany, 8-11 March 2011 B EUR 5,300

JURSE2011 - Joint Urban Remote Sensing Event 2011 (formerly URBAN), Munich, Germany, 11-13 April 2011 B EUR 500

3rd International Colloquium on Scientific and Fundamental Aspects of the Galileo Programme, Copenhagen, Denmark, 31 Aug - 2 Sept 2011 A EUR 0

ICEAA-APWC 2011, Torino, Italy, 12-17 September 2011 A EUR 0

EMC 2011, International Symposium on EMC and EME, Saint Petersburg, Russia, 13-16 September 2011 A EUR 0

ISAP 2011 - 2011 International Symposium on Antennas and Propagation, Jeju, Korea, 25 - 28 October 2011 A EUR 0

AES 2012, Paris, France, 16-19 April 2012 A EUR 0

META'12 - 3rd International Conference on Metamaterials, Photonic Crystals and Plasmonics, Paris, France, 16-19 April 2012 A EUR 0

ICEAA - International Conference on Electromagnetics in Advanced Applications, Cape Town, South Africa, 2-8 September 2012 A EUR 0

ISAP2012 - 2012 International Symposium on Antennas and Propagation, Nagoya, Japan, 29 October - 2 November 2012 A EUR 0

Total : EUR 9,000

Balance : EUR 0

Budget (fixed in Euro) : EUR 9,000

The special budget of 3000 Euro was allocated as follows:

Yuriy V. Goncharenko: 500 Euro registration fee + 400 Euro EUR 900

Parshotam Sharma: 500 Euro registration fee + 400 Euro EUR 1,000

Slawomir Jerzy Ambroziak (YS, travel support) EUR 600

Anitha Vaddinuri (YS, travel support) EUR 500

Total : EUR 3,000

Balance : EUR 0

Extra funds : EUR 3,000