16th
KA and BROADBAND
COMMUNICATIONS,
NAVIGATION and EARTH
OBSERVATION CONFERENCE

October 20-22, 2010
Milan, Italy

Program

WELCOME

The Steering and Organizing Committee welcomes you to the 16th Ka and Broadband Communications, Navigation and Earth Observation Conference in Milan.
We hope you find this Conference an enlightening and pleasant experience.
ACKNOWLEDGMENTS

The 16th Ka and Broadband Communications, Navigation and Earth Observation Conference is organized by

FGM Events LLC
239 Glenn Avenue
Lawrenceville, NJ 08640
USA
Ph.: +1 609 883 4778
e-mail: organizingcommittee@kaocnf.org

Under the auspice of

ASI – Italian Space Agency, Italy
CRC – Communications Research Centre, Canada
DLR – German Aerospace Center, Germany
ESA – European Space Agency, The Netherlands
NASA – National Aeronautics & Space Administration, USA
NICT – National Institute of Information and Communications Technology, Japan

The Conference Organizers would like to express their gratitude for the cooperation and the support of the following:

ASI – Italian Space Agency, Italy
Carlo Gavazzi Space, Italy
CPI SatCom, USA
ESA – European Space Agency, The Netherlands
Skylogic, Italy
Space Engineering, Italy
Telespazio, Italy
Thales Alenia Space, Italy

Conference web site: http://www.kaconf.org
After the success of the 15th Conference and the positive reaction from the attendees to our expanded scope, we want to continue the trend of presenting the accomplishments of satellite technology in the fields of Telecommunications, Navigation and Earth Observation for the benefit of mankind.

These accomplishments deserve to be recognized and publicized so the public can appreciate the good returns generated by its investment on space.

Our expanded scope has had the pleasant and unexpected consequence of an agreement of collaboration from the Italian Space Agency, whereby the Agency committed itself to use the conference as a means of publicizing its work in the above mentioned fields.

We are therefore very proud to designate our conference as a Conference of the Italian Space Agency (ASI).

In view of the above, we have organized the Conference along three themes and have requested papers in the following distinct areas and related topics:

**TELECOMMUNICATIONS**
- Systems
- Applications
- Components
- Protocols
- Propagation

**NAVIGATION**
- Systems
- Applications
- Components

**EARTH OBSERVATION**
- Systems
- Applications
- Sensors

The Conference hosts the 8th BroadSky Workshop on "On-board processing: present status and future trends", organized in cooperation with NICT, the National Institute of Information and Communications Technology of Japan.

The Workshop presents the role of on-board processing in meeting the ever-increasing demands placed on communications, navigation, and earth observation satellites, as they evolve to meet the needs of current and future applications in service to mankind.

The Workshop presents ongoing space activities and technologies, and also look to the future, by identifying the latest on-board processing architectures and related technologies that can help satellites meet the needs of upcoming communications, navigation and earth observations applications.
Wednesday, October 20

08:00 – 9:00 – Registration

09:00 – 10:00 – Room A

OPENING SESSION

Opening Remarks by:

- Frank Gargione, Space Systems Consultant, USA
- Franco Marconicchio, Space Consultant, Italy

Keynote by:

- Enrico Saggese, President of the Italian Space Agency (ASI), Italy
- **Overview of NASA Telecom and Navigation Program**
  Badri Younes, Deputy Associate Administrator for Space Communication and Navigation of NASA, USA
- **Ka Band Applications and Services from Dream to Reality: the KaSAT Program**
  Giuliano Berretta, President of EUTELSAT Communications, France

10:00 – 10:30 – Coffee Break

10:30 – 12:00 – Room A

SESSION 1: TELECOMMUNICATION APPLICATIONS & SERVICES
Chair: Arduino Patachini, Eutelsat, France

1.1 The KA-SAT Satellite
Andrew Lindley, Hector Fenech, Eutelsat, France
Aziz Bouhia, EADS Astrium, France

1.2 Broadband Communication Services Exploiting New Generation Ka Band Satellites
Marco Brancati, Alessandro Caranci, Maria Cristina Lupi, Giovanni Verardi, Telespazio, Italy

1.3 Achieving Battle-Space Success: Exploiting X-band and Ka-band Diversity
Taj A. Sturman, EADS Astrium, UK
Andrew Hide, EADS Astrium, France

1.4 Next Generation High Rate Broadband Satellites
Hector Fenech, Alessia Tomatis, Emmanuel Lance, Maria Kalama, Eutelsat, France
1.5 **New Frontiers and Technologies for the Mobile Satellite Interactive Services**  
Eros Feltrin, Elisabeth Weller, *Eutelsat, France*  
Giancarlo Bellaveglia, Raimondo Loforti, Luca Marcellini, *Space Engineering, Italy*

1.6 **Spacegrid: Towards the Integration of Space Technologies in the Powergrid Management System**  
Maria Lucia Tampellini, Alberto Caliumi, *Carlo Gavazzi Space, Italy*  
Enrico Vellucci, Terna, Italy  
Olivier Becu, *ESA, The Netherlands*

10:30 – 12:15 – Room B

**SESSION 2: PROPAGATION AND FADE MITIGATION**  
Chair: Aldo Paraboni, *Polytechnic of Milan, Italy*

2.1 **Comparison of Atmospheric Phase Stability at Goldstone, CA and White Sands, NM: One-Year Analysis**  
Roberto J. Acosta, James A. Nessel, *NASA Glenn Research Center, USA*

2.2 **Site Diversity Considerations for V/W Band Satellite Communications**  
George Brost, William Cook, William Lipe, *AFRL, USA*

2.3 **A Theoretical Limit for the Optimum Adaptive Distribution of The Power Flux on Earth in TV-Sat Applications at 20 GHz**  
Laura Resteghini, Aldo Paraboni, *Polytechnic of Milan, Italy*

2.4 **On the Use of Spatial Diversity Techniques for Robust Satellite Communications in Fading**  
Mario Blanco, *Mitre Corp., USA*

2.5 **Statistical Assessment of New Methods to Optimize the Power Flux Distribution TV-Sat Broadcasting at 20 GHz**  
Paraboni Aldo, Laura Resteghini, *Politechnic of Milan, Italy*  
Roberto Nebuloni, IEIIT-CNR, Italy  
Piero Gabellini, *Space Engineering, Italy*

2.6 **Fuzzy Inference Uplink Power Control System In End-To-End Broadband Satellite Links**  
Dimitris Charilas, Konstantinos S. Chaloulos, Athanasios D. Panagopoulos, *National Technical University of Athens, Greece*

2.7 **A Decorrelation Radiometer for Atmospheric Phase Compensation of Uplink Arrays**  
James A. Nessel, Roberto J. Acosta, *NASA Glenn Research Center, USA*

12:15 – 13:30 - Room A

**SESSION 3: TELECOMMUNICATION SYSTEMS 1**  
Chair: Guido Tartara, *Polytechnic of Milan, Italy*

3.1 **Athena Fidus Satellite: A New Payload Configuration to Improve System Flexibility**  
Enrico Russo, Giancarlo Varacalli, *ASI, Italy*  
Giovanni Battista Durando, *Italian Ministry of Defense, TELEDIFE, Italy*  
J.P. Diris, P. Dumont, *CNES, France*

3.2 **The Alphasat TDP#5 Mission Segment**  
Carlo Cornacchini, Antonio Vernucci, *Space Engineering, Italy*  
Giuseppe Codispoti, Enrico Russo, *ASI, Italy*

3.3 **Q/V-Band Payload: Architecture and Technology Innovation**  
Francesca Finocchiaro, Fabrizio Di Cola, Maria Teresa Nocerino, Giampiero Di Paolo, *Thales Alenia Space, Italy*
3.4 Challenges in the Implementation of Multi-Beam Ka-Band Payloads
Michael Harverson, Dietmar Schmitt, ESA, The Netherlands

3.5 Heinrich-Hertz Mission: Innovative Ka-band Payload Hosted on a SGEO Platform
Holger Pawlak, Kai.-J. Siebels, Th. Miesner, D. Lang, OHB-System, Germany

3.6 The European Data Relay System: a Service Provider Perspective
Laura Anselmi, Marco Brancati, Maria Cristina Lupi, Renzo Miglioli, Giovanni Verardi, Telespazio, Italy

12:15 – 13:15 - Room B
SESSION 4: COSMO SKYMED 1
Chair: Marco Airaghi, ASI, Italy

4.1 COSMO-SkyMed Second Generation
Francesco Caltagirone, Giuseppe F. De Luca, Fabio Covello, ASI, Italy
Graziano Marano, Italian Ministry of Defence, Italy
Giuseppe Angino, Matteo Piemontese, Andrea Gallon, Diego Calabrese, Fabrizio Impagnatiello, Thales Alenia Space, Italy

4.2 COSMO-SkyMed Second Generation: Optimization & Validation of the System Through the Simulation of the Operational Process
Giuseppe F. De Luca, Gianni Casonato, ASI, Italy
Graziano Marano, Davide Di Domizio, IMoD, Italy
Andrea Gallon, Alessandro Cricenti, Thales Alenia Space, Italy
Luigi Reboa, Paolo Tozzi, Telespazio, Italy

4.3 High Performance Real Time Data Handling And Transmission - A New Solution
Michelangelo L'Abbate, Flaviano Bagaglini, Mario Cossu, Rita Roscigno, Paolo Venditti, Domenico Giancristofaro, Thales Alenia Space, Italy
Edmondo ScorzaFava, ASI, Italy

4.4 COSMO-SkyMed Lesson Learned in COSMO Second Generation
Francesco Caltagirone, Giuseppe F. De Luca, Gianni Casonato, ASI, Italy
Graziano Marano, Davide Di Domizio, Italian Ministry of Defence, Italy
Matteo Piemontese, Andrea Gallon, Thales Alenia Space, Italy
Marco Terlizzi, Telespazio, Italy

13:30 – 14:30 – Lunch Break

14:30 – 15:45 - Room A
8TH BROADSKY WORKSHOP on ON-BOARD PROCESSING: PRESENT STATUS AND FUTURE TRENDS
Chair: Hajime Fukuchi, Tokyo Metropolitan University, Japan

14:30 Opening Remarks by Hajime Fukuchi, Tokyo Metropolitan University, Japan

14:40 On-Board Processing for Increased Communications Satellite Flexibility and Capacity
Tom Butash, BAE Systems, USA

15:20 On-Board Processing Architecture for Satellite Communications - From WINDS to the future
Naoko Yoshimura, NICT, Japan

16:00 – 16:20 – Coffee Break
16:20
Self-Calibrating Digital Beam Forming Network Subsystem
Mario Caron, CRC, Canada

17:00
On-Board Two-Way Time Comparison In Quasi-Zenith Satellite System (QZSS)
Shinichi Hama, NICT, Japan

17:40
Closing Remarks by
Naoto Kadowaki, NICT, Japan

19:00 - Welcome Cocktail Reception offered by Telespazio and Thales Alenia Space.

Thursday, October 21

09:00 – 10:30 - Room A
SESSION 5: TELECOMMUNICATION SYSTEMS 2
Chair: Thomas Butash, BAE Systems, USA

5.1 SIGMA, a Ka/Ku Satellite Network for Institutional and Governmental Services in Italy
Cosimo La Rocca, Enrico Russo, ASI, Italy
Francesco Favara, University of Rome, Italy

5.2 A Polar Orbiting Satellite System in Support of Canadian Artic Communications
Jaafar Cherkaoui, Martin Cote, Peter Garland, MDA Satellite Systems, Canada
Anthony Morris, Canadian Dept. of National Defence, Canada

5.3 Fair Bandwidth Sharing in a Hybrid Ad Hoc and Satellite Network System
Hiroki Nishiyama, Kazunori Koubou, Nei Kato, Tohoku University, Japan
Ryutaro Suzuki, NICT, Japan

5.4 The SIPROSAT System Architecture and Demonstration for Italian NEC/SATCOM and Dual-Use Infrastructure
Giacinto Losquadro, Giuseppe Tomasicchio, Miriam Petrone, Thales Alenia Space, Italy
Giovanni Battista Durando, Gerardo Petrone, Italian Ministry of Defense, TELEDIFE, Italy

5.5 The System Optimization of Beam Hopping Payload Architectures for Multi-Beam Broadband Satellite Systems
Piero Gabellini, Luciano D'Agristina, Space Engineering, Italy
Javad Anzalchi, Alan Couchman, EADS Astrium, UK
Nader Alagha, Piero Angeletti, Salvatore D'Addio, ESA, The Netherlands

5.6 Sensible Satellite Enhanced Network System for Flexible Bandwidth Management
Mario Gaetano Di Dio, Gaetano Volpe, Aniello Gentile, ITS Information Technology Services, Italy

09:00 – 10:30 - Room B
SESSION 6: EARTH OBSERVATION SYSTEMS
Chair: Robert Bauer, NASA, USA

6.1 GMES Sentinel-1: Mission Concept and System Design
Ramon Torres, Svein Lokas, ESA/ESTEC, The Netherlands
Claudio Bruno, Renato Croci, Michelangelo L’Abbate, Massimiliano Marcozzi, Aniceto Panetti, Andrea Pietropaolo, Paolo Venditti, Thales Alenia Space, Italy
6.2 Data Handling and Transmission Payload: An Enhanced Scalable and Flexible System For Wide Earth Observation Applications
Marco Sacchettino, Michelangelo L’Abbate, Emiliano Ricciardi, Rita Roscigno, Paolo Venditti, 
Thales Alenia Space, Italy
Edmondo Scorzafava, ASI, Italy

6.3 Feasibility of Geosynchronous Satellites for Synthetic Aperture Radar Remote Sensing at Ka Band
Antoni Broquetas, Josep Ruiz, Alba Gonzalez, Universitat Politecnica de Catalunya, Spain
Andrea Monti-Guarneri, Laura Carcano, Giorgio Fedeli, Fabio Rocca, Polytechnic of Milan, Italy

6.4 26-GHz Data Downlink for Low Earth Orbit Satellites
Josep Rosello, Mónica Martínez, Massimo Bertinelli, Antonio Martellucci, Peter Rinous, 
ESA/ESTEC, The Netherlands
Ricard Abelló, Salvador Martí, Guillaume Dauron, ESA/ESOC, Germany

6.5 Lowering the Altitude and Using Electric Propulsion to Achieve Ultimate Ground Resolution in Earth Optical Remote Sensing
Giorgio Perrotta, SpaceSys, Italy

6.6 Navigation and Guidance of a Small LEO Satellite with Electric Propulsion
Cesare Dionisio, Giuseppe Rossi, Gabriele Pirazzi, INTECS, Italy
Michèle R. Lavagna, Annalisa Mazzoleni, Polytechnic of Milan, Italy

10:30 – 11:00 - Coffee Break

11:00 – 13:00 - Room A
SESSION 7: TELECOMMUNICATION COMPONENTS 1
Chair: Richard T. Gedney, ECC / ViaSat, USA

7.1 A Smart Open Loop Antenna System for Satellite Counterrotation
Alessandro Pisano, Francesco Spognetta, Salvatore Vono, Thales Alenia Space, Italy

7.2 Multicarrier Performance of Ka-Band Solid-State Power Amplifiers for Satellite Communications
Michael DeLisio, Howard Jetmundsen, Gary Echo, Wavestream Corp., USA

7.3 Ka-Band On-Board Secure TT&C Transponder
Lorenzo Simone, Giuseppe Fittipaldi, Fabio De Tiberis, Dino Ciarcia, Massimo Delfino, Maria Grazia Campagna, Francesco Barletta, Marco Ziarelli, Paolo Colucci, Dario Gelfusa, Rita Di Julio, A. Bernardi, Thales Alenia Space, Italy

7.4 Microwave Filtering Using Photonic Technology
Joe Seregelyi, Stephane Paquet, Mario Caron, CRC-Communications Research Centre, Canada

7.5 Ground Beamforming and Interference Cancellation for TDMA Based Reverse-Link Access Schemes
Filippo Di Cecca, Gennaro Gallinaro, Space Engineering, Italy

7.6 Ka-band Telemetry Architecture for LEO Satellites
Mario Cossu, Michelangelo L’Abbate, Rita Roscigno, Carlo Svara, Thales Alenia Space, Italy
Carlo Riva, Polytechnic of Milan, Italy

7.7 A High Power Ka-Band Extended Interaction Klystron
Brian Steer, Mark Hyttinen, CPI Canada, Canada
SESSION 8: NAVIGATION SYSTEMS
Chair: Cosimo La Rocca, Finmeccanica, Italy

8.1 Invited Paper:
EGNOS and Galileo: The European Navigation Satellite “System of Systems”
Marco Lisi, ESA/ESTEC, The Netherlands

8.2 Next Generation of Miniaturised Receivers with New GNSS Signals
Josep Rosello, Pierluigi Silvestrin, Gustavo Lopez Risueño, Ville Kangas, Roland Weigand, ESA/ESTEC, The Netherlands

8.3 The First Launch of the Galileo Satellites is Approaching: The Role of Ground to Space Compatibility Test Verification
Monica Gotta, Massimo Panzeri, Salvatore Corvo, Vittorio Valle, Sergio Piazza, Lucio Castellano, Thales Alenia Space, Italy

8.4 The Galileo Operations and the Infrastructure Evolution for the Service Provision
Mario Musmeci, Telespazio, Italy

8.5 ANTARES Capacity Sizing: an Analysis of Air Traffic Management Needs for Data Link
Communications Catherine Morlet, Salvatore D'Addio, ESA, The Netherlands
Paolo Conforto, Alessia Miglietta, Stefano Buratti, Giacinto Losquadro, Thales Alenia Space, Italy

8.7 EXOMARS Approaching and Landing Radar
Ornella Bombaci, Marco Iorio, Manuela Di Salvo, Davide Oddenino, Mario Montagna, Francesco Barletta, Giuseppe Lippolis, Thales Alenia Space, Italy
Olivier Bayle, Alistair Winton, European Space Agency, The Netherlands

SESSION 9: EARTH OBSERVATION APPLICATIONS 1
Chair: Luciano Guerriero, Polytechnic of Bari, Italy

9.1 European Volcano Observatory Space Services (EVOSS): A GMES Downstream Service
Maria Luisa Tampellini, Carlo Gavazzi Space, Italy
Fabrizio Ferrucci, Steve Tait, Institut de Physique du Globe de Paris, France

9.2 Interferometric and Radargrammetric DEM from COSMO-SkyMed Dataset: Results and Validation
Franco Brizio, Giovanni Milillo, ASI-SKY CIDOT, Italy
Nicola Stella, Geotec, Italy
Pietro Milillo, University of Bari (DIF), Italy

9.3 Treatment of Atmospheric Artifacts in GPS Solutions
Francesco Vespe, Catia Benedetto, Roberto Tolve, ASI-Space Geodesy Center, Italy
Marilena Amoroso, Patrizia Sacco, Consorzio INNOVA, Italy
Brigida Pace, Rosa Pacione, e-GEOS, Italy
9.4 Ka-Band Altimeter Radio-Frequency Unit
Guy Michaud, S. Ohannessian, B. Cogo, B. Durand, F. Robert, Thales Alenia Space, France
Nathalie Steunou, Alain Mallet, CNES, France

14:30 – 15:30 - Room B
SESSION 10: COSMO SKYMED II
Chair: Matteo Piemontese, Thales Alenia Space, Italy

10.1 Coordination and Engineering Support to COSMO End-To-End Operations
Giuseppe F. De Luca, ASI, Italy
Graziano Marano, Italian Ministry of Defence, Italy
Barbara Busi, Elvira Caliò, Flavia Carnevale, Thales Alenia Space, Italy
Attilio Santellocco, Telespazio, Italy

10.2 COSMO-SkyMed: The F-DUGS Integration within the System
Giuseppe F. De Luca, Fabio Covello, Gianni Casonato, ASI, Italy
Graziano Marano, Italian Ministry of Defence, Italy
Elvira Caliò, Fabrizio Impagnatiello, Giovanni Rolando, Thales Alenia Space, Italy
Nicola Santantonio, Telespazio, Italy

10.3 The CSG Ground Segment Capability to Manage First & Second Generation of COSMO-SkyMed
Giuseppe F. De Luca, Gianni Casonato, Fabio Covello, Manfredi Porfilio, ASI, Italy
Graziano Marano, Italian Ministry of Defence, Italy
Matteo Piemontese, Mario Profili, Anna Croce, Roberto Episcopo, Thales Alenia Space, Italy
Marco Terlizzi, Telespazio, Italy

10.4 COSMO-SkyMed Second Generation: the SAR Instrument
Francesco Caltagirone, Edmondo Scorzafava, ASI, Italy
Andrea Torre, Pasquale Capece, Thales Alenia Space, Italy

15:30 – 16:00 - Coffee Break

16:00 – 17:30 - Room A
SESSION 11: TELECOMMUNICATION PROTOCOLS
Chair: Mario Caron, CRC – Communications Research Center, Canada

11.1 Dynamic QoS Configuration of a DVB-RCS Satellite Terminal for SIP-based Applications
Baptiste Jacquemin, Pascal Berthou, Thierry Gayraud, LAAS-CNRS, France
Cedric Baudoin, Thales Alenia Space, France

11.2 Highly Efficient DAMA for VPFDM Satellite Communication Systems
Katsuya Nakahira, Hirotu Uchiyama, Fumihiro Yamashita, Kiyoshi Kobayashi, NTT Access Network Service Systems Lab., Japan

11.3 Interworking between Satellite Performance Enhancing Proxies and Multilayer IPSec (ML-IPSec)
Haitham Cruickshank, Muhammad Nasir Mumtaz Bhutta, Center for Communication Systems Research - University of Surrey, UK
John Ashworth, Martin Moseley, EADS Astrium, UK

11.4 VSAT Return Channel Optimizations for Broadband Internet Support in 2-Way Satellite Networks
Ayan-Roy Chowdhury, John S. Baras, University of Maryland, USA
Mitch Robinson, Ceraone Networks, USA
11.5
How to Achieve QEF for GSE in 2nd Generation DVB Networks
Bernhard Collini-Nocker, Michael Noisternig, Thomas Soboll, Universität of Salzburg, Austria

11.6
Radio Resource Management with ACM/FMT for DVB-RCS Satellite Systems at Ka Band
Michel Bousquet, José Radzik, Abazagan Aroumont, ISAE/SCAN, France
Laurent Castanet, ONERA/DEMR, France

16:00 – 17:15 - Room B
SESSION 12: OPTICAL COMMUNICATIONS
Chair: Naoto Kadowaki, NICT, Japan

12.1
Optical Inter-Satellite Communication Operational
Mark Gregory, Frank Heine, Hartmut Kämpfner, Robert Lange, Tesat Spacecom, Germany
Michael Lutzer, Rolf Meyer, German Aerospace Center (DLR), Germany

12.2
10 Micron Satellite Laser Communication with Large Scale Ground Array
Paul Christopher, PFC Associates, USA

12.3
Direct Optical High Speed Downlinks and Ground Station Networks for Small LEO Missions
Dirk Giggenbach, Florian Moll, Christian Fuchs, Martin Brechtelsbauer, German Aerospace Center (DLR), Germany

12.4
Laser Occultation Demonstration Mission: the next step towards efficient monitoring of atmospheric chemical species
Luciana Bonino, Thales Alenia Space, Italy
Armin Loescher, Miguel Aguirre, ESA-ESTEC, The Netherlands
Ivelin Bakalski, Lidor Technologies, USA
Gottfried Kirchengast, Wegener Center/University of Graz, Austria
Matthias Renard, Fabrizio Pirondini, DEIMOS SPACE, Spain

12.5
Studies on Accessible Probability in Satellite-Ground Laser Communications
Yoshihisa Takayama, Morio Toyoshima, NICT, Japan

20:30 - Conference Dinner

Friday, October 22

09:00 – 10:45 - Room A
SESSION 13: NAVIGATION APPLICATIONS
Chair: Mario Blanco, The Mitre, USA

13.1
Off-board Communications for Integrated Vehicle Health Management
Robert J. Kerczewski, NASA Glenn Research Center, USA
Brian A. Kachmar, QinetiQ North America, USA

13.2
M2M via Satellite Solutions: A Scaleable Web Services Oriented Platform
Jean-Marc Villevieille, Bernard Durin, Didier Zeller, EADS Astrium, France

13.3
From MENTORE to SCUTUM: Towards the Use of EGNOS for the Management of The Dangerous Goods Transports
Antonella Di Fazio, Telespazio, Italy
D. Pizzorni, Eni - Refining & Marketing Logistica Secondaria, Italy
M. Zazza, Italian Ministry of Transportation, Italy
I. Fusco, European Union Road Federation, Belgium
13.4 GNSS Integrity and Protection Level Computation for Vehicular Applications
Gianluca Gargiulo, NEXT Ingegneria dei Sistemi, Italy
Marco Leonardi, University of Rome Tor Vergata, Italy
Giancarlo Varacalli, ASI, Italy
Matteo Zanzi, ARCES-University of Bologna, Italy

13.5 SENECA: Italian Programme For GNSS Introduction In Civil Aviation
Ennio Episcopo, Antonio Salonico, Telespazio, Italy
Orlando Galimberti, Thales Alenia Space, Italy
Franco Romani, Selex Sistemi Integrati, Italy
Bruno Casali, Ingegneria dei Sistemi, Italy
Alessio Di Salvo, ENAV, Italy
Salvatore Viviano, ASI, Italy

13.6 Synchronet: A High Performance Time and Frequency Distribution System
Franco Gottifredi, Enrico Varriale, Thales Alenia Space, Italy

13.7 Galileo PRS: Activities in Italy and in Europe
Raniero Pasquali, Gabriele Mocci, Paolo Ricci, Telespazio, Italy

09:00 – 10:30 - Room B
SESSION 14: TELECOMMUNICATION COMPONENTS 2
Chair: Domenico Mignolo, ESA, The Netherlands

14.1 ACM Technology For Broadband Access and IP Trunking Applications
Guy Verstraeten, Johan De Nolf, Newtec Cy, Belgium

14.2 Inductive Ku/Ka Bands Double Resonant Elements Frequency Selective Surface
Alessia Colasante, Giancarlo Bellaveglia, Raimondo Loforti, TES, Italy
Davide Ramaccia, Andrea Toscano, University of Rome Roma Tre, Italy

14.3 Definition, Implementation and Validation of an ASIC for Satellite Terminals Suitable for Athena-Fidus, Emersat and other DVB-Based Systems
Giuseppe Chiassarini, Antonio Vernucci, Eugenio Rossini, Francesco Richichi, Paolo Altamura, Simone Luperti, Space Engineering, Italy

14.4 The Electrical Design and Verification of the AlphaSat TDP#5 Antenna Farm
Piero Gabellini, Luciano D'Agristina, Luciano Dicecca, Domenico Di Lanzo, Nicola Gatti, Stefano Falzini, Space Engineering, Italy
Giuseppe Codispoti, ASI, Italy; Jean-Christophe Angevain, ESA, The Netherlands

14.5 Recent Advances on Multibeam Antenna Based on an Active Aperiodic Lens
Gianfranco Ruggerini, Antonio Levanto, Space Engineering, Italy
Giovanni Toso, Piero Angeletti, ESA, The Netherlands

14.6 Improving Frequency Recovery in a DVB-RCS Pilotless System
Gennaro Gallinaro, Filippo Di Cecca, Space Engineering, Italy
Paolo Burzigotti, ESA, The Netherlands

10:30 -11:00 - Coffee Break

11:00 – 12:15 - Room A
SESSION 15: EARTH OBSERVATION APPLICATIONS 2
Chair: Lanfranco Zucconi, Carlo Gavazzi Space, Italy

15.1 Active Sensing Technology Supporting NASA Earth Science
Robert Bauer, George J. Komar, Amy L. Walton, Philip M. Larkin, NASA Earth Science Technology Office, USA
Detecting Human Activity with COSMO-SkyMed Satellite Constellation
Luca Pietranera, Filippo Britti, Vittorio Gentile, e-GEOS, Italy

Landsat Data Continuity Mission (LDCM) Optimizing X Band Usage
Howard Garon, Jonathan Gal-Edd, Kenneth Dearth, Victor Sank, NASA / GSFC, USA

Toward an Operational Meteorology and Climate Global Service Based on Ground and Space GNSS facilities: The ASI contribution
Francesco Vespe, Roberto Tolve, ASI-Space Geodesy Center, Italy

Satellite based Maritime Services for Safety, Security and Fisheries
Maria Angelucci, Dino Quattrociocchi, e-GEOS, Italy

11:00 – 12:30 - Room B
SESSION 16: TELECOMMUNICATION COMPONENTS 3
Chair: Antonio Vernucci, Space Engineering, Italy

Experimental Evaluation of Ka-Band Coherent Transmission Function for JAXA X-Band Deep Space Digital Transponder
Atsushi Tomiki, Daichi Hirahara, Tomoaki Toda, Japan Aerospace Exploration Agency, Japan
Tatsuya Ichicawa, Takehiko Kobayashi, Tokyo Denki University, Japan

A Ka-Band Translator for Radio-Science Applications
P. Colucci, M. Ziarelli, Lorenzo Simone, Francesco Barletta, Oreste Cocciolillo, S. Cocchi, Franco Diaferia, Dario Geffusa, G. Tatananni, Roberto Giordani, Mario Micaloni, Maria Grazia Campagna, Paolo Panfili, Thales Alenia Space, Italy

High Power Transmitter Technology Choices for Ka Band Broadband Systems
Mike Cascone, Steve Ludvik, CPI SATCOM Division, USA

Development of Dual Mode Miniature K-band Low Noise Amplifier
Cedric Chambon, R. Rayet, T. Bonheure, R. Rawson, Callisto Space, France

Digital Vector Modulator GaAs MMIC for Phased Array Antennas
Marzia Migliorelli, Michele Albertini, Alfredo Catalani, Lino Russo, Space Engineering, Italy
Giovanni Toso, Rolv Midthassel, ESA, The Netherlands

Digital Cross-Polar Interference Canceller
Richard T. Gedney, Bill Thesling, Fan Mo, ViaSat, USA

12:30 – 13:00 - Room A
CLOSING SESSION

Invited Paper:
Impact of the FCC Broadband Plan on Satellite Communications
Roger Rusch, TelAstra, USA

Closing Remarks by:
   - Frank Gargione, Space Systems Consultant, USA
   - Franco Marconicchio, Space Consultant, Italy

13:45 – 14:30 - Lunch Break

15:00 – 18:00
Visit to the Carlo Gavazzi Space Plant.
GENERAL INFORMATION

Venue
The 16th Ka and Broadband Communications, Navigation and Earth Observation Conference and the 8th BroadSky Workshop are held at the Grand Visconti Palace Hotel, Viale Isonzo 14, 20135 Milano, tel.: +39 02 540341, fax: +39 02 54069523, web site: www.grandviscontipalace.com

Language
The working language is English.

Badges
All delegates must wear the badge at all Conference and Workshop events.

Meals
Breakfast is included in the room rate at the Conference Hotels. All luncheons and coffee breaks during the Conference, the Welcome Cocktail on Wednesday and the Conference Dinner on Thursday are included in the Conference registration fee.

Accompanying Persons
The Welcome Cocktail Reception admission is free of charge. Additional companion tickets for the Conference Dinner (Thursday) are available for sale for €75.

Internet Access during Conference
WiFi internet access is possible in every meeting room and in any public space of the Hotel. Rooms provide cable access.

Liability and Insurance
Neither the Conference Organizers, not the Grand Hotel Visconti Palace will assume any responsibility whatsoever for damage or injury to person or property during the Conference. Participants are recommended to arrange for their personal travel and health insurance.

SPEAKERS INFORMATION

Technical presentations will be 15 minutes in length (presentation and discussion). Session Chairs have been instructed to strictly maintain this schedule. Speakers and chairs should be in the conference room at least 15 minutes before the start of the session.

The Speaker must provide a short bio for the session chair to introduce his presentation to the Registration Desk in advance of his session, along with his PowerPoint presentation on a flash memory stick.

PLANT VISIT

Carlo Gavazzi Space Plant

Friday, October 22, 15:00 – 19:30

The visit to the Carlo Gavazzi Space Plant in Tortona (70 km from Milan) will take place at the end of the Conference. The visit will highlight the ongoing work on the LISA Pathfinder and LARES programs.

LISA (Laser Interferometer Space Antenna) is the scientific instrument at the core of an ambitious ESA/NASA joint program for the study of weak gravitational waves from Space. LARES (LAser RElativity mission Satellite) is a scientific mission of the Italian Space Agency aimed at achieving important scientific goals in the fields of gravitational physics, fundamental physics and Earth Sciences to be launched on the first launch of the VEGA launcher.

Anyone interested in the plant visit must make reservations with Conference Registration Desk by noon Wednesday, October 20. The visit is limited to a maximum of fifty participants.

Bus transportation will be provided and refreshments will be served during the visit.
SOCIAL EVENTS

Welcome Cocktail Reception

*Wednesday, October 20, 18:00 – 21:00*

The Cocktail will take place at the National Museum of Science and Technology Leonardo Da Vinci, after a guided visit to discover the most important collections hosted in the Museum.

Founded in 1953, the Museum, housed in an early 16th century Olivetan monastery in the heart of Milan (via San Vittore 21) and named after Leonardo da Vinci, is the largest science and technology museum in Italy and it hosts numerous unique examples of the Italian industrial transformation.

*The Cocktail is offered by Telespazio and Thales Alenia Space.*

Conference Dinner

*Thursday, October 21, 20:00 – 24:00*

The Conference Dinner will be held at the Chiostri dell’Umanitaria (via Daverio 7).

The Cloisters are part of the Church and Convent of Santa Maria della Pace, founded in the 16th century by a Franciscan Monk.

*Transportation to both Social Events will be provided by the Conference*