

INTERNATIONAL TELECOMMUNICATION UNION

Radiocommunication Bureau



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Subject: ITU Regional Seminar on "Space science services: regulatory, technical and practical implications" for the Americas Regions, Manta, Ecuador, 20 - 21 September 2012

Dear Madam/Sir,

The International Telecommunication Union has the pleasure to invite you to participate in the ITU Regional Seminar on "Space science services: Regulatory, technical and practical implications" for the Americas Regions, to be held in Manta (Ecuador) from 20 to 21 September 2012, at the kind invitation of the Ministry of Telecommunications and the Information Society (MINTEL).

Please be informed that the Seminar will be held in Spanish and English.

Background information and draft programme of the Seminar may be found in Annex 1, while practical information may be found in Annex 2.

People wishing to participate in the Seminar will need to complete the registration form contained in Annex 3. Completed forms (one for each participant) should be sent to the Ministry of Telecommunications and the Information Society of Ecuador by 7 September 2012.

A web page for Seminar participants can be found at: www.itu.int/ITU-R/go/itu-sem-americas. All relevant information will be posted on this page as it is received, together with a detailed agenda and the texts of presentations.

Should you require further information regarding the Seminar, please contact any of the following:

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Yours faithfully,

François Rancy
Director, Radiocommunication Bureau

Distribution:

- Administrations of Member States and Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 7
- ITU-R Associates participating in the work of Radiocommunication Study Group 7
- ITU-R Academia
- Chairman and Vice-Chairmen of Radiocommunication Study Group 7
- Secretary General of the ITU, Director of the Telecommunication Standardization Bureau, Director of the Telecommunication Development Bureau
- Regional ITU Office of Brasilia
- Area Offices of Barbados, Honduras and Chile
- Secretary-General of World Meteorological Organisation, Mr Michel Jarraud

ANNEX 1

Background paper

Historically, on account of their specificity, the development of science services has remained the preserve of a narrow circle of specialists. This stems primarily from the fact that the main users have been various security agencies or scientific institutions dealing with the fundamentals of space and the Earth. However, as a result of technological development in this sphere, science services are giving rise to a large number of applications for which there is significant demand, as they are extremely important, if not indispensable, in humankind's quest, for example, to combat various natural and climatic disasters and mitigate their effects. The World Radiocommunication Conference 2012 stated that "the collection and exchange of **Earth observation** data are essential for maintaining and improving the accuracy of weather forecasts that contribute to the protection of life and preservation of property throughout the world". At the same time, more and more applications, such as **remote sensing** imagery products, are emerging in response to commercial demands.

Space research has become something utterly commonplace, yet space remains one of the most promising and exciting areas of human discovery. It is clear that the future of humankind, our ambitious goals and our plans depend more on what we achieve in space exploration than in any other branch of science.

Technological development in general, and that of information/communication and navigation technologies in particular, requires the increasingly **precise timing and synchronization** of different electronic devices. Precise timing is no longer a novelty but a necessity. In particular, **time and frequency transfer** plays a critical role in the functioning of the Global Navigation Satellite System, and in turn is greatly enhanced by worldwide acceptance of the system.

Astronomy provides the framework knowledge of where we, and the planet on which we live, fit into the environment of the Universe; astronomy is a vital part of the culture of all mankind. From the dawn of civilization, astronomy has provided important stepping-stones for human progress. Much of today's mathematics, such as trigonometry, logarithms and calculus, interferometry, computed tomography, geodesy principles, is the result of astronomical research. **Radio astronomy** is an integral part of astronomical research and provides information that is complementary to astronomical research at all other wavelengths.

This ITU Seminar will provide participants with full and comprehensive information on the development of science services, focusing on the most recent studies conducted by ITU-R Study Group 7. In particular, the following items will be discussed:

- International spectrum management frameworks for science services.
- Development of radio services related to Earth observation systems, including basic definitions, technical principles underlying the operation of systems and their main applications.
- A general understanding of the space research service, including the technical and spectrum requirements to support the many different space research programmes, missions and activities.
- A description of currently used and discussed precise frequency and time standards, sources and their characteristics, time scales and dissemination systems.
- The main aspects of radio astronomy relevant to radio spectrum use.

The Seminar is intended primarily for the managerial and technical staff of State radiocommunication authorities involved in spectrum management matters. It may also be enlightening for a secondary audience, namely space agencies, national emergency, national security, law enforcement, aviation, maritime and meteorological organizations, in providing them with an understanding of some of the **regulatory, technical and practical aspects of science services development.**

**ITU Seminar for Americas Region
(Manta, Ecuador, 20-21 September 2012)**

**Science Services:
Regulatory, technical and practical implications**

Draft program

Thursday, 20 September 2012	
8:30-9:30	Registration
9:30-10:30	Opening session
<p>“Magistral Presentation of the Civilian Space Agency of Ecuador EXA”, Ronnie NADER, Cosmonaut/ASM Commander Space Operations Division Director, ECUADORIAN CIVILIAN SPACE AGENCY – EXA</p> <p>“Orbital Vigilance Satellites”, Ronnie NADER, Cosmonaut/ASM Commander Space Operations Division Director, ECUADORIAN CIVILIAN SPACE AGENCY – EXA</p> <p>“ITU and ITU-R”, Vadim NOZDRIN, Study Group Counselor, Radiocommunication Bureau, ITU</p>	
10:30-11:00	Coffee break
11:00-12:30	Session 1: International regulation for science service
<p>“Space science activities in the ITU”, Vincent MEENS, Chairman, ITU-R Study Group 7, Centre National d'Etudes Spatiales (CNES), France</p> <p>“The activities of the Space Frequency Coordination Group (SFCG)”, Edoardo MARELLI, Chairman, ITU-R Working Party 7C, European Space Agency (ESA)</p>	
12:30-14:00	Lunch
14:00-15:30	Session 2: Time signals and frequency standard emissions
<p>“Role of ITU-R in time and frequency dissemination”, Ronald BEARD, Chairman, ITU-R Working Party 7A, US Naval research laboratory, USA</p> <p>“Future of Coordinated Universal Time UTC”, Elisa Felicitas ARIAS, The International Bureau of Weights and Measures (BIPM)</p> <p>“LF Time and Frequency broadcast systems”, Wayne HANSON, National Institute of Standards and Technology (NIST), USA</p>	
15:30-16:00	Coffee break
16:00-17:30	Session 3: Space research and space operation services
<p>“Communicating with SRS and EESS satellites”, Bradford KAUFMAN, Chairman, ITU-R Working Party 7B, National Aeronautics and Space Administration (NASA), USA</p> <p>“SRS (deep space) communications”, Bradford KAUFMAN, Chairman, ITU-R Working Party 7B, National Aeronautics and Space Administration (NASA), USA</p> <p>“Communication aspects of human space missions”, Cathy SHAM, NASA Johnson Space Center, USA</p> <p>“Regulatory requirements of nano- and pico-satellites”, Tomas GERGELY and Andrew Clegg, National Science Foundation, USA</p>	
Questions	

Friday, 21 September 2012	
09:00-10:30	Session 4: Satellite RF sensors (active and passive)
<p>“Radio frequency sensing from space”, Edoardo MARELLI, Chairman, ITU-R Working Party 7C, European Space Agency (ESA)</p> <p>“Passive RF sensing”, Jean PLA, Centre National d'Etudes Spatiales (CNES), France</p> <p>“Active RF sensing”, Bryan HUNEYCUTT, Jet Propulsion Laboratory, USA</p>	
10:30-11:00	Coffee break
11:00-12:30	Session 5: Meteorological-satellite radiocommunications
<p>“Overview of geostationary and non-geostationary MetSat systems”, Markus DREIS, European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), Germany</p> <p>“How your weather forecast is made - its dependence on passive microwave data from satellites”, Richard KELLEY, Alion Science And Technology, USA</p> <p>“Distribution of the meteorological data”, Markus DREIS, European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), Germany</p> <p>“An overview on the Data Collection Systems”, TBD</p>	
Lunch	
14:00-15:30	Session 6: Meteorological aids service (radiosondes) and other systems
<p>“Radiosonde Operations”, Robert DENNY, National Oceanic and Atmospheric Administration (NOAA), USA</p> <p>“Radiosonde spectrum issues”, Davide FRANCO, National Oceanic and Atmospheric Administration (NOAA), USA</p> <p>“Lightning detection systems”, TBD</p>	
15:30-16:00	Coffee break
16:00-17:30	Session 7: Radioastronomy and radar astronomy
<p>“Radio Astronomy: A special window to the universe”, Tasso TZIOUMIS, Chairman, ITU-R Working Party 7D, Australia Telescope National Facility, Australia</p> <p>“Radioastronomy and radar astronomy: Latin American perspective”, Tomas GERGELY, National Science Foundation, USA</p> <p>“Spectrum regulation and RAS: Keeping the window clean”, Andy CLEGG, National Science Foundation, USA</p> <p>“Radioastronomy and the future”, Masatoshi OHISHI, Chairman, Scientific committee on frequency allocations for radio astronomy and space science (IUCAF), Japan</p>	
Questions and Closure	

ANNEX 2

Practical information concerning the Seminar

1 Meeting venue

The meeting will be held at:

Ciudad Alfaro Civic Center
Prolongación de la Calle 10 de Agosto
Antigua sede de la Asamblea Constituyente
Montecristi - Manabí – Ecuador

Tel: (593)5-2311210

E-mail: info@ciudadalfaro.gob.ec

<http://www.ciudadalfaro.gob.ec/>

2 Local contact persons

Ec. Wendy Barreno

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3 Accommodation and hotel reservations

The Ecuadorian Administration has secured special rates with a number of city centre hotels, details of which are given in the table on the next page, where there is also a map showing the location of each hotel in relation to the meeting venue. In order to get special rates please refer to the event organized by MINTEL.

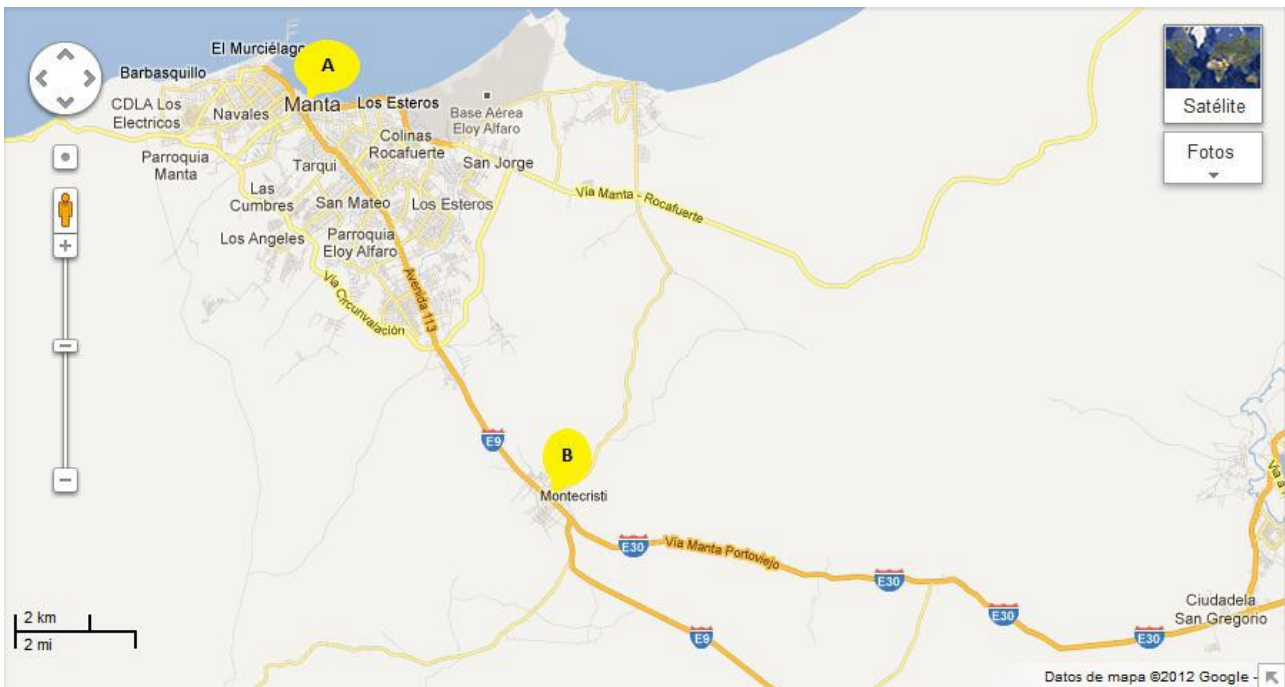
Once the delegates have arranged their accommodation with the hotels, they are kindly requested to inform us of the reservations made, by e-mail to: meetingecuador.uit@mintel.gob.ec; gabriela.gallegos@hotmail.es using the forms provided for the purpose.

It is important that reservations be made as early as possible. All reservations must include a credit card number. You will receive a confirmation message once your reservation has been accepted by the hotel. Should you subsequently find that you will be unable to attend the meeting, the reservation must be cancelled sufficiently in advance (at least 7 days); and it should be done with our intermediary in order to avoid any inconvenience.

There will be buses that will arrive to the suggested hotels in a planned schedule arrangement, to take the delegates to the meeting place. As it takes about 20 minutes to get there by car/bus, it is not convenient to go by walking.

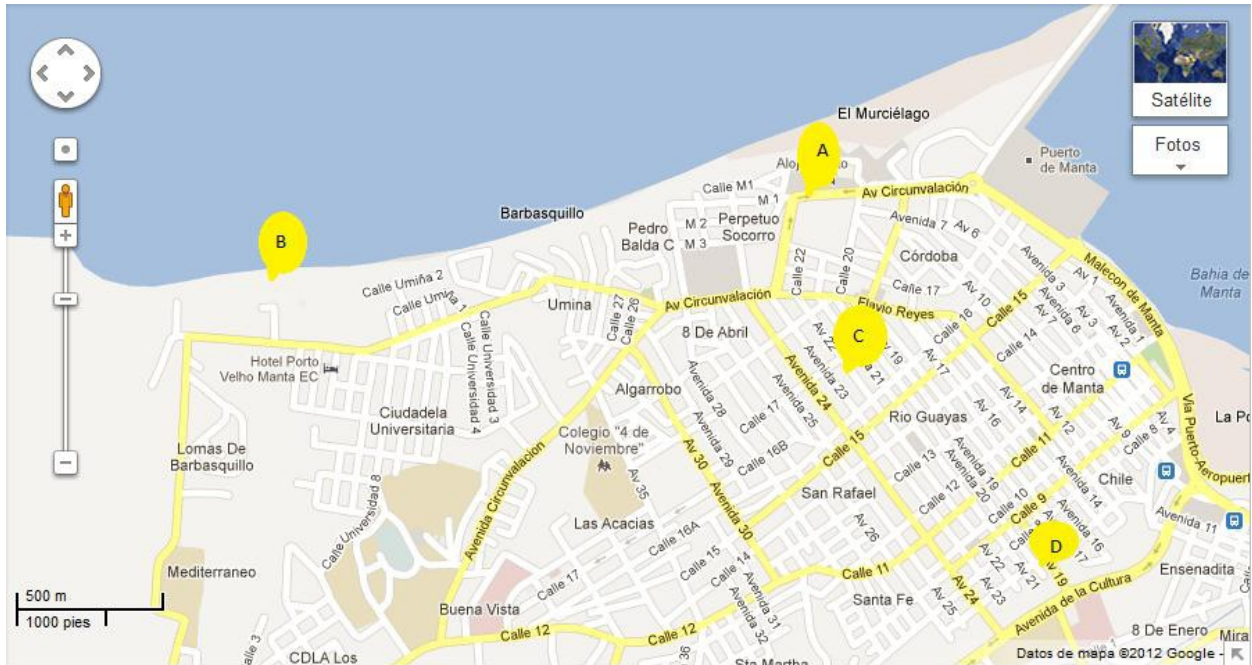
It is important for delegates to fill out the form in Annex 3 in order to coordinate the transfer from the airport to the hotel.

CIUDAD ALFARO CIVIC CENTER



A. Eloy Alfaro Airport

B. Ciudad Alfaro Civic Center



A. Oro Verde Hotel

B. Howard Johnson Hotel

C. Los Almendros Hotel

D. Balandra Hotel

HOTEL	CATEG	TYPE OF ROOM	RATE	REMARKS
(1) Hotel Howard Johnson Km. 1.5 Vía Barbasquillo www.ghlhoteles.com Tel/Fax: +593-5-2629999 Cel: 593-9-4501909 reservas@hojomanta.com mercadeo@hojomanta.com	*****	Single Double	USD 79.30 USD 91.50	Includes buffet breakfast
(2) Hotel Oro Verde Malecón y Calle 23 www.oroverdehotels.com/manta Tel: +593-5-2629200 Fax: +593-5-2629210 reservas_mta@oroverdehotels.com ov_mta@oroverdehotels.com corpuio@oroverdehotels.com	*****	Single Double Grand Suites Junior Suites	USD 91.50 USD 103.70 USD 103.70 USD 152.50 USD 176.90	Includes buffet breakfast
(3) Hotel – Cabañas Balandra Barrio Córdoba Av. 7 y Calle 20 www.hotelbalandra.com Tel: +593-5-2620316 Fax: +593-5-2620545 eventos@hotelbalandra.com cecilia1411@hotmail.com	* * *	Single Triplex	USD 93.94 USD 48.80 per person.	Includes breakfast
(4) Hotel Los Almendros www.almendrosaparthotel.com Tel: +593-5-2620932 Fax: +593-5-2610636 reservas@almendrosaparthotel.com marcelgaravi@gmail.com	* * *	Single Double	USD 85.40 USD 103.70	Includes breakfast

4 Flights and ground transportation

When delegations arrive to Quito city, they have to take a flight from Quito to Manta. We have available the following airlines: TAME and AEROGAL.

Eloy Alfaro National Airport is located 10 minutes from the downtown. Delegates have the following options for travelling from the airport to their hotel:

Buses: Delegates will be received by buses that will leave the airport with each flight arrival, and we will transport to the main downtown hotels.

Private taxis: The airport is served by a large number of taxis, which can be found outside the arrivals hall. Further information may be found on the following websites:

www.quiport.com

www.aeropuertomanta.com

5 Entry formalities

Most of the visitors to Ecuador are automatically given a tourist visa, a 12-X, which allows for a stay of up to 90 days. The only countries that need a visa to access Ecuador are Afghanistan, Bangladesh, Eritrea, Ethiopia, Kenya, Nepal, Nigeria, Pakistan and Somalia. For all the rest, the only requirements to obtain a 12-X visa are a passport valid for at least six months, a return ticket, and proof of economic means to support yourself during your stay.

No vaccination certificate is required for entering the country.

If delegations come from Colombia it is necessary to present the criminal record document.

6 Language

Spanish is the official language and Amerindian languages (Quechua).

7 Electric current

The voltage is 110-220 V/ 60Hz (USA & European plugs). Most hotels provide 110-volt adaptors.

8 Climate

Manta is located in a dry tropical forest area with an average annual temperature of 25 degrees Celsius (77° F). The area has a wide variety of climate zones attributed geographical characteristics of the area. During the year, there are two seasons; rainy, and dry. The rainy season is approximately six months long when it is hot and humid, and occurs from December to May. The dry season is approximately six months long and occurs during the months of June to November. It is warm but very low humidity.

9 Currency

The *USD Dollar (\$)* is the official currency of Equator. Foreign currency can be exchanged in banks and other authorized establishments. The most commonly accepted credit cards are American Express, VISA, Diners Club and MasterCard.



10 Business hours

Banks and exchange offices: Monday to Friday from 09:00 to 16:00 hours.

Company offices: Generally from 09:00 to 13:00 and from 14:00 to 18:00 hours.

Shops and businesses: In the major cities, Monday to Saturday from 09:00 to 20:00 hours (in the country's interior there is normally a midday break).

Restaurants: Breakfast is served from 07:00 hours, lunch is served from 12:30 hours and dinner from 19:00 hours. Many fast-food establishments are open round the clock.

11 Tipping

It is customary to leave a 10 per cent gratuity in coffee bars and restaurants.

12 Other useful information

You can find further information about Equator and Manta on the following Web page:

www.turismo.gob.ec

13 Itinerary flights

Airline: Tame

DAY	SCHEDULE	
	FROM QUITO	ARRIVAL TO MANTA
MONDAY TO FRIDAY	06:15	06:45
SATURDAY	07:30	07:30
SUNDAY TO FRIDAY	18:15	18:45
MONDAY TO FRIDAY	12:30	13:30


DAY	SCHEDULE	
	FROM MANTA	ARRIVAL TO QUITO
MONDAY TO FRIDAY	07:15	07:45
SATURDAY	08:00	08:30
SUNDAY TO FRIDAY	19:15	19:45
MONDAY TO FRIDAY	14:00	15:00

Airline: Aerogal

DAY	SCHEDULE	
	FROM QUITO	ARRIVAL TO MANTA
MONDAY TO FRIDAY	06:35	07:20
SATURDAY	09:30	10:15
MONDAY TO FRIDAY	12:45	13:30
SATURDAY AND SUNDAY	17:15	18:00
MONDAY TO FRIDAY	18:30	19:15

DAY	SCHEDULE	
	FROM MANTA	ARRIVAL TO QUITO
MONDAY TO FRIDAY	07:50	08:35
SATURDAY	10:45	11:30
MONDAY TO FRIDAY	14:00	14:45
SATURDAY AND SUNDAY	18:35	19:20
MONDAY TO FRIDAY	19:45	20:30

ANNEX 3
Seminar registration form

		
FULL NAME:		
TITLE:		
ORGANIZATION:		
COUNTRY:		
TELEPHONE / MOBILE:		
E-MAIL:		
ARRIVING DATE (QUITO-MANTA):		
NAME OF THE HOTEL RESERVED IN MANTA:		
STAY IN HOTEL:	FROM (mm/dd/yy):	TO (mm/dd/yy):
<p>* ARE YOU INTERESTED IN A BEACH TOUR?</p> <p>YES <input type="checkbox"/> NO <input type="checkbox"/></p>		

- * In order to ensure your pleasurable time in Manta, please inform us about your choice.
The information about the beach tour will be given on 24 September 2012 at the registration desk.

Please fill out all the information required and send it by e-mail to:

meetingecuador.uit@mintel.gob.ec

and a copy to:

gabriela.gallegos@hotmail.es

It will help us to organize your visit in the best way.