Asia-Pacific
Economic Cooperation

2013/SOM1/EPWG/008a
Agenda Item: 8.1.2

Workshop on Application of Satellite Technologies for Emergencies Preparedness, Management and Response in Asia-Pacific Region - Presentation

Purpose: Information
Submitted by: Russia

4th Emergency Preparedness Working Group Meeting
Jakarta, Indonesia
2-3 February 2013

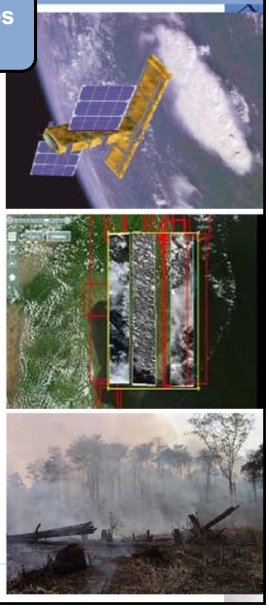
Relevance

Application of Satellite Technologies for EPMR in Asia-Pacific region

Since the turn of the millennium, more than one million people have been killed and 2.3 billion others have been directly affected by natural disasters around the world. According to UN statistics, the Asia-Pacific region has the largest proportion of natural disasters in the world. The region covers more than 50% of the global fatalities associated with such disasters. Nowadays satellite monitoring of natural and industrial catastrophes and emergency situations has become an important required component of information support to regional emergency services.

Remote sensing technologies, especially all-weather-technologies, ensure a rapid and objective picture of the catastrophe's scale and consequences, which is vital for the urgent rescue, humanitarian aid, and damage assessment.

It is estimated that proper and timely application of modern satellite and communication technologies for disaster preparedness, management and response can reduce financial loss caused by natural disasters by 10-20%.



Project Aims

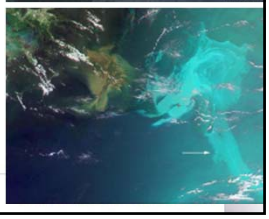
Application of Satellite Technologies for EPMR in Asia-Pacific region

The project is targeted at increasing emergency preparedness of APEC economies, at proper application of innovative satellite and communication technologies, at better awareness and faster actual satellite data delivery, at development of international cooperation for Emergencies Preparedness, Management and Response (EPMR). The objective of the project is to organize and hold a Workshop «Application of Satellite Technologies for EPMR in Asia-Pacific Region». The Workshop will be organized by Russian Federal Space Agency and EMERCOM Russia and focus on the following issues:

(1) Specific character of satellite technologies application for different types of emergencies (earthquakes, floods, wildfires, drought, sea surface oil pollution, etc.) in APEC region;

(2) Modern and prospective satellite systems (high resolution radars, small satellite constellations, etc.) and it's application for EPMR – expectations and trends;

(3) Development of international cooperation and mechanisms of fast remote sensing data delivery for EPMR.



Project Objectives

Application of Satellite Technologies for EPMR in Asia-Pacific region

APEC economies have diverse experience in the application of modern satellite and communication technologies for EPMR. The objective of the workshop is to exchange best practices and expertise in order to increase the level of APEC economies competence. A significant portion of the workshop will be a discussion between end-users of satellite data (disaster managers) and satellite designers and operators on their requirements and trends. Their views will assist in influencing the development of future "emergency" satellites which better corresponded to EP requirements. The workshop will target specific objectives to ensure that participants will:

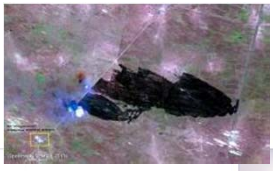
1) share regional and international experience and upgrade practical skills and knowledge on application of satellite and communication technologies for EPMR;

2) enhance understanding of modern satellite systems (high resolution radars, small satellite constellations, etc.), it's capabilities, limitations and development trends applied for EPMR;

3) enhance understanding of functioning of international mechanisms on remote sensing data acquisition and its urgent distribution in case of emergency;

3)elaborate recommendations:

- for future steps directed to support application of satellite technologies for EPMR in region;
- for EPWG on how to further operate information exchange.



Project Planned Activity

Application of Satellite Technologies for EPMR in Asia-Pacific region

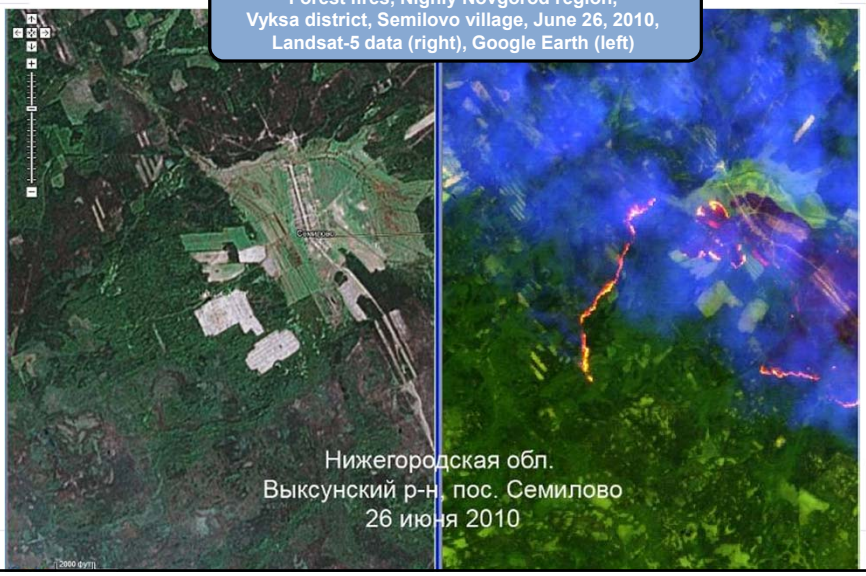
During Project preparation the organizers are planning to work with APEC economies interested in application of satellite and communication technologies for EPMR.

Additionally to APEC EP WG we hope to engage IST WG and HRD WG.

It is planned to invite for participation in the workshop officials and experts from APEC economies emergency and environment ministries and agencies, international emergency organizations (Asian Disaster Reduction Center, Pacific Disaster Center, Center for International Disaster Information), space agencies (ROSCOSMOS, CSA, USGS, NOAA, NASA, CONAE, JAXA, CNSA, ESA, etc.), remote sensing satellites operators (Digital Globe, GeoEye, MDA, SPOT Image, UK DMC, ImafeSat, etc.), regional and international organizations, dealing with satellite and communication technologies in case of emergencies (UN-SPIDER, The International Charter "Space and Major Disaster", SENTINEL), Roshydromet, GEONETCast, WMO, representatives from research and engineering, humanitarian and public organizations, NGOs that have used or are going to adopt the technology for disaster reduction or emergency relief.

Wildfire near real time monitoring

Forest fires, Nigniy Novgorod region,
Vyksa district, Semilovo village, June 26, 2010,
Landsat-5 data (right), Google Earth (left)



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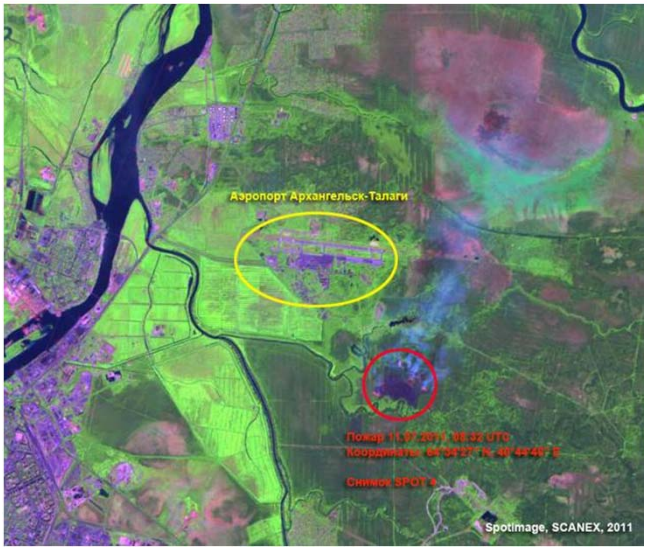
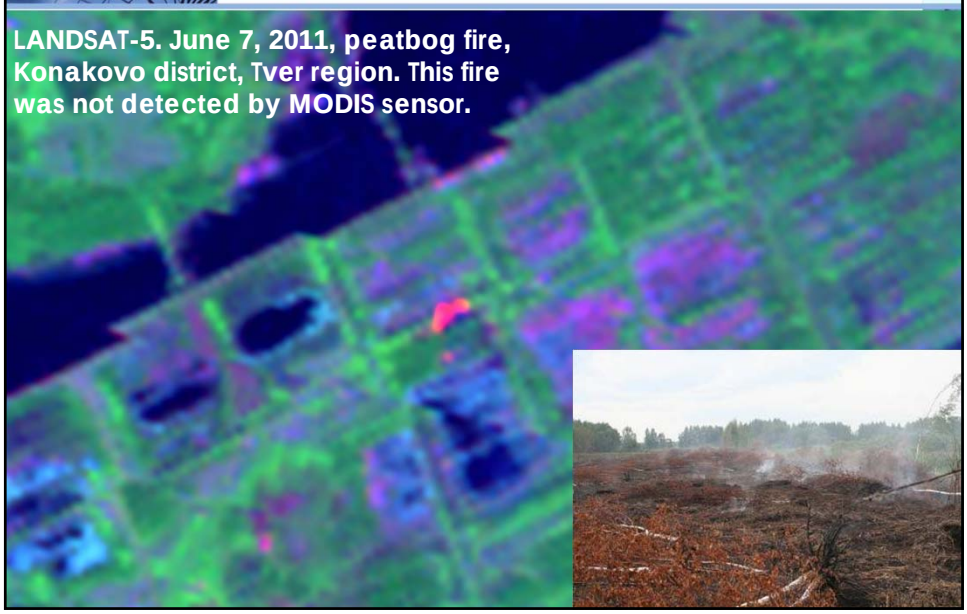
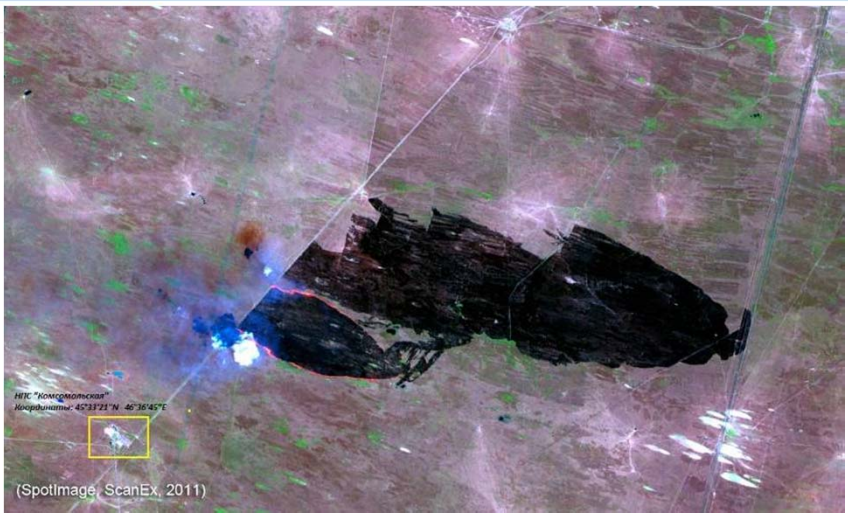


SPOT-4, Archangelsk region, 11.07.2011, forest fire near (3 km) airport Talagi

Peatbog fires satellite monitoring



Wild Fire Satellite Monitoring

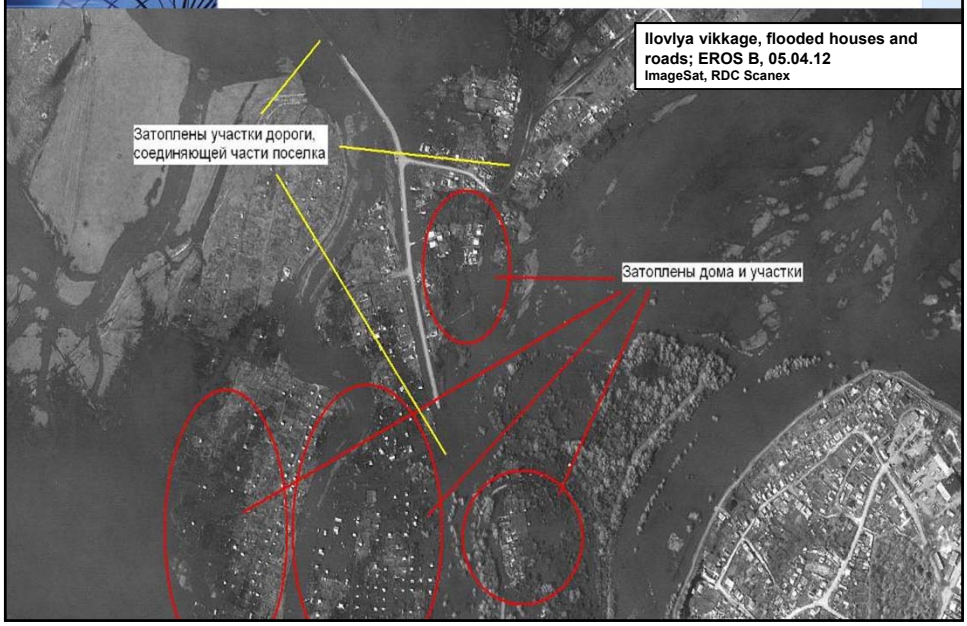


SPOT 4, Kalmykia Republic, 29.06.2011, 07:28 UTC, wild fire near (5 km) oil pumping station

Steppe fire development, Astrakhan region

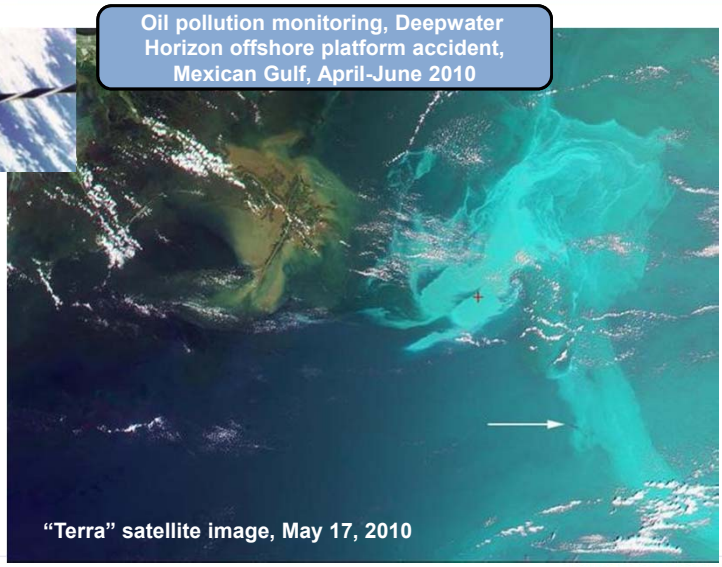
Left image: FORMOSAT-2, April 1, 2012, 7:00 UTC. Burned out territory 0,2 sq. km
Right image: SPOT 5, April 1, 2012, 7:57 UTC. Burned out territory 0,7 sq. km

Economy experience in organization of emergency satellite monitoring - flood monitoring



Satellite monitoring – Mexican Gulf 2010 oil spill

Oil pollution monitoring, Deepwater Horizon offshore platform accident, Mexican Gulf, April-June 2010



"Terra" satellite image, May 17, 2010

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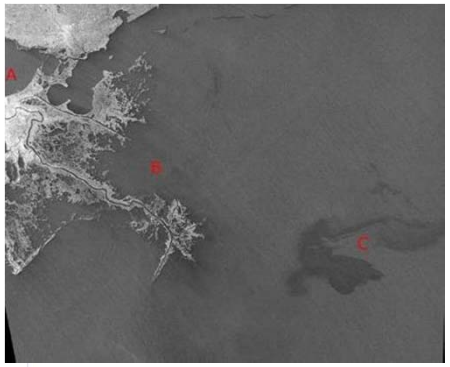
Satellite monitoring – Mexican Gulf 2010 oil spill

Oil pollution monitoring, Deepwater Horizon offshore platform accident, Mexican Gulf, April-June 2010



"Radarsat", April 26, 2010, © MDA

"Envisat", May 21, 2010, © ESA

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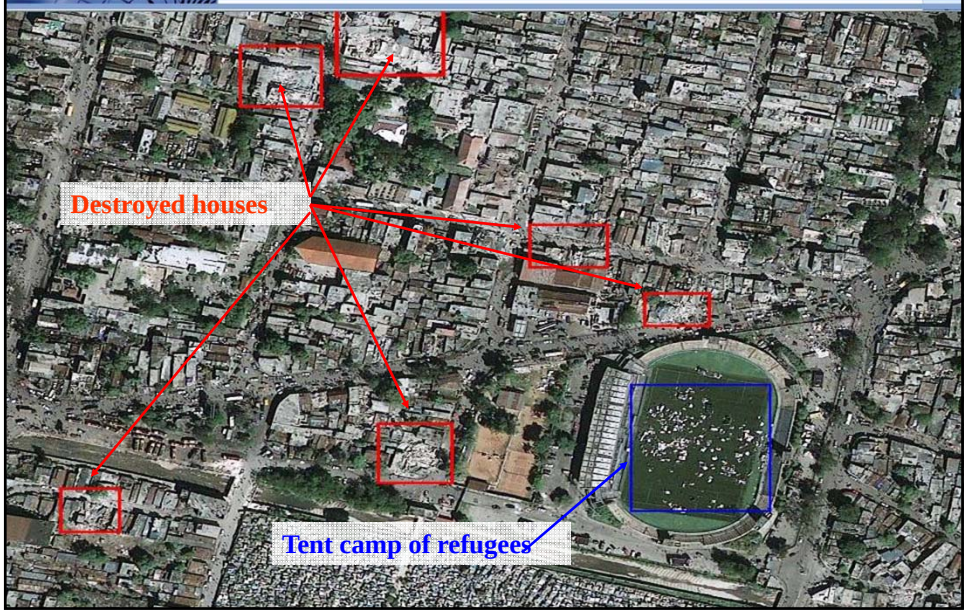
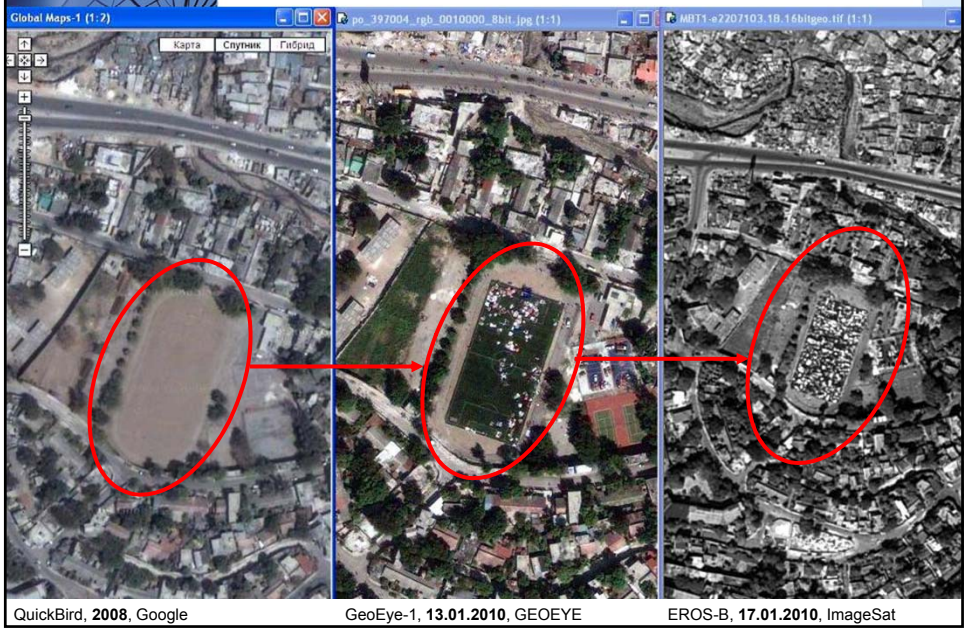
The consequences of the earthquake in Haiti (Port-au-Prince, 15.01.2010)



Emergencies monitoring, Port-au-Prince, Haiti, Stadium tent camp, 2010



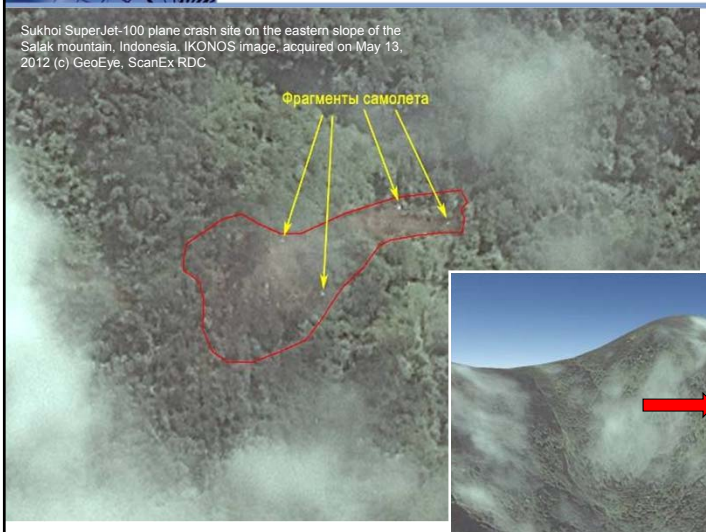
QuickBird, **2008**, Google | GeoEye-1, **13.01.2010**, GEOEYE | EROS-B, **17.01.2010**, ImageSat

The consequences of the earthquake and tsunami in Japan. Port Sendai, 12.03.2011

The consequences of the earthquake and tsunami in Japan. NPP Fukushima-1

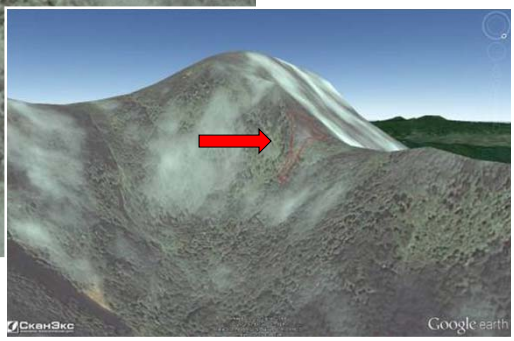
Aircrafts crash sites monitoring. Tu-154M airplane crash near Smolensk, Russia, 11.04.2010 (GeoEye, 0.6M)

Aircrafts crash sites monitoring. SSJ-100 airplane crash site space images



Sukhoi SuperJet-100 plane crash site on the eastern slope of the Salak mountain, Indonesia, IKONOS image, acquired on May 13, 2012 (c) GeoEye, ScanEx RDC

Russian Sukhoi SuperJet-100 (SSJ-100) airplane crash site.
The accident occurred on the demonstration flight on May 9, 2012 in Indonesia.
Satellite data were delivered in real-time to the EMERCOM of Russia.



3D-model of the Sukhoi SuperJet-100 plane crash site created on the base of IKONOS image from May 13, 2012 (c) GeoEye, ScanEx RDC

Maritime accidents monitoring. Costa Concordia liner crash, January 2012

EROS B image, 20.01.2012,
near the coast of Toscana.

Workshop Tentative Agenda

Keynote lecture:
Application of Satellite and Communication Technologies for EPMR in the Asia-Pacific region. (Invited speaker – TBC)

Plenary Sessions:

- Regional and international experience in application of satellite and communication technologies for EPMR
- Specific characteristics of satellite technologies application for different types of emergencies (earthquakes, floods, wildfires, drought, sea surface oil pollution, etc.) in APEC region
- Modern and prospective satellite systems and it's application for EPMR – expectations and new trends
- International cooperation and mechanisms of fast remote sensing data delivery for EPMR
- Crisis management centers regional network development

Breakout sessions:
Application of satellite technologies for different types of emergencies (earthquakes, floods, wildfires, drought, etc)
Future development of satellite technologies and end users requirements for acquired data (sessions' facilitators – representatives of satellite operators – SPOT, MDA, Digital Globe, ImageSat, etc)

Satellite Operators and/or Emergencies Agencies Master Classes

Workshop Preparation – Questions for EP WG

Workshop is suggested to be held on the margins of the Seventh APEC Senior Disaster Management Officials Forum (Indonesia, August 25-30, 2013) to get better participation by group members.

Questions:

- **Suggested dates of workshop August 23-24 or August 30-31 or August 31 – September 1 ?**

- **Exact location (place, venue) ?**

- **Additional topics for Agenda (plenary sessions, breakout discussions, master classes) ?**

- **Suggestions regarding invitation of non-member participants ?**

- **Idea(s) regarding field tour ?**

- **Primary contact person in host economy for assistance in workshop arrangement ?**

Roscosmos Project Activity in APEC

№	Year	APEC WG	Project name	Status
1	2011	F / OF	Seminar on Satellite Data Application for Sustainable Fishery Support in APEC	Completed
2	2012	IST	APEC Network Building – Applied Space Technology Centers	Ongoing
3	**2013**	**EP**	**Application of Satellite Technologies for Emergencies Preparedness, Management and Response in Asia-Pacific Region**	**Approved**

Thank you for your attention !

Application of Satellite Technologies for EPMR in Asia-Pacific region

We are looking forward to your active participation in the workshop !