

## **Proposal for Forming an IAA Study Group SG 5.13**

### **Title of Study:**

Space Systems as Critical Infrastructure

### **Proposer(s):**

Marius-loan PISO

### **Primary IAA Commission Preference:**

Commission 5

### **Secondary IAA Commission Interests:**

Commission 4; Commission 3

### **Members of Study Team**

#### **Chair(s):**

Marius-loan PISO

#### **Secretary:**

Iulia Jivanescu (Romanian Space Agency)

Oana Neagu (Romanian Space Agency)

#### **Other Members:**

Peter Breger (Head of Unit (Acting) for Space Research and Development DG Enterprise and Industry, EU)

Sergio Camacho (SG CRECTEALC, Mexico)

Jean-Michel Contant (SG IAA)

Augusto Gonzales (Head of Space Policy and Coordination Unit in DG Enterprise and Industry)

Peter Hulsroj (Director ESPI)

Peter Jankowitsch (Chairman, Trustees Section 4, IAA)

Detlef Koschny (SSA Office, ESA)

Tanja Masson-Zwaan (President IISL)

Sias Mostert (Executive Director SunSpace and Information Systems, South Africa)

Martin Sweeting (Exec. Chairman SSTL)

Mazlan Othman (Director of UN-OOSA)

Paul Weissenberg (Deputy Director-General DG Enterprise and Industry, EU)

Dumitru-Dorin Prunariu (cosmonaut, ROSA)

Liviu Muresan (Executive President EURISC)

Adrian Gheorghe (Journal of Critical Infrastructures, EURISC)

Kai-Uwe Schrogl (Head ESA Policies Dept.)

## **Short Description of Scope of Study**

### **Overall Goal:**

The study aims to elaborate a qualitative and quantitative assessment of the degree of criticality of space systems as essential infrastructures for the Earth civilization, respectively to:

- estimate the critical dependence of basic Earth activities, as basic infrastructures and life, on the functioning of space systems;
- evaluate vulnerabilities of space systems against natural and human-made threats
- generate the quantitative approach to produce recommendations for space agencies and political stakeholders regarding the actual utilization and future needs of space critical systems.

The study is in line with the Romanian project CRITSYS, conducted by the Romanian Space Agency (ROSA), the European Institute for Risk, Security and Communication Management (EURISC) and the Military Equipment and Technologies Research Agency (METRA), developed in the framework of The National Plan for Research, Development and Innovation 2007-2013 – Partnerships Program, and with the European Space Agency program on Space Situational Awareness (SSA). A nanosatellite constellation/formation for the monitoring of the space environment will be studied in the frame of a design project towards a proposal for SSA. Moreover, a center of competence is to be developed and to be merged with the United Nations SPIDER regional office in ROSA, Bucharest.

Recent societal remarks include the Global Risks World Economic Forum (Davos, January 2013) which states that lack of broad awareness of the importance of satellites explains why this risk consistently ranks at the bottom of the global risk landscape. In February 2013 the European Commission proposed for a Decision of the European Parliament and of the Council for the establishment of a space surveillance and tracking support program. The emphasis is on space systems that have become critical for the implementation of EU policies, such as environment, climate change, maritime sector, development, agriculture, security related policies, as the furthering of technical progress and industrial innovation and competitiveness. Moreover, the Specialists Meeting on NATO Space Capability Preservation (Oberammergau, 28-30 March 2013) entitled *A successful NATO Day without Space* focused on the preservation of essential space capabilities used by NATO and supported by space situational awareness (SSA).

### **Intermediate Goals:**

The intermediate goals are to:

- correlate parts from issues as near Earth objects (NEO), space debris, nuclear sources in space, long term threatening Earth and out of Earth factors, disaster and crisis management
- generate substance for legal instruments and policy guidelines
- create multidisciplinary issues as base for next studies

### **Methodology:**

The study group requires expertise in the fields of satellite applications, engineering, physical sciences, policy and law, business and management, and space and society. Therefore, due to its interdisciplinary nature, the study group will gather experts from a range of scientific backgrounds. The kick-off meeting entitled the 1<sup>st</sup> IAA Conference on Space Systems as Critical Infrastructure took place on the 6<sup>th</sup> and 7<sup>th</sup> of September in Mamaia, Romania. The 2<sup>nd</sup> IAA Conference on Space Systems as Critical Infrastructure is aimed to take place between the 29<sup>th</sup> and 30<sup>th</sup> of August 2013 in Mamaia, Romania.

The information gathering will take place at IAA Symposia and Technical sessions as well as at national and international conferences and meetings between ROSA, METRA and EURISC. The overall goals will be achieved through email works, workshops and seminars, while the technical results will be disseminated by publication in dedicated scientific journals and by an active participation in national and international scientific conferences.

The technical, financial and administrative management of the project will envisage:

- the preparation and maintenance of a comprehensive plan;
- the constant monitoring of the project progress against the schedule;
- the achievement of the project objectives in a cost effective manner;
- the identification and management of the risks;
- the quality control of the developing processes during the entire project.

**IAA, Paris, 2012 Form**

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*Instructions and application form: see: "Scientific Activity" section at <http://iaaweb.org/content/view/256/393/>*

**Time Line:**

3 years

**Final Product (Report, Publication, etc.):**

Report, Publications, Website  
Centre of Competence in Space Critical Infrastructure Analysis

**Target Community:**

ESA, industry  
European Commission  
UN COPUOS  
NATO-RTO

**Support Needed:**

Scientific review and organizational support from IAA

**Potential Sponsors:**

ROSA  
EURISC  
International Institute of Space Law (IISL)  
Companies t.b.d.

*To be returned to the IAA Secretary General Paris*

*by fax: 33 1 47 23 82 16 or  
by email: [sgeneral@iaamail.org](mailto:sgeneral@iaamail.org)*

**Date: July 2<sup>nd</sup>, 2013**

*(No Signature required if document authenticated).*

**IAA, Paris, 2012 Form**

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Instructions and application form: see: "Scientific Activity" section at <http://iaaweb.org/content/view/256/393/>

**Follow-up Section for IAA use only**

**Initial Phase**

**Application received:**

**July 2<sup>nd</sup>, 2013**

**Commission Approved:**

**SAC Approved:**

**Web Site Section opened:**

**Members Formally Appointed by IAA:**

**Final Phase**

**Peer Review by Commission Completed:**

**Recommended by the Commission:**

**Final Report Received:**

**SAC Approved:**

**BOT Accepted:**

**Publisher Selected:**

**Study Published:**