

RAINER SANDAU

# Towards a New Era of International Space Cooperation

*Rainer Sandau is Technical Director, Satellites and Space Applications, of the International Academy of Astronautics.*

Good afternoon. I want to thank Mme. Helga Zepp-La-Rouche for inviting me to give a talk about a topic which is close to my heart, but probably not that well known to you. And you will see there are some good connections to the overall theme of this conference, at the end.

This talk about the International Academy of Astronautics



(IAA) was prepared together with our Secretary General, Jean-Michel Contant; you will see him in some of the pictures. And first I want to talk about who we are, and what we do. And we *changed* to do better and more. The Academy was founded in 1960 by Theodore von Karman. He is probably known to you as one of the space pioneers leading the GALCIT project in Pasadena, now the Jet Propulsion Laboratory (JPL). And it is an international community of individuals, 1,200 active leading experts and 1,700 from 89 na-

April 12, 1961  
Yuri Gagarin IAA Honorary Member  
First Man in Space



tions; recognized by the UN in 1996, and the membership is based on strong competition, so it's not easy to join.

The aims of IAA are to—

- Foster the development of astronautics for peaceful purposes;
- Recognize individuals who have distinguished themselves in space science or technology;
- Provide a program through which members may contribute to international endeavors; and
- Promote international cooperation in the advancement of aerospace science.

I want to stress that it is an association of individuals. They can live their dreams and work on subjects which are not maybe in the interest of the entities they are coming from, in industry or organizations or so on; they are really free to work as individuals.

Leadership is through a high-ranking Board of Trustees, for instance 11 heads or former heads of space agencies are involved in that board. They do have six commissions covering all aspects of space activities, basic science, engineering science, life science, social sciences. And it offers the missing fora where the best experts in all domains can meet, know each other, and exchange their opinions. And that is really true, I can assure you.

### Syria's Space Program

We do have regional secretariats in 30 regions, one of them in Syria. In Syria, we have a regional secretary, Dr. Hussein Ibrahim, who was a former general director of the General Organization of Remote Sensing.

16 June 1963  
Valentina Tereshkova  
IAA Honorary Member  
On board Vostok 6  
First Women Cosmonaut

March 1965  
Alexei Leonov  
IAA member  
First Space Walk



And it's not well known, but Syria had a cosmonaut in space and had a good space program, but nowadays, of course, it's a problem. He is still a good friend of mine, but he hasn't been able to come to Germany in the last years because of visa problems. He obviously does not belong to the group of people which Madame Merkel invited to come to Germany, and he was always refused a visa.

Mme. Shaaban talked about these interesting sites, historical sites in Syria. And it crossed my mind that when I was first in Syria I was brought to that site, and I was excited about the history and the architecture. And I made a proposal at that time, 15 years ago, to use remote sensing techniques and information technology techniques, to make that site, the experience, available to people outside of Syria, in an adapted way and an interactive way.

So I have some good connections to Syria, as well.

### IAA Firsts

Here is a glimpse of who is a member. I have selected some pictures which show the firsts: First man in space, Yuri Gagarin, is a member of our Academy. [Slide 1] By the way, that is the Secretary General of our Academy, Jean-Michel Contant, in the inset with Yelena Gagarina.

The first woman in space, Valentina Tereshkova. The first space walker, Alexei Leonov. [Slide 2] The first U.S. satellite, Explorer I, with IAA Academicians William Pickering, James van Allen, and Wernher von Braun. [Slide 3] They are all Academy members.

The first man on the Moon was Neil Armstrong.

SLIDE 3

First US satellite, Explorer 1: radiation belt theorized by James Van Allen, one of the outstanding discoveries of the International Geophysical Year.



Starting from left side: IAA Academicians William Pickering, James Van Allen, Wernher von Braun

Here Buzz Aldrin, and it's close to 50 years ago! [Slide 4] Imagine that! Fifty years ago we went to the Moon, and it's an object of dreams.

The first world record we have in space is for the longest single spaceflight, one and a half years, held by Valeri Polyakov. [Slide 5]

And of course, connected with the Silk Road, Yang Liwei, the first Chinese astronaut, or taikonaut as they call it. [Slide 6]

We deal with studies and conferences: 18 to 20 IAA standalone conferences yearly. We have some glimpses here from Beijing, Bangalore, Moscow, and Fukuoka [Slide 7], in Berlin, as well—conferences. We do actually have 42 in preparation.

What you see here is what's already printed, dealing

SLIDE 6

Successful Entry of China: 2003 Shenzhou V carrying China's first human in space IAA Academician Yang Liwei



SLIDE 4



Apollo 11, July 16-24, 1969, Neil Armstrong, IAA Member (left) commander, Buzz Aldrin, IAA Member, (right) lunar module pilot. Buzz Aldrin on July 20, 1969, completed a 2-hour and 15 minute lunar EVA

SLIDE 5



### World Record

The Soviet program was focusing on manned flight long duration experiment as exemplified by Mir crew member Valeri Polyakov, IAA member: 240 days in 1988 and unbroken record 437 days 17 hours and 58 minutes Soyuz TM-18 / Soyuz TM-20 January 8, 1994 to March 22, 1995

SLIDE 7

### 18 to 20 IAA Stand Alone Conferences Yearly



with different space-related subjects. [Slide 8] We have been a publishing house since 2012, with book series on small satellites—programs, missions, technologies, and applications; remote sensing of the Earth system, including science, technology, and applications; and proceedings of IAA conferences.

We have a space dictionary, free to be used. The last two contributions are in Gaelic and Afrikaans, always in connection with English, French, and German.

### Cooperation with Emerging Countries

On our 50th anniversary, we decided to do something different, or something more, not just the academic activities, but to give the public a large moral output from our activities, so, we decided to build up a summit, a summit of the heads of space agencies, discussing possibilities for cooperation in four subjects: human space flight, planetary robotic exploration, climate change and green systems, and disaster management and natural hazards.

The background to these themes and initiatives is that many current cooperation projects are aging: ISS was initiated 20 years ago with only eight countries, and at that time more than half of today’s space agencies did not exist.

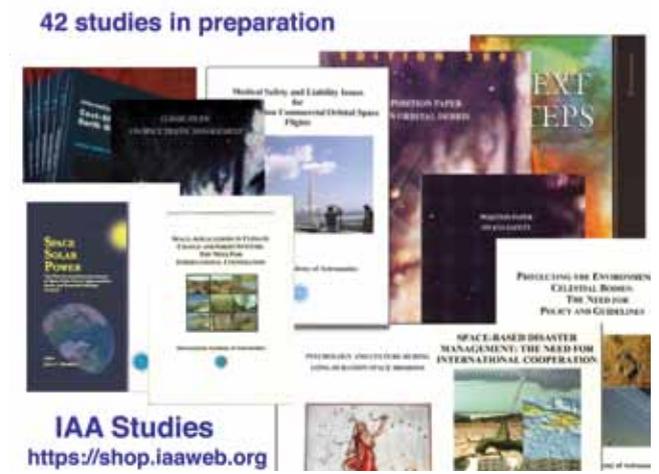
Russia and the U.S.A. no longer taxi exclusively to space, and little cooperation with new space agencies in emerging countries has been established, by far not enough.

So the question now was, during that summit, how to balance new aspirations and challenge-solving, with existing programs, budgets, national interests, and needs? They are very different, from big countries to the emerging countries. How to cooperate with a large number of partners? How to build confidence, trust, transparency? How to share best practices? And how to ensure the safe and responsible use of space?

The Academy is a kind of catalyst. We are not the executive, but we can bring people together and try to have them work together. We are trying to work on concrete projects, studies, and pilot projects in the four areas I mentioned before, to prepare space cooperation for the new generations. You know, that’s a cultural change. The situation we are facing right now is inherent in us, so we cannot jump over our shadows, but we have to prepare for the future.

So that was a historic summit with 30 heads of space agencies in Washington, in November 2010, in connec-

SLIDE 8



SLIDE 9



tion with our 50th anniversary, and you see people sitting there, side by side and giving their agreement to the big idea of cooperation. [Slide 9]

Here you see a glimpse and the flavor of the spirit in that conference. The Vietnamese Pham Anh Tuan shaking hands with Charlie Bolden, the big guy; that wouldn’t have happened before. [Slide 10] I hope it’s an indication of what will happen in the future.

The goal of this summit was to reach a broad consensus on international cooperation at the highest level, and encourage new, concrete initiatives of cooperation in the four areas I mentioned before. And these four areas had already been prepared in IAA studies. You see here, for instance, the study is *Space-Application in Climate Change and Green Systems: The Need for International Cooperation*. And this is also true in the



other three areas, for instance, *Future Planetary Robotic Exploration: The Need for International Cooperation*; *Future Human Spaceflight*; *Space-Based Disaster Management*. [Slide 11]

These are broad themes. They have to be broken down into tasks which can be acted on from both sides—the big guys, the smaller guys—and really task-relevant things have to be thought out in a form that you can work on it. So this prioritization was done in 2011, and we have a Steering Group and Coordination groups for the four different topics I mentioned.

We are now in the phase of concrete action. We are now discussing with 40-plus space agencies to make it happen.

There are a couple of follow-on conferences, meetings in 2012 for instance, in Kiev, Mysore, Naples. In Naples there were 14 heads of space agencies meeting and talking about specific topics.

And the recent milestones we've had were on more specific topics. We have four main topics, and these four main topics are for different kinds of agencies. That is, the developing countries are not that much involved right now in robotic missions and human space operations. But climate change and disaster management is a topic. So the first milestone was in January 2014, related to Planetary Robotic and Human Spaceflight Exploration, in Washington, again. And it was on that occasion that I had the opportunity and pleasure to meet Mme. Helga Zepp-LaRouche the first time, personally.

So that is a glimpse of the situation there. These are all heads of space agencies, meeting and working to-



gether, at least, talking together. The working together is still a phase,— it's in the implementation, but it takes some time to make it really happen, and you know, everybody has his own budget, his own ideas, his own focus points, so they need to be aligned and synchronized; it takes time. But it's underway.

The second milestone for the two remaining topics, climate change and disaster management, took place in September in Mexico City, and this process is going on, discussing with more than 40 heads of space agencies, and breaking it down to the working level.

### Together to Space, To Enrich All on Earth

So, to conclude: IAA is a unique elite body, to be a catalyst for cooperation on a new scale: "Together to Space, To Enrich All on Earth." And the intention is to persuade political decision makers to imagine space cooperation for the new generations' needs; to conclude and release new reports; and to make concrete proposals that the Summit follow-on can leverage.

I am convinced that this work fits pretty well into the theme of this conference. I hope I have been able to give you an insight into what's going on in this space area, which is for most people on Earth, a more exotic one. But it's not exotic, it's our daily life which is connected to space, and you don't even know what's going on and what you use from space. And I hope I have conveyed to you at least the idea of peaceful cooperation and have brought a positive perspective to this discussion after the mainly not so good results we have heard about in Syria and other countries right now.