

## SPACE GENERATION ADVISORY COUNCIL

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The Space Generation Advisory Council (SGAC) is a non-governmental organization and a network for students and young professionals interested in outer space. We have permanent observer status at the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) and represent the views of youth on space matters. We are honoured and thankful to have the privilege to speak here at this conference about the younger generation's perspective on space security.

Let me now give you a short introduction to the organization. The idea of having a global network of youth on space issues is already over 20 years old. But it was not until the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space in 1999, when the United Nations recommended in the Vienna Declaration on Space and Human Development that a youth advisory council be set up to give youth input on space matters. Thus the Space Generation Advisory Council in Support of the United Nations Programme on Space Applications—our full name—was founded. Initially run fully by volunteers, we now have two paid employees. One of those, our Executive Officer, is located in Vienna, sharing an office with the European Space Policy Institute to allow close contact with COPUOS and the United Nations Office for Outer Space Affairs and other entities.

Further, SGAC participates in and contributes to UN workshops, mainly in developing countries, through our global membership base, and also presents youth issues at various conferences and symposiums. We have working relations with the United Nations Educational, Scientific and Cultural Organization relating to education and outreach programmes. Furthermore, SGAC makes regular statements and technical presentations during COPUOS Subcommittee meetings as well as the general session in order to represent the views and opinions of youth to the United Nations.

During the foundation of the SGAC, our Declaration of the Space Generation was written to express our visions on outer space as we are its future stakeholders. Allow me to quote:

We, the Space Generation, representing the worldwide vision of youth, commit ourselves to ensure the future of humankind. ... In leaving the Earth's cradle in the quest for understanding our place in the Universe, we are entrusted by the next generations with the sustainable development of the planet for our peaceful future. We, the Space Generation, regardless of culture, language and creed must ensure that space exploration will improve the quality of life for the benefit of all humankind. We express the hope and the conviction that our common future ought to proceed *ethically*, with an *understanding* of the long-term consequences of our actions and with *all humanity* walking forward together as one.<sup>1</sup>

Further, in 2003 SGAC set the following aim in its strategy document: "Advancing human development through the peaceful uses of outer space".

Since 2007 we have been actively collecting contributions toward the formulation of a multi-disciplinary vision of youth for the next 50 years of space activities. Our members, coming from all kinds of backgrounds and regions, agreed on the following three themes: ensuring the survival of humanity, outer space for the benefit of all humanity and of our environment, and advancing the frontiers of science and technology.

The bottom line is that SGAC visions and recommendations have consistently pushed for developing outer space in a way that safeguards it for all of humanity. Safeguarding outer space means to ensure the long-term viability for all humanity to use outer space for peaceful purposes. The consequences are that outer space should be kept free from any activities that are against the spirit of the peaceful purposes enshrined in the Outer Space Treaty, inhibit the use of outer space by other actors, or in any other way destroy the finite resources or usability of the space environment.

In contemplating space security for the future, SGAC has identified four key issues that need to be addressed in the short term in order to provide long-term security.

The first issue is space debris. SGAC is very concerned about the rising amount of space debris as it is an increasing hazard to spacecraft and astronauts. The greatest threat is fragmentation events due to exploding rocket stages or collisions among debris as they potentially create exponentially more debris. In the long run this will inhibit the sustainable access to outer space and its use as a resource for all parties to explore and utilize in a peaceful way for many generations to come. Essential for a long-term solution is an effective mitigation strategy. Within COPUOS, Debris Mitigation Guidelines were suggested and adopted by the member states. However, these guidelines are voluntary and not legally binding. Closely linked with the mitigation of space debris is surveillance capability. Greater resolution is needed for tracking objects that have the potential to disable a spacecraft, specifically all objects larger than 1cm, while currently only objects larger than 10cm can be tracked in low Earth orbit. Greater resolution would be necessary to complement the mitigation guidelines to provide a long-term solution to space debris. Further, international cooperation to share relevant data would be beneficial to all actors involved.

Secondly, space traffic management is a logical step from space debris mitigation, as it would also allow a comprehensive collision-avoidance infrastructure. While currently not much can be done about debris–debris collisions, active spacecraft are able to make collision-avoidance manoeuvres if an impending impact is predicted in time. With ever increasing numbers of space actors as well as objects in Earth orbit, space traffic management is a logical consequence, not only to avoid collisions but also to guarantee for all humankind an unimpeded and more efficient use of space resources—the question is not if, but when, it will be implemented. It must be clear to all space actors that having a space traffic management system in place would reduce the loss of working satellites, sustain the use of space resources, and provide an asset for maintaining the security of outer space for the coming years.

Thirdly, while not immediately related to space security in the short term, further clarifications in the space law regime are needed to solve issues that will arise in the long term as there is a general lack of basic law on space conduct. In the future we might see conflict over land and resources not on Earth, not necessarily solely among states but possibly involving commercial and private companies as well. Our generation strongly supports initiatives that aim at an accelerated development of space technologies within the

private and commercial sector for the peaceful uses of outer space for all humanity, such as the Google Lunar X Prize, which offers up to \$30 million to the first team that can land a privately built rover on the Moon before the end of 2014 and send back high-resolution video. Initiatives like this will eventually lead to a larger number of non-state space actors. Resulting from that, even if the technology was invented in a peaceful environment for peaceful purposes, it cannot be ruled out, and it appears rather likely, that certain issues related to security might arise in an environment that is not sufficiently legally covered, and thus should be dealt with in time. This, as an example for other new advances, was not perceived 40 years ago when the first space treaties were drafted, and needs to be addressed in a civilized manner within international space law to ensure sustainable access to and utilization of outer space and its resources for all humanity.

The final key point is conflict avoidance. Space weapons and aggressive acts, such as anti-satellite activities, should be prohibited. Of special concern are space weapons generally, due to their negative influence on the space security situation, and kinetic anti-satellite weapons especially, as their use creates large amounts of debris. As mentioned earlier, space debris is a serious concern as it might prohibit future generations from accessing and utilizing outer space in a sustainable manner. Kinetic space weapons are threatening everything our generation wants to do in the space environment. The recent tests conducted within the last 15 months triggered an intense reaction among the young generation who remain very concerned about these developments. They even lead to the establishment of a working group by concerned youth and the subject continues to be discussed and carefully analysed. The results of their findings will be presented at a later opportunity.

Summarizing, these are very common issues, as you can see by the presentation titles of my fellow speakers today and tomorrow. Deriving from the above-mentioned points, SGAC recommends the following:

- create a treaty through COPUOS to make space debris mitigation legally binding and increase the resolution of surveillance capabilities and encourage the sharing of relevant data;
- initiate a working group on space traffic management as well as address a framework for rules of the road, possibly through an Inter-Agency Space Debris Coordination Committee Working Group and then further to COPUOS;

- avoid conflict by prohibiting weapons and aggressive acts in outer space; and
- address several open issues regarding space governance (for example, lunar governance and property rights).

These issues should be addressed as soon as possible as we cannot afford to wait much longer as reality will progress beyond the current laws. This would make it difficult to address the issues then.

SGAC is already very involved with these issues as they influence our ability to access and utilize outer space. We have internal working groups on space debris, anti-satellite weapons and space traffic management. Further, SGAC was a partner for the Space Security Index and also, while not being directly involved, helped initiate the International Space University's Space Traffic Management activities. We are willing and able to discuss and contribute further to the open issues at hand related to space security and we would be interested and glad in providing our advice.

#### Note

- <sup>1</sup> Space Generation Advisory Council, *Declaration of the Space Generation*, <[www.spacegeneration.org/node/144](http://www.spacegeneration.org/node/144)>.