

## **Workshop of the Working Group on the Long-term Sustainability of Outer Space Activities**

### **Panel 3 on Scientific and technical research**

**Abstract of Thomas Schildknecht, Director of the Swiss Optical Ground Station and Geodynamics Observatory Zimmerwald, Vice-Director of the Astronomical Institute of the University of Bern, Switzerland**

**“Scientific research as a prerequisite for space safety and sustainability”**

1. The proliferation of space debris and the increased probability of collisions and interference raise challenges to the Long-term Sustainability of space activities, particularly in the Low-Earth orbit and in the geostationary orbit environments. During recent years the number of satellites launched to space increased by orders of magnitude in particular due to costs reductions enabled by miniaturization and rideshare launch opportunities, as well as due to the deployment of large constellations.
2. Scientific research and observations are foundational to developing a sound understanding of the current space debris environment, its description and future evolution, and of the physics driving the proliferation of space debris in different orbit regions.
3. This knowledge forms the basis against which the efficiency of the actual practice in the implementation of the space debris mitigation and long-term sustainability guidelines and the rationale for new recommendations need to be rated, and thus constitutes a prerequisite for safe and sustainable outer space activities.