



The Space Research Institute (SRI NASU & NSAU) is a leading Ukrainian research organisation specialising in different aspects of space research. Founded in 1996 on the basis of the Control Systems Division of the V. M. Glushkov Institute of Cybernetics of NASU, the Space Research Institute has many specialists in information theory and control theory. Due to this fact, the development of aerospace **automatic control systems** and **new methods of spacecraft data processing** as well as **space information systems and technologies** are among its main research areas. The developed algorithms are used in the latest Ukrainian spacecraft for attitude control. In the following years many specialists in space physics and plasma physics from other leading universities and research institutes have joined the staff. Thus, new research areas have emerged: **solar-terrestrial physics and space weather, microgravity science, remote sensing** applications and services, and the development of **advanced instrumentation** for space research. This made the Space Research Institute **the main space weather centre** in Ukraine and a **PI of all Ukrainian space weather related missions**, commenced (Sich-1M/Variant), ongoing (Sich-2/Potential) and planned (Ionosat-M, Ionosat-S). All Ukrainian astronauts are employed by the Space Research Institute for the whole duration of their preparation and spaceflight.

Apart from the main facility in Kyiv, the Space Research Institute also has two regional centres. The L'viv Centre, also founded in 1996 on the basis of the Special Design Office of the G. V. Karpenko Institute of Physical Mechanics of NASU, specialises in the development and manufacture of **scientific payload** as well as instruments for ground-based measurements. The excellent quality and reliability of these instruments were marked by the Christian Huygens medal in 2009. These instruments are **spaceflight-proven** in many Ukrainian, Russian and European spacecraft. The L'viv Centre also performed a series of **active space experiments** using their self-developed acoustic sounder, in particular with simultaneous measurements on the French DEMETER spacecraft. The Kharkiv Centre, founded in 2008 jointly with the Kharkiv National University of Radio Electronics, deals with the **ground support of Earth observations from space**.

The Space Research Institute is involved not only in research, but in other activities as well. It utilises its broad network of national and international partners to **coordinate and promote Ukrainian space research activities worldwide**. It represents Ukraine in several major international organisations such as COSPAR, IFAC, IAF, CEOS, WGISS, GEO, ISECG, and ILWS. It also hosts the **UN-SPIDER Ukraine Regional Support Office**.

Another type of activities is education and public outreach. The staff members of the Space Research Institute teach the students in the best Ukrainian universities. The best **students are employed** to complement the theoretical knowledge gained in the lecture halls with practical hands-on research experience under the supervision of seasoned professionals. Most of these students after the graduation enter the **post-graduate school** of the Space Research Institute. The PhDs have the possibility to enter the **post-doctoral courses** to receive a D.Sc. degree in physical or technical sciences. Additionally, the Space Research Institute cooperates with the mass media to improve the public awareness of space activities with space weather being the most frequently addressed topic.



Fig. 1: Top row, from left to right: Dr. Oleg Semenov, Prof. Oleg Cheremnykh, Prof. Vsevolod Kuntsevich, Dr. Aleksei Parnowski, Dr. Igor Kremenetsky
Bottom row, from left to right: Dr. Nikolai Salnikov, Ms. Anna Polonska, Prof. Vitaliy Yatsenko

In the AFFECTS project the Space Research Institute is represented by a team of specialists in different research areas ranging from information theory to space plasma physics. The main goal of the group is the development of the operational geomagnetic activity forecast module.