

## **Global Astronomy Survey : Slovakia**

First submission: Drahomir Chochol [see human resources section] 3 February 2009

### **1. Professional (Research) Astronomy:**

(i) Astronomical Institute of the Slovak Academy of Sciences, Tatranská Lomnica  
[www.ta3.sk](http://www.ta3.sk)

(ii) Number of universities offering Astronomy (and their names)

2 Universities:

Comenius University in Bratislava; Faculty of Mathematics, Physics and Informations;  
Department of Astronomy, Physics of Earth and Meteorology; Division of Astronomy and  
Astrophysics  
<http://www.uniba.sk/>

Pavel Jozef Šafárik University in Košice, Faculty of Sciences, Institute of Physics, Department  
of Astronomy  
<http://www.upjs.sk/>

(iii) Number of universities offering Physics (and their names)

9 Universities:

Comenius University in Bratislava; Faculty of Mathematics, Physics and Informations;  
Department of Physics  
<http://www.uniba.sk/>

Pavel Jozef Šafárik University in Košice, Faculty of Sciences, Institute of Physics,  
<http://www.upjs.sk/>

Matej Bel University in Banská Bystrica, Faculty of Natural Sciences, Department of Physics  
<http://physics.fpv.umb.sk/>

Slovak University of Technology in Bratislava, Faculty of Electrical Engineering and Information  
Technology, Department of Physics <http://kf.elf.stuba.sk/>

University in Trnava, Pedagogical faculty, Chair of Physics  
<http://kf.truni.sk/>

Slovak Technical University of Košice, Faculty of Electrical Engineering and Informatics,  
Department of Physics  
<http://web.tuke.sk/feikf>

University in Žilina, Electrotechnic faculty, Chair of Physics  
<http://fyzika.utc.sk>

University in Prešov, Faculty of Arts and Natural Sciences, Chair of Physics  
<http://www.unipo.sk/fhvpv>

Constantin the philosopher University in Nitra, Fakulty of Natural Sciences, Chair of Physics  
<http://www.kf.fpv.ukf.sk/>

(iv) Number of academics who have been trained in Astronomy (ideally with their names and levels of qualification)

Astronomical Institute of the Slovak Academy of Sciences:

Chief Researchers:

RNDr. Drahomír Chochol, DrSc.

RNDr. Eduard Pittich, DrSc.

Prof. RNDr. Vladimír Porubčan, DrSc.

RNDr. Vojtech Rušin, DrSc.

RNDr. Augustín Skopal, DrSc.

Doc. RNDr. Ján Svoreň, DrSc.

RNDr. Juraj Zverko, DrSc.

RNDr. Jozef Tremko, CSc.

RNDr. Jozef Žižňovský, CSc.

Senior Researchers:

RNDr. Ján Budaj, CSc.

RNDr. Ladislav Hric, CSc.

RNDr. Igor Kapišinský, CSc.

Mgr. Miroslav Kocifaj, PhD.

RNDr. Aleš Kučera, CSc.

Ing. Milan Minarovjech, CSc.

RNDr. Ľuboš Neslušan, CSc.

RNDr. Theodor Pribulla, CSc.

RNDr. Ján Rybák, CSc.

RNDr. Metod Saniga, CSc.

Nina A. Solovaya, DrSc.

RNDr. Milan Zboril, CSc.

Researchers:

Mgr. Peter Gömöry, PhD.  
RNDr. Mária Hajduková, PhD.  
Mgr. Marián Jakubík, PhD.  
Mgr. Zuzana Kaňuchová, PhD.  
Ing. Ľubomír Klocok, CSc.  
RNDr. Richard Komžík, CSc.  
Mgr. Július Koza, PhD.  
RNDr. Daniel Novocký, CSc.  
RNDr. Tomáš Paulech, PhD.  
RNDr. Jana Pittichová, PhD.  
Sergey Shugarov, CSc.  
Mgr. Martin Vaňko, PhD.

Comenius University in Bratislava; Faculty of Mathematics, Physics and Informations;  
Department of Astronomy, Physics of Earth and Meteorology; Division of Astronomy and  
Astrophysics

Teachers and Researchers:

Doc. RNDr. Elena Dzifčáková, CSc.  
Doc. RNDr. Jozef Klačka, PhD.  
Mgr. Alena Kulinová, PhD.  
Mgr. Pavol Pástor, PhD.  
Prof. RNDr. Vladimír Porubčan, DrSc.  
Researchers:  
RNDr. Štefan Gajdoš, PhD.  
Mgr. Adrián Galád, PhD.  
RNDr. Leonard Kornoš, PhD.  
Mgr. Juraj Tóth, PhD.  
Mgr. Jozef Világi, PhD.  
Ing. Pavel Zigo, PhD.

Pavel Jozef Šafárik University in Košice, Faculty of Sciences, Institute of Physics, Department  
of Astronomy

Teachers and Researchers:

RNDr. Rudolf Gális, PhD.  
Mgr. Štefan Parimucha, PhD.

(v) Number of astronomical facilities (observatories, telescopes, etc) and as much detail about  
each as possible (websites/contact details)

Astronomical Institute of the Slovak Academy of Sciences, Tatranská Lomnica  
[www.ta3.sk](http://www.ta3.sk)

Skalnaté Pleso Observatory.

Coordinates: Longitude: 20° 14' 01.75" East, Latitude: 49° 11' 21.77" North, Altitude: 1 786 meters above sea level.

The Astronomical Observatory at Skalnáté Pleso is located near the Skalnáté Pleso ('Rocky Lake'). It was established in 1943 when the first observations started to be performed. Originally it was equipped with 0.6m (f=3.29) reflector by Zeiss and two smaller ~0.2m reflectors. Few binocular lenses Somet-binar 25x100 were available as well. In 1961, a 30 cm astrograph (Zeiss, Jena) was bought for the small dome at Skalnáté Pleso, which was utilized for the observations of minor planets and comets to found their exact positions. The astrograph was replaced by a 61 cm reflector in 2001. This instrument is now equipped with the CCD camera used mostly for photometry of asteroids. In 1977 old 0.6m Zeiss reflector was replaced by a new telescope of the same diameter of the primary mirror. A photoelectric photometer is attached to the telescope. It is used for photometry of various types of the variable stars (sympiotic, cataclysmic, novae, chemically peculiar stars).

### Lomnický peak Observatory

Coordinates: Longitude: 20° 13' 12" East, Latitude: 49° 11' 48" North, Altitude: 2 632 meters above sea level.

Initiated by the world-wide activity of the International Geophysical Year 1957 construction of a coronal station on the Lomnický peak (1957-1962) was realized. Here, at really a high-altitude height of 2 632 meters above sea level, a 20 cm coronagraph (f=4m) was installed starting first observations of the coronal emission lines, originating in the solar corona, in 1964. In 1970 an identical telescope for observations of prominences was installed in the same dome. Today, the coronal station ranks among just few existing stations worldwide which systematically observe emission spectral lines of the corona. Researchers working at the Lomnický peak observatory has prepared and maintain two long-term data sets for the solar coronal activity. The Homogeneous Data Set of the Green Coronal Emission Line Intensities is compiled from the data of all coronal stations over the world since 1939. The Green Coronal Index is prepared on the base of the previous data as well. The Catalogue of the Solar H alpha Prominences is prepared on measurements performed at the observatory itself.

At the Lomnický peak mountain there is also located Neutron Monitor of the Department of Space Physics (Institute of Experimental Physics, Kosice, Slovakia). This instrument is continually in operation since December 1981 when it replaced the older one.

### Stará Lesná Observatory

Coordinates: Longitude: 20° 17' 28" East, Latitude: 49° 09' 10" North, Altitude: 785 meters above sea level.

In 1979, the construction of a new headquarters of the institute at the Starolesnianske lúky, some 2 km from Tatranská Lomnica, was initiated. As a result, new observational pavilions for the telescopes were built as well. At present, the complex of 2 domes and 1 special building includes: 60cm and 50cm reflectors for stellar photometry, a 50cm horizontal spectrograph (f=35 m) for spectral observation of the solar surface, and a small 10cm refractor for drawing of sunspots. The stellar telescopes are equipped with either the photoelectric photometer or by the CCD camera. They are used regularly for UBV photometry of the selected variable stars. The solar horizontal telescope with the spectrograph is now used mostly for astronomical practical exercises for students of universities and for tests of the astronomical post-focal instruments and optics. Nearby of the pavilions there is located the meteorological station belonging to the Geophysical Institute of Slovak Academy of Sciences (Bratislava, Slovakia).

Comenius University in Bratislava; Faculty of Mathematics, Physics and Informations;  
Department of Astronomy, Physics of Earth and Meteorology; Division of Astronomy and  
Astrophysics  
<http://www.uniba.sk/>

Astronomical and Geophysical Observatory in Modra  
Coordinates: Longitude: 17°, 27402201 East, Latitude: 48°, 37319778 North, Altitude: 531  
meters above sea level.  
<http://center.fmph.uniba.sk/~ago>

Established in 1992. It is equipped with 0.6m (f=3.29m) Zeiss reflector used for CCD  
photometry of asteroids and comets.

(vi) Self evaluation (according to the different phases above, how would  
you rate your country in terms of Professional Astronomy? Please  
include any other relevant information to motivate your choice.)

"Phase 1" \*well established\* country with links to the International Astronomical Union (IAU) and  
functioning astronomy research and outreach communities.

(Note: Astronomical Institute and universities receive the funds for research and development  
through governmental grant agencies VEGA, APVV and through the European 7 RP program  
and structural funds).

## 2. Public Understanding of Astronomy:

(i) What governmental astronomy/science outreach programmes for the  
public take place (co-ordinated either by government departments or  
national facilities).

Slovakia is covered by 18 public observatories, 6 planetaria, 7 astronomical clubs, 7 branches  
of the Slovak Astronomical Society and 15 branches of the Slovak Union of Amateur  
Astronomers. All public observatories and astronomical clubs are equipped with the telescopes  
for public outreach. 1m reflector, the largest one in Slovakia, located in Kolonické sedlo,  
belongs to the public observatory Humenné.

Interactive map of Slovakia at:

<http://astronomia2009.vesmir.sk/astronomicke-institucie>

contains the information about astronomical institutions in particular place of Slovakia. The list  
of all facilities with web links is at

<http://astronomia2009.vesmir.sk/astronomovia-na-slovensku>

The observatories are supported by government as well as by the regional funds or cities, where  
they are located. The necessary funds for public outreach are provided also by governmental

Agency for the Support of Science and Research (APVV). The public observatory in Rimavska Sobota received the funds for granted project: Expedition the Earth from Universe, the Universe from Earth (4/2008 – 3/2011).

(ii) What non-governmental astronomy/science outreach programmes for The public take place (NGO activities or international programmes that your country is involved in)

Astronomical institute of the Slovak Academy of Sciences received with partners from England, Greece and Poland the European granted project AURORA POLARIS of the program Grundtvig for older learners, with emphasize to universities of the third age (1.8.2008-31.7.2010).

(iii) Comment on the presence of astronomy in the media (TV, radio, newspapers). Is it very prominent? Are there specific programmes on astronomy? Is the media generally willing to publish news on astronomy?

It is very prominent. The researchers are often asked for TV and radio performances as well as to write articles for newspapers and journals. The journal KOZMOS (<http://www.suh.sk/kozmos>) is one of the best journal for popularization of astronomy in the world. From 1995, Dr. Jiří Grygar, famous Czech astronomer and writer of popular astronomy books, continuously write for KOZMOS reviews of the latest discoveries in Astronomy <http://www.ta3.sk/zne/>. Media like to publish news on astronomy. Public outreach cover all age groups from the children up to seniors.

(iv) Comment on the presence of astronomy/science in the general Culture of the people. Are there any specific challenges or setbacks? Is astronomy a welcome subject of conversation?

The people often discuss about astronomy. The interest of people in this direction is much larger than interest in other natural sciences. Their interest rapidly increase during spectacular astronomical phenomena: eclipses of the Sun and Moon, pass of bright comets, bolids, etc. Thank to the good coverage of the Slovakia by astronomical facilities, every citizen has possibility to visit the nearest observatory and see the astronomical objects through the telescope.

(v) Self evaluation (according to the different phases above, how would you rate your country in terms of Public Understanding of Astronomy?

Public Understanding of Astronomy is very high. I rate Slovakia to "Phase 1" \*well established\* country.

### **3. Astronomy in Schools:**

(i) What governmental astronomy/science education and outreach programmes for schools take place (co-ordinated either by government departments or national facilities)

The children in primary schools receive the basic information about astronomy in courses of Physics in the last years of their study.

The students of secondary schools receive the information about Gravitation in the 1st year of study and Astrophysics in the 4th year of study in courses of Physics.

The necessary funds for outreach programmes for students of the primary and secondary schools are provided by the governmental Agency for the Support of Science and Research (APVV): Astronomical Institute received 2 granted projects: „Astronomy – the science for teachers and pupils“ [http://www.ta3.sk/public\\_relation/popgranty/AK\\_apvv/](http://www.ta3.sk/public_relation/popgranty/AK_apvv/) and „Meetings with the Universe“ <http://www.astro.sk/~zkanuch/apvv/> to increase the astronomical knowledges of teachers and pupils in schools. Slovak Astronomical Society received the grant „Astronomy Olympiad“ <http://www.ta3.sk/~ekundra/AO/>. Public Vihorlat Observatory received the grant „The Universe in the direct transmission“.

The Slovak Central Observatory in Hurbanovo organize 2-years study of astronomy after the school-leaving exam to become the employee of Public Observatory.

The university study of astronomy is provided by Universities in Bratislava and Kosice with the support of Astronomical Institute of the Slovak Academy of Sciences. The scientist of this institute give the lectures and practice training for the university students. They lead also their diploma works.

The PhD study of astronomy is realized at Comenius University in Bratislava and Astronomical Institute of the Slovak Academy of Sciences.

(ii) What non-governmental astronomy/science education and outreach programmes for schools take place (NGO activities or international programmes that your country is involved in)

NGO Pansophia ([www.pansophia.sk](http://www.pansophia.sk)) received the governmental APVV grant: „Meeting with the science“ (04/2008–03/2011) and prepared multimedial show for the pupils of basic schools.

(iii) Comment on the presence of astronomy in the school curriculum. Is it part of the school curriculum? Is it very prominent? What age groups?

The children in primary (age 13-15 years) and secondary schools (age 15-19 years) receive the basic information about astronomy in courses of Physics.

(iv) Comment on the status of astronomy/science in schools. Are there any specific challenges or setbacks? Sufficient number of students studying maths and science? General interest in maths/science/astronomy in schools?

The study of astronomy at universities cover the requirements of Slovakia for astronomers. 3-6 students finish astronomy at universities in Bratislava and Kosice every year.

## Slovakia

Written by SPoC Slovakia

Tuesday, 03 February 2009 00:00 -

---

(v) Self evaluation (according to the different phases above, how would you rate your country in terms of Astronomy in Schools? Please include any other relevant information to motivate your choice.)

I rate Slovakia to "Phase 1" \*well established\* country.