

Balkan, Black Sea, and Caspian Sea Regional Network for Space Weather Studies (BBC Network)

Katya Georgieva
and the BBC Network

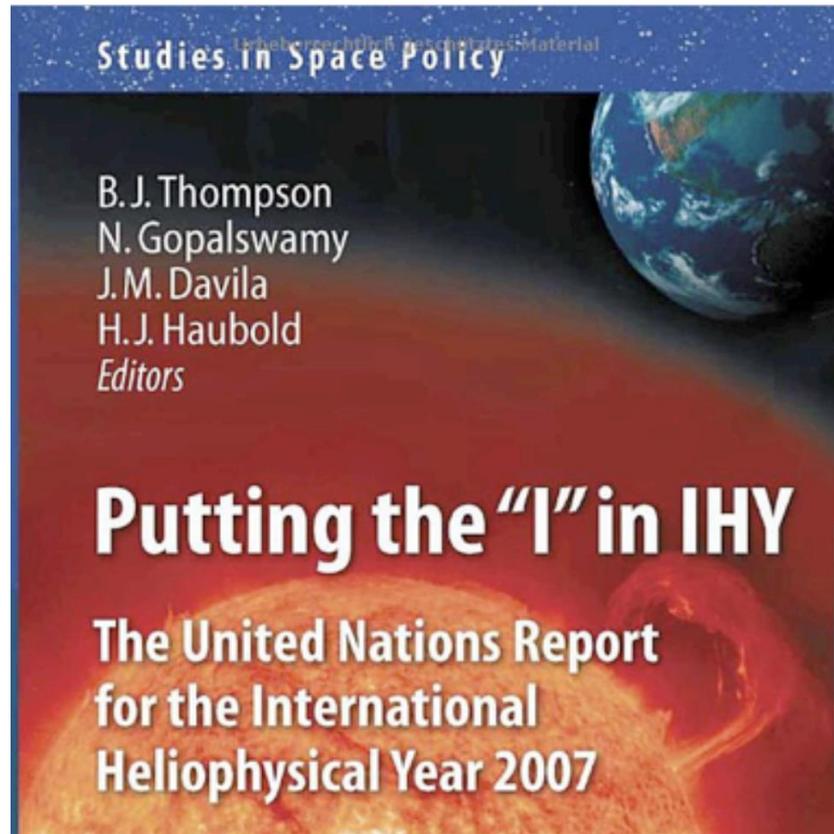
ISWI 2017: The Decade after the International Heliophysical Year 2007
Boston, 01 August 2017

Armenia Azerbaijan *Bosnia and Herzegovina*
Bulgaria Croatia Georgia Greece
Romania Russia *Serbia* Turkey Ukraine









This book is about international cooperation. It demonstrates how the power of scientific imagination and investigation can bring together people from all continents in almost all countries around the globe. In presenting this impressive result, we can understand, how much unifying force the quest for understanding our universe and using outer space for that purpose have. **Astronomy is far away from being a “political” area of science. But it has enormous political effects – and all of these effects are positive.**

Some history

THE INTERNATIONAL HELIOPHYSICAL YEAR



<http://ihy.gsfc.nasa.gov>



National and regional planning meetings

- AGU – December 2002
- UK – December 2003
- USA – April 2004
- India – July 2004
- China – September 2004
- **IHY UN/BSS Science Organizing Committee Planning Meeting – October 2004**
- Japan – October 2004
- **North America – February 2005**
- EGU – April 2005
- **Asia-Pacific – June 2005**
- **GLOBAL – July 2005 (IAGA Assembly)**



Regional planning meeting BBC Network 6-8 June 2005, Bulgaria



<http://www.stil.bas.bg/IHY>



Regional planning meeting 6-8 June 2005, Sozopol, Bulgaria





International Heliophysical Year
Regional planning meeting for the Balkan and Black Sea region
Sozopol, Bulgaria, 6-8 June 2005

8 June 2005, Sozopol, Bulgaria

PROTOCOL

OF THE REGIONAL IHY PLANNING MEETING
FOR THE BALKAN AND BLACK SEA REGION

Regional IHY Planning Meeting for the Balkan and Black Sea Region (hereafter Meeting) was organized by the Solar Terrestrial Influences Laboratory at the Bulgarian Academy of Sciences (STIL-BAS) and was supported by the Bulgarian Academy of Sciences and European Office of Aerospace Research and Development (EOARD). The Meeting was held from 6 to 8 June 2005 at Sozopol, Bulgaria.

Representatives of 11 countries (Bulgaria, Armenia, Azerbaijan, Croatia, Georgia, Greece, Poland, Romania, Russia, Serbia and Montenegro, Ukraine) participated in the Meeting and scientists from Czech Republic, Slovakia and Turkey who were unable to attend the Meeting, expressed their wish to be included in the planned activities. There were reported about 50 papers: scientific papers, reviews, information about current researches in their countries.

The plans on the future activities and collaborations were discussed and relevant decisions were made on consensus basis which are summarized in the following as

MEMORANDUM OF UNDERSTANDING.

1. Agreement on creation of the *Black Sea and Caspian Sea Regional Network on Space Weather Studies* (hereafter Regional Network) consisting of the following countries: Bulgaria, Armenia, Azerbaijan, Croatia, Czech Republic, Georgia, Greece, Poland, Romania, Russia, Serbia and Montenegro, Slovakia, Turkey, Ukraine. The Regional Network is open to other countries willing to participate in its activities.
2. The Regional Network will maintain a special web site.
3. The Regional Network will publish an International referred Scientific Journal "SUN and GEOSPHERE" with international editorial board. Proceedings the Meeting will be published in the first issue of this Journal.

4. To coordinate the activities on popularization of knowledge on Solar Terrestrial Physics, particularly, the Space Weather, by means of scientific-popular articles written by the members of the Regional Network in English with further translation into different languages for publishing in the web site of the Regional Network and in domestic periodicals.
5. To organize Annual Summer (or Winter) Schools on Solar Terrestrial Physics in different member countries. It is reasonable to use opportunities of the big scientific events to hold these Schools as satellite events.
6. To provide possibility of training of young scientists from member countries in different participating institutions.
7. To create both a scientific database as well as a database on each member country - their activities and participants.
8. To promote bilateral and multilateral joint projects and collaborations among member countries.
9. Concrete actions covering the items 1-8 were identified during the Meeting. They are listed in the Appendix.

Member country representatives:

Armenia, A. Chilingarian

Azerbaijan, E. S. Babayev

Bulgaria, K. Georgieva

Croatia, D. Rosa

Georgia, M.Sh. Gigolashvili

Greece, A. Nindos

Poland, Z. Kobylinski

Romania, G. Maris

Russia, Y. Yermolaev

Serbia and Montenegro, I. Vince

Ukraine, O. Lytvynenko

Main decisions

- We create the **Balkan, Black sea and Caspian sea Regional Network for Space Weather Studies**
- The Network will maintain a **web site**
- The Network will publish an international refereed scientific **journal “Sun and Geosphere”**
- The Network will hold **regular meetings**
- The Network will promote bilateral and multilateral **joint research projects and collaborations** among member countries
- The Network will coordinate the **training of young scientists** from member countries in different institutes, and the **popularization of knowledge on solar-terrestrial physics, particularly space weather**

Web site

Whats new ? As of today, June 24, 2014, this site has a new shorter URL: <http://www.bbc-spaceweather.org/>. Please bookmark it. The



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[Regional WEB sites](#)

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[Instructions](#)

Sun and Geosphere
the BBC SWS Journal

[Home Page of Journal](#)

[Front Page](#)

WebCounter

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Mitko Danov

Good Evening and welcome to the WEB-SITE of: **Balkan, Black Sea and Caspian Sea Regional Network on Space Weather Studies**

This web site will contain information about current and proposed regional and worldwide activities, and a scientific database as well as a database on each member country activities and participants.

Bilateral and multilateral joint projects and collaborations among member countries will be promoted.

To coordinate the activities on popularization of knowledge on Solar Terrestrial Physics, popular scientific articles will be written by the members of the Regional Network and will be published monthly in the web site of the Regional Network and in domestic periodicals of the member countries.

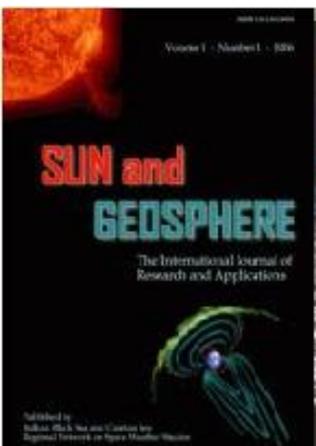
The Regional Network members:

Armenia (AM)	Azerbaijan (AZ)	Bosnia and Herzegovina
Bulgaria (BG)	Georgia (GE)	Greece (GR)
Croatia (HR)	Romania (RO)	Russia (RU)
Serbia (RS)	Turkey (TR)	Ukraine (UA)



Journal

www.sungeosphere.org



SUN and GEOSPHERE

International Journal of Research and Applications

online ISSN 2367-8852

Sun and Geosphere is a peer-reviewed international journal published by the Balkan, Black Sea and Caspian Sea Regional Network on Space Weather Studies (BBC SWS Regional Network).

The BBC SWS Regional Network was founded in June 2005 by decision of the "IHY Regional planning meeting for the Balkan and Black Sea region", *Sozopol, Bulgaria, 6–8 June 2005 (see Protocol)*. In this protocol as item 3 (below the MEMORANDUM OF UNDERSTANDING) is written

"The Regional Network will publish an International referred Scientific Journal SUN and GEOSPHERE with international editorial board. Proceedings of the Meeting will be published in the first issue of this Journal".

The first issue of the magazine was printed in early 2006 in Daku Azarbeydzhan. First Editor-in-Chief was Elchin Babayev from **ShAMAKHY Astrophysical Observatory ShAO**. He is now Honorary Editor.

Editor-in-Chief: Atila Özgüç

(Kandili Observatory, Turkey)

About Journal

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Open Access Journal

"Sun and Geosphere" appears twice a year and is open to original contributions in solar and solar-terrestrial physics also to all topics included in "Space Weather".

The journal accepts manuscripts for a special edition devoted to "8th Workshop, Sunny Beach, Bulgaria, May 30 - June 3, 2016" only in the period from September 1 to November 1, 2016. Accepted manuscripts will be published in 2017



Elchin Babayev



Atila Özgüç



Mitko Danov

www.sungeosphere.org

SUN and GEOSPHERE
THE INTERNATIONAL JOURNAL OF RESEARCH AND APPLICATIONS ISSN 2367-9852

List of Published Articles
From this page you have free access to all articles included in the Journal

- [SUN and GEOSPHERE Vol.1, No.1 - 2006](#)
- [SUN and GEOSPHERE Vol.1, No.2 - 2006](#)
- [SUN and GEOSPHERE Vol.2, No.1 - 2007](#)
- [SUN and GEOSPHERE Vol.2, No.2 - 2007](#)
- [SUN and GEOSPHERE Vol.3, No.1 - 2008](#)
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- [SUN and GEOSPHERE Vol.12, No.1 - 2017](#)
- [SUN and GEOSPHERE Vol.12, No.2 - 2017](#)

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meetings

Annual Meeting of the Balkans, Black Sea and Caspian Sea Regional Network on Space Weather Studies

March 30 - April 1, 2006, Manavgat - Antalya, TURKEY



Sun-Earth Day



UN/ESA/NASA/JAXA Workshop on
the International Heliophysical Year 2007 and Basic Space Science
"First Results from the International Heliophysical Year 2007"
2-6 June 2008, Sozopol, Bulgaria



IHY → ISWI

PROGRAMS / SCIENCE AND SCIENTIFIC WORK /

IHY-ISWI Regional Meeting



Heliophysical phenomena and Earth's environment
7-13 September 2009, Šibenik, Croatia

organized by

Zagreb Astronomical Observatory – Astronomical Association of Zagreb
and is held under the auspices of the Croatian Astronomical Society

We would like to thank the following institutions for their support in organizing the conference:
European Office of Aerospace Research and Development,
Ministry of science, education and sports of the Republic of Croatia

Air Force Office of Scientific Research, United States Air Force Research Laboratory

Dragan Rosa



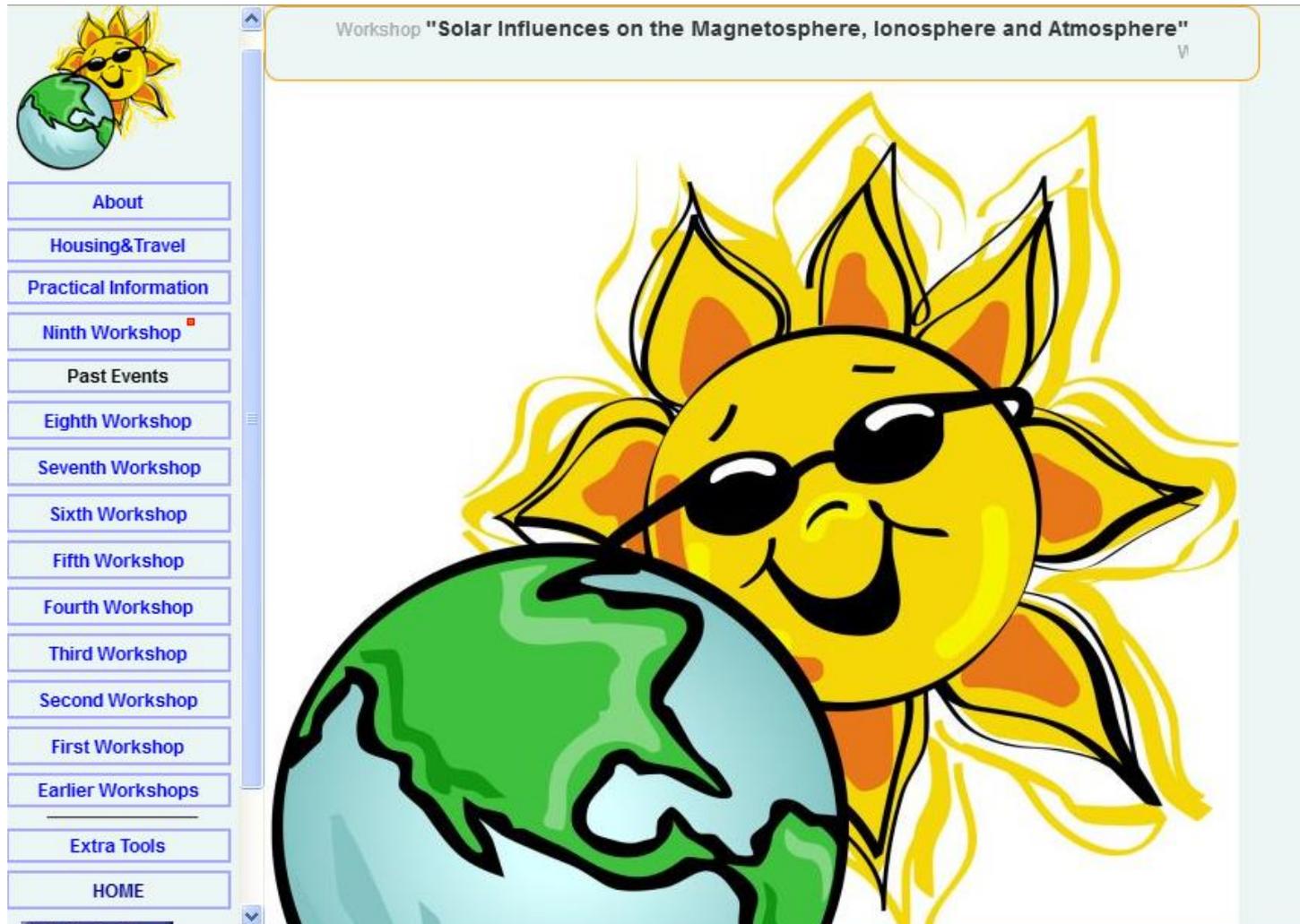
Other regional meetings

- Bucharest, ROMANIA, 1 – 5 October 2012
<http://www.geodin.ro/CONFERENCE2012/index.htm>
- Sunny Beach, Bulgaria, 2-6 June 2014
<http://ws-sozopol.stil.bas.bg/>
- Athens, Greece, 2-6 November 2015
<http://bbc-sws.astro.noa.gr/>

Annual workshops "Solar Influences on the Magnetosphere, Ionosphere and Atmosphere"

Sunny Beach, Bulgaria, end of May/beginning of June

<http://www.ws-sozopol.stil.bas.bg>



The image shows a screenshot of a website. On the left is a vertical navigation menu with buttons for: About, Housing&Travel, Practical Information, Ninth Workshop (highlighted with a red square), Past Events, Eighth Workshop, Seventh Workshop, Sixth Workshop, Fifth Workshop, Fourth Workshop, Third Workshop, Second Workshop, First Workshop, Earlier Workshops, Extra Tools, and HOME. The main content area features a large, colorful cartoon illustration of a smiling sun wearing sunglasses, with its arms around a globe of the Earth. Above the illustration, a header box contains the text "Workshop "Solar Influences on the Magnetosphere, Ionosphere and Atmosphere"".

www.ws-sozopol.stil.bas.bg

end of May/beginning of June



Joint research projects and collaborations

BBC countries hosting ISWI instruments

AWESOME: Azerbaijan, Greece, Serbia, Turkey

CALLISTO: Russia, Ukraine (Bulgaria)

MAGDAS: Russia

OMTIs: Russia

SEVAN: Armenia, Bulgaria, Croatia

SID: Azerbaijan, Bulgaria, Croatia, Greece, Romania, Russia, Serbia, Turkey

BBC country providing ISWI instrument

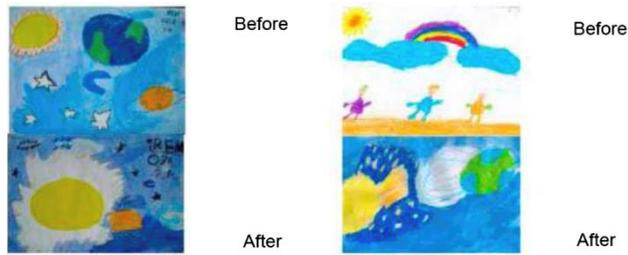
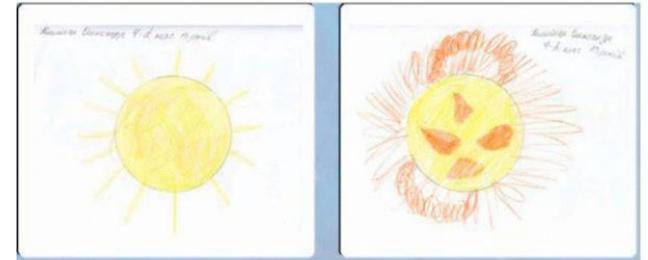
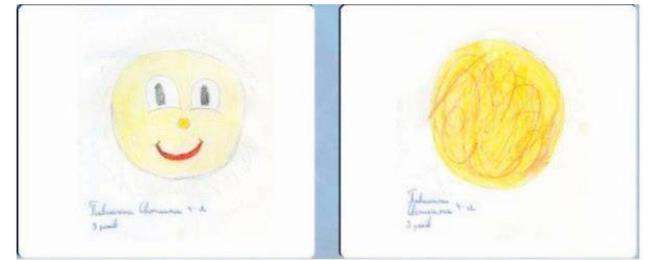
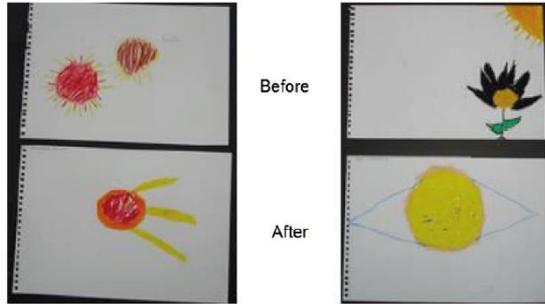
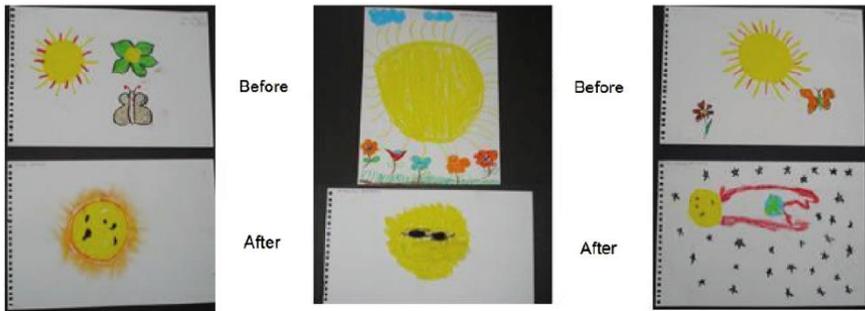
SEVAN: Armenia

More than 50 joint papers in peer-reviewed journals

- **Solar Physics**: Armenia, Bulgaria, Croatia, Greece, Russia, Serbia, Turkey, Ukraine
- **Heliosphere and Cosmic Rays**: Armenia, Bulgaria, Croatia, Greece, Russia
- **Magnetospheres**: Bulgaria, Croatia, Greece, Romania, Russia
- **Biosphere**: Azerbaijan, Bulgaria, Russia
- **Seismicity**: Armenia, Azerbaijan, Bulgaria, Georgia, Russia

Joint participation in European projects

- COST Action **“TOSCA”** (Towards a more complete assessment of the impact of solar variability on the Earth’s climate):
Bulgaria, Croatia, Greece, Romania, Russia
- Maria Curie Project **“BlackSeaHazNet”** (Complex Research of Earthquake’s Forecasting Possibilities, Seismicity and Climate Change Correlations: Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Turkey, Ukraine
- H2020 Project **“HESPERIA”** (High Energy Solar Particle Events Forecasting and Analysis): Greece, Bulgaria, Russia
- COST Action **“I love my Sun”**: Turkey, Bulgaria, Greece, Serbia



Other educational and outreach activities

- Annual young scientist **summer schools and conferences** in Bulgaria, Russia, Ukraine
- **Amateur astronomical organizations** and **solar observations** in Bosnia and Herzegovina, Bulgaria, Croatia, Turkey
- **Popular lectures** held in primary and secondary schools, astronomical groups and societies and at public observatories.
- **Popular articles** in the media
- **Olympiads and competitions**
- **Educational sites** under BBC web-site, and in the member countries
- Celebrations of **Yuri's night** and activities related to the **Sun-Earth day** in all member countries
- Translation and adaptation of **educational resources**

Research activities in the member countries

In Appendix in the online version

RESEARCH-TO-OPERATION

SpaceWeather.Ru

a project of *Space Research Institute of RAS (IKI)*

- **Forecast: A short term space weather forecast**
- **Links: A guide to Russian space weather-related institutions and on-line datasets**
- **EPO: Public outreach materials**

Space Weather Prediction Center

a project of *Pushkov institute of terrestrial magnetism, ionosphere and radio wave propagation of RAS (IZMIRAN)*

- **Daily geomagnetic activity forecast for 6-8 days**
- **Daily solar (F10.7) and geomagnetic (Ap) activity forecast for 55 days**
- **Daily radiation forecast**
- **Daily space weather survey**

<http://forecast.izmiran.ru/indexE.htm>