

# ArAS News

NEWSLETTER

ARMENIAN ASTRONOMICAL SOCIETY (A r A S)



No. 92 (April 30, 2016)

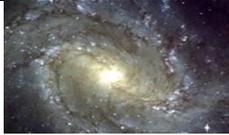
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ArAS Newsletter online at: <http://www.aras.am/ArasNews/arasnews.html>

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## On the Road of Strengthening Armenian and Georgian Relations

*Visit of IAU SWA ROAD staff to Tbilisi and Abastumani, Georgia, 27.03-02.04.2016*

Armenia and Georgia have a long history of cultural, political and science relations. Collaboration of Astronomy in Armenia and Georgia goes back to very old ages. Since ancient times Armenians and Georgians accumulated common astronomical knowledge and have left this heritage in the forms of rock art, ancient observatories, calendars and chronology, records of astronomical events (Solar and Lunar eclipses, appearance of comets, Supernovae, etc.), medieval sky maps, astronomical terms in the language, etc. The modern astronomical interaction peaked in joint astronomical colloquia organized both by Byurakan Astrophysical Observatory (BAO) and Abastumani Astrophysical Observatory (AbAO). The fact that the Armenian greatest scientist Viktor Ambartsumian was born in Tbilisi, also had an important impact on the development of Armenian-Georgian astronomical interactions. Ambartsumian and Eugene Kharadze, the Founding Director of AbAO, were great friends and colleagues. Many Georgian astronomers took their PhD and Doctoral degrees in BAO. The most recent collaboration was the ISTC grant on building Armenian-Georgian Virtual Observatory in 2008-2010.



Figure 1: Byurakan Astrophysical Observatory

From March 27 to April 2, IAU South West Asian Regional Office of Astronomy for Development (SWA ROAD) had a mission to Georgia. The first part of the mission was spent in Tbilisi and the second part in Abastumani. A two-day workshop was organized at Ilia State University. The meeting was welcomed by Maya Todua, the Director of Abastumani Astrophysical Observatory. She also gave a review of astronomy in Georgia. Areg Mickaelian, the Director of IAU SWA ROAD, represented IAU South West Asian ROAD activities, Susanna Hakopian, Task Force 1 “Universities and Research” Coordinator, contributed on Selected samples of SBS galaxies as a base for further studies, Sona Farmanyan, Task Force 3 “Astronomy for the Public” Coordinator, gave a talk on the role of Archaeoastronomy and Astronomy in Culture in activities related to astronomy for development in both of the countries and other scientific contributions were given from both of the

countries. Participants discussed strategies and developed a roadmap for the future of astronomy for development in Armenia and Georgia.

Another workshop was organized in Abastumani Astrophysical Observatory on March 31 – April 1. Here again talks were given by Maya Todua, SWA ROAD staff and researchers from AbAO. Besides the workshop, visits to AbAO facilities (Meniscus telescope, AZT-14, big coronagraph, the Observatory museum, etc.), cognitive tours, other AstroTourism activities and networking dinner were organized at Abastumani Astrophysical Observatory.

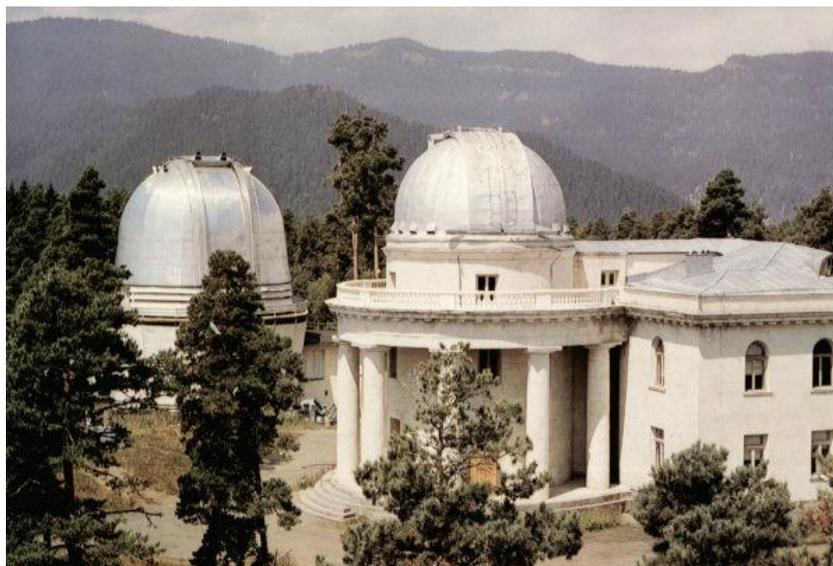


Figure 2: Abastumani Astrophysical Observatory

It is noteworthy to mention that there are 248,929 Armenians in Georgia, among them 90,373 living in Javakheti (Georgia census, 2012), which is rather close to the Observatory and there are some Armenians involved in the Observatory's activities. Relations with Georgia are of particular importance for Armenia because, under the economic blockade imposed by Turkey and Azerbaijan because of the Nagorno-Karabakh conflict, Georgia offers Armenia its only land connection with Europe and access to its Black Sea ports. We will use this land connection more actively for future mutual scientific visits.

The mission achieved its twofold goals: to bring Astronomy of both of the nations together; and to bring researchers together in order to foster a mutual understanding of the diverse and often inter-related cultures and science.

*Sona Farmanyany,*  
*IAU SWA ROAD Task Force 3 Coordinator*  
*Anush Mikayelyan,*  
*Scientific Tourism Coordinator*

# COST BigSkyEarth Workshop and Management Committee Meeting



Big Data Era in Sky and Earth Observation  
TD COST Action TD 1403

<http://bigskyeearth.eu/bigskyeearth-workshop-in-brno/>

14-16.04.2016, Brno, Czech Republic: **COST Action TD 1403 “Big Data Era in Sky and Earth Observation” (“BigSkyEarth”) Workshop and Management Committee meeting** was held on April 14-16 in the Faculty of Information Technology, Brno University of Technology, Czech Republic. The topic of the Workshop was “*Research Matchmaking – Building Bridges between Disciplines*”. The workshop participants had an opportunity to present their research in Astrominformatics, Geoinformatics, Big Data, data visualization or Big Data outreach, suggested how to expand their work into larger collaborations and seek potential research partners among the workshop participants.

*BigSkyEarth* collaboration involves 27 member countries: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, FYR Macedonia, Germany, Greece, Hungary, Ireland, Israel, Italy, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Serbia, Slovenia, Spain, United Kingdom and Armenia. Representatives of 17 of these countries attended the Workshop (Armenia, Austria, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Macedonia, Serbia, Slovenia, Spain, and UK). From Armenia, **Areg Mickaelian** (Project Manager of Armenian Virtual Observatory and *BigSkyEarth* Management Committee member) and **Mihran Vardanyan** participated. Areg Mickaelian presented a talk “*The Digitized Markarian Survey and the Armenian Virtual Observatory*”.



Administrative matters were discussed at the Management Committee meeting, as well as discussions in working groups were organized. A number of possible collaborative projects were planned.



**COST Action *BigSkyEarth*** is aimed at collaboration of Space, Earth and computer specialists. With the current emergence of Terabyte(TB)-scale astronomical and Earth observation systems, the traditional approach to basic functions such as data searching, analytics or visualization are becoming increasingly difficult to handle. Simple database queries can result now in data subsets so large that they are incomprehensible, slow (or even impossible) to handle, and impossible to visualize with commodity visualization tools. Astronomy and remote sensing complement each other, as they are on the quest for new Big Data interpretation capabilities: both disciplines have peculiar data, typical data processing and analysis chains, and specific models to be fed with data. However, both disciplines lack the capabilities for easily accessible semantics-oriented browsing (usage of higher level descriptive expressions) in large data archives. Therefore, joint efforts to design and develop innovative Big Data tools should help users in many different fields and set new standards for many communities. This has identified several broad challenges to this line of reasoning that need multidisciplinary approach through international networking of experts and professionals. These challenges are then channeled into Action Objectives:

Challenge A: Digital curation and data access,

Challenge B: New frontiers in visualization,

Challenge C: Adaptation to new high performance computing (HPC) technologies,

Challenge D: New generation of scientists in the age of interdisciplinarity.

Just before the Workshop, Areg Mickaelian visited the National Institute of Nuclear Physics, Naples Section (Istituto Nazionale di Fisica Nucleare, Sezione di Napoli) and Department of Physics, University of Naples Federico II (Dipartimento di Fisica, Università degli Studi di Napoli Federico II) for collaboration with *Prof. Giuseppe Longo* and his team members. Areg Mickaelian delivered a seminar on 11.04.2016 on “*AGN research using Multi-Wavelength Big Data*”.

The presentations are available at <http://bigskyeearth.eu/presentations-from-the-brno-workshop/>

*Areg Mickaelian*

*Project Manager, Armenian Virtual Observatory (ArVO)*

*Management Committee member, COST Action BigSkyEarth*

## COST BigSkyEarth Training School



**4-9.04.2016, Oberpfaffenhofen, Germany: COST Action TD 1403 “Big Data Era in Sky and Earth Observation” (“BigSkyEarth”) 1<sup>st</sup> Training School** was held in the Institute for Remote Sensing Methodology at the German Aerospace Center DLR Oberpfaffenhofen in Germany.

*BigSkyEarth* collaboration involves 27 member countries: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, FYR Macedonia, Germany, Greece, Hungary, Ireland, Israel, Italy, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Serbia, Slovenia, Spain, United Kingdom and Armenia. Representatives of 14 of these and some other countries attended the Training School (Armenia, Belgium, Croatia, Finland, France, Germany, Hungary, Ireland, Italy, Poland, Romania, Slovenia, Spain, and UK). From Armenia, **Gor Mikayelyan** and **Mihran Vardanyan** participated.

Lecturers and expert instructors from Europe and the USA were invited for hands-on training on Big Data analytics. Speakers included Ashish Mahabbal from Caltech (USA), Mihai Datcu from the German Aerospace Center DLR (Germany), Brian Mac Namee from the School of Computer Science at University College Dublin (Ireland), Stefano Cavuoti from the Osservatorio Astronomico di Capodimonte (Italy), Marco Quartulli from Vicomtech-IK4 (Spain), Maria Gritsevich from the Finnish Geospatial Research Institute (Finland), Giovanni Nico from CNR IAC (Italy), Laurent Eyer from the University of Geneva (Switzerland) and Eric Feigelson from Penn State University (USA).

Since the identified challenges are similar in astronomy and Earth Observation, with signal processing, statistics, machine learning, and computer science as the common denominator, the Training School has aimed at boosting the communication within and between disciplines and applications areas, by propagating and advancing relevant common solutions developed within Big Data analysis and management research and industrial environments.

The goal has been to share valuable know-how encompassing from sensor and data modelling, features extraction and metadata, information representation, data structures, pattern recognition,

statistical/machine learning, data analytics, advanced visualization, to data mining and KDD. Specific computer science topics have been addressed as particular programming techniques, cloud computing methodologies and related topics. The key aspect has been to address all these topics in synergy, setting them up in a logical interdisciplinary framework bridging the diverse areas addressed by the school.

The participants were selected for the school based on the quality and relevance of the research project descriptions provided as part of their application procedures. Their backgrounds ranged from astronomy – around 40% – to remote sensing – 55% – and computer science. The institutions they work for go from observatories to startup companies. About 20% were women, again from both astronomical and Earth observation backgrounds.



After acceptance in the school, they prepared for the attendance by going through the JPL-Caltech Summer School on the Coursera platform. After that they gathered at the Oberpfaffenhofen site of the German Aerospace Center DLR for a week of theoretical and practical work. Lessons were given on topics ranging from feature extraction for astronomical time series to large scale machine learning and visualization.

Cross-domain working groups of participants were established carrying forward specific data analysis projects focusing on regression tasks, high-dimensionality analytics, feature engineering and clustering, supervised classification and thematic mapping, and visualization. The material for the course – presentations and hands-on work notebooks by the speakers and the material being produced by the participant groups – is in the process of being published online.

## Visiting Scientific Tourism Sites in Armenia

From April 23 to 24, Scientific Tourism Group had a mission to Armenian Vayots Dzor and Syunik Provinces. The group consists of 4 people: Areg Mickaelian, Head of AIT Scientific Tourism Chair, Leading scientist and Deputy Director for Foreign Affairs of Byurakan Astrophysical Observatory, Co-President of Armenian Astronomical Society (ArAS), Director of IAU South West Asian Regional Office of Astronomy for Development (SWA ROAD); Sona Farmanyanyan, Scientific Tourism program coordinator and PR manager, Fellow of AIT Scientific Tourism Chair, Linguist-culturalologist, PR Manager of Armenian Astronomical Society (ArAS), member of IAU SWA ROAD team; Gor Mikayelyan, ArAS Webpage and Database Manager, member of IAU SWA ROAD team; Anush Mikayelyan, Scientific Tourism Manager.



The mission was scheduled in the following way:

23.04.2016 – Gladzor and Zorats Karer

24.04.2016 – Tatev Monastery

The mission aimed at:

- investigating the above mentioned sites,
- evaluating the degree of presentation properness of each site,
- identifying any issues concerning organization of scientific tourism in each site and finding solutions to them,
- collection of information for presentations from the point of view of scientific tourism for each site (each science tourism site must have proper presentation of its most interesting and attractive issues to make it as a standard text for the guides),
- recording materials for the film about Armenia as a Land of Science.

Armenia being a small country by its territory has always been visible to the world due to its science. It is very rich in sites related to ancient science, as well as modern science institutions, and both may be regarded as centres for scientific tourism.

Gladzor, Zorats Karer and Tatev Monastery have great importance as scientific tourism destinations.

The mission was organized with the support of the Swiss Agency for Development and Cooperation.

*Anush Mikayelyan*  
*Scientific Tourism Manager*

## Visit of Viktor Ambartsumian School Pupils to BAO

*Byurakan, Armenia, 25.03.2016*



On March 25, students of Yerevan basic school No. 12 named after Viktor Ambartsumian visited Byurakan Astrophysical Observatory (BAO). 26 students were present, together with 2 teachers. The students were picked up from the school and taken to BAO 2.6m telescope, the largest observational instrument of BAO operating since 1976, where astronomer-guide explained basics of astronomy and telescope work. Then children were left to walk in the territory and enjoy the surroundings, beautiful nature of BAO territory. Then at Viktor Ambartsumian office at the main building of BAO they were met by Areg Mickaelian, Leading Scientist and Deputy Director for International Affairs at BAO. *Dr. Mickaelian* talked about Viktor Ambartsumian's works, role in astronomy and some interesting facts about his life. A lively discussion and Q&A took place after that.

School N12 named after Viktor Ambartsumian was founded in 1940 and was named after the famous astronomer in 1996. The visit aimed at introducing children with BAO and its activities, 2.6m telescope, Viktor Ambartsumian's life and works. Being students at Viktor Ambartsumian school, they are supposed to know the genius more than others. The visit was organized with the support of the Swiss Agency for Development and Cooperation.

*Anush Mikayelyan,  
Scientific Tourism Manager*

## Arsen KALLOGHLIAN

### Arsen KALLOGHLIAN (1931-2016)



One of BAO oldest scientists, *Dr. Arsen Kalloghlian* passed away in Yerevan on 3 April 2016, at the age of 85.

Arsen Tigran Kalloghlian was born on 10 January 1931 in Aleppo, Syria. Obtaining his primary education in a local Armenian school in 1946 he repatriated with his family when he was 15. His family was among the first repatriates to move to Armenia. In the next two years he completed his higher education in Yerevan. In 1945 the Department of Astrophysics was opened at Yerevan State University (YSU) by *Prof. Victor Ambartsumian* and Arsen Kalloghlian entered this University in 1948 for studying Astrophysics and graduated from it in 1953. Then he began his post-graduate studies in 1955 under supervision of Victor Ambartsumian. In 1959 he defended his PhD thesis and since 1967 he was a senior research associate at BAO.

Starting from the very beginning he is studying various problems of Extragalactic Astronomy. His more than 130 research papers are devoted to detailed studies of barred spirals, galaxies with UV-continuum, groups and clusters of galaxies, etc. He was the first to study the barred spirals in detail including the environmental features of these galaxies. Many papers were devoted to the study of morphological and photometric properties of Markarian galaxies. The great part of his papers has been completed and published in cooperation with colleagues from Armenia, Germany, France, Italy, Georgia and Bulgaria.

*Dr. Kalloghlian* was a founding member of ArAS (1999), member of the International Astronomical Union (IAU) since 1970, for many years he was a member of the Scientific Council of BAO, and for about 40 years he was serving as the Secretary-in-Chief of the journal *Astrofizika* (*Astrophysics*).

## EAS 2016 PRIZES



The European Astronomical Society is pleased to announce the awardees of EAS 2016 Prizes.

### **Tycho Brahe Prize**

The 2016 Tycho Brahe Prize is awarded to Prof. Joachim Truemper in recognition of his visionary development of X-ray instrumentation, from balloon experiments and the discovery of cyclotron lines probing the magnetic field of neutron stars to his leadership and strong scientific involvement in the ROSAT mission.

[http://eas.unige.ch/tycho\\_brahe\\_prize.jsp](http://eas.unige.ch/tycho_brahe_prize.jsp)

### **Lodewijk Woltjer Lecture**

The 2016 Lodewijk Woltjer Lecture is awarded to Prof. Thibault Damour for his outstanding career on theoretical implications of General Relativity and in particular on the prediction of the newly-observed gravitational wave signal of coalescing binary black holes.

[http://eas.unige.ch/woltjer\\_lectures.jsp](http://eas.unige.ch/woltjer_lectures.jsp)

### **MERAC Prizes**

The 2016 MERAC Prizes for the Best Doctoral Thesis are awarded in

#### **Theoretical Astrophysics**

to Dr Maria Petropoulou for her thesis on radiative instabilities and particle acceleration in high-energy plasmas with applications to relativistic jets of active galactic nuclei and gamma-ray bursts.

#### **Observational Astrophysics**

to Dr Yingjie Peng for his thesis on the simplicity of the evolving galaxy population and the origin of the Schechter form of the galaxy stellar mass function.

#### **New Technologies**

to Dr Oliver Pfuhl for his thesis on an innovative design of two subsystems for the VLTI instrument GRAVITY: the fibre coupler and the guiding system.

[http://eas.unige.ch/merac\\_prizes.jsp](http://eas.unige.ch/merac_prizes.jsp)

## **RELEASE OF ASTROCOURIER APRIL & MAY ISSUE**



### **CONTENTS**

#### **PREFACE:**

##### Chronicle of the events:

- 55 anniversary of the first Spaceflight by Yuri Gagarin and the beginning of manned spaceflight era
- Launch of "Lomonosov" spacecraft: MASTER went to the space
- Protests of Ukrainian scientists have been heard and taken into account: now Ukrainian scientists can publish their results at journal of "Astronomy and Astrophysics" for free

#### **ANNIVERSARIES OUSTANDING SCIENTISTS**

150<sup>th</sup> Anniversary of Pyotr Nikolaevich Lebedev (1866 – 1912)

100<sup>th</sup> Anniversary of S.A Jevakin (1916- 2001).

100<sup>th</sup> Anniversary of D.Y. Martinov (1906– 1989)

#### **INVITATION TO CONFERENCES**

Conference at Korolev, 24-26 May 2016

International Conference "Manned Space Exploration"

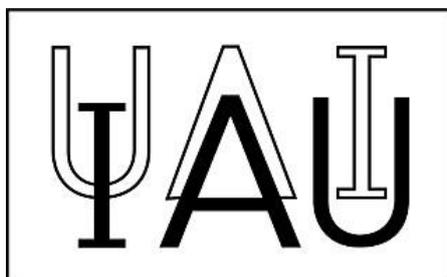
Overview of astronomical events

Upcoming opposition of Mars

Feast of the solar eclipse in Indonesia

Astrocourier Newsletter is available in the following link:  
<http://www.sai.msu.ru/EAAS/rus/astrocourier/040416.htm>

## RELEASE OF IAU ASTRONOMY OUTREACH NEWSLETTER 2016 #6 April #3



### **In this newsletter:**

From the Editors

CAP 2016 Conference gathers top astronomy communicators in Medellin, Colombia

National Outreach Contact Corner: News from Uruguay

Still time to join in with the Global Astronomy Month celebrations

Transit of Mercury — Activities around the world

Discovery Club — Activities for children in refugee centres

Arts@CERN — COLLIDE International Award

International Symposium on Sun, Earth, and Life

Space Education International Workshop

Meetings & global events for 2016

Recently added

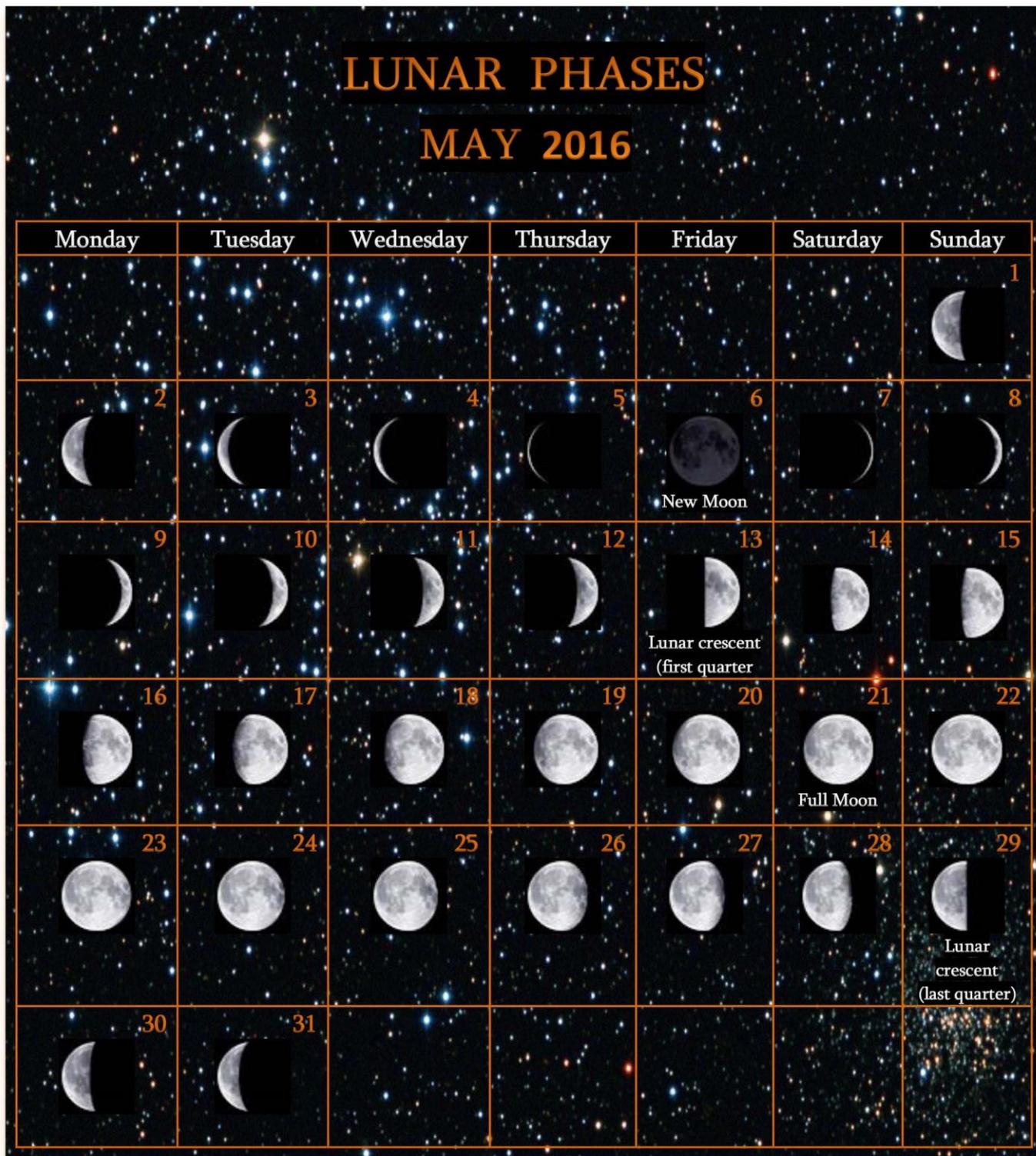
Important deadlines

Upcoming

Contributions to IAU Outreach Newsletter for 2016



# LUNAR PHASES OF MAY



# MAY CALENDAR OF ASTRONOMICAL EVENTS

**Monthly Calendar of Astronomical Events**  
**MAY 2016**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						<b>1</b> Radik Martirosyan's 80th anniversary
<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> Edvard Chubaryan's 80th anniversary	<b>6</b> Scorpionids meteor shower peak New Moon	<b>7</b>	<b>8</b>
<b>9</b> IVOA interoperability meeting	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b> Conjunction of Mercury vs. Venus	<b>14</b>	<b>15</b>
<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b> Full moon Mars at opposition
<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b> Lunar crescent (last quarter)
<b>30</b> ArAS Newsletter #93 release	<b>31</b>					