

Global Astronomy Survey : Azerbaijan

Submitted by : Elchin Babayev (SPoC) [see human resources section] 24 July 2009

SPoC Approval : Yes

1. Professional (Research) Astronomy:

1. Number of universities offering Astronomy (and their names)

Baku State University (<http://bsu.edu.az/en/>)

Azerbaijan State Pedagogical University

Nakhchivan State University (<http://www.ndu.edu.az/>)

1. Number of universities offering Physics (and their names)

Baku State University (<http://bsu.edu.az/en/>)

Azerbaijan State Pedagogical University

Nakhchivan State University (<http://www.ndu.edu.az/>)

Azerbaijan State Oil Academy

Azerbaijan Technical University

National Aviation Academy

Ganja State University

Sumgayit State University

Qafqaz University

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

More than 70 (recent years), including those 35 who have scientific degrees only (!) on astronomy and astrophysics:

- Gulyev Ayyub, Dr.Sc., corresponding member of Azerbaijan National academy of Sciences
- Babayev Elchin, Dr., Assoc. Professor
- Dzhililov Namig, Dr.Sc., corresponding member of Azerbaijan National academy of Sciences
- Guluzadeh Jafar, Dr. Sc., Professor

- Huseynov Rahim, Dr.Sc., Professor
- Ismayilov Nariman, Dr.Sc.
- Rustamov Bayram, Dr.
- Mammadov Sabir, Dr.
- Zeynalov Rahim, Dr.
- Atayi Adalat, Dr.
- Shestopalov Dimitry, Dr.
- Golubeva Larisa, Dr.
- Shustarev Peter, Dr.
- Babayeva Adila, Dr.
- Rustamov Jamamed, Dr.
- Aliyev Sabir, Dr.

- Samadov Zahir, Dr.
- Alysheva Kamala, Dr.
- Haziyeu Gulu, Dr.
- Mammadli Azad, Dr.
- Gasimov Fikrat, Dr.
- Maharramov Vagif, Dr.Sc., Professor
- Asvarov Abdul, Dr. Assoc. Professor
- etc.

Among them there are 3 members of the IAU and 10 members of European Astronomical Society, and 14 members of Euro-Asian Astronomical Society.

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

- **Shamakhy Astrophysical Observatory** (ShAO) (www.shao.az) named after Nasiraddin Tusi under Azerbaijan National Academy of Sciences (www.elm.az)

); it was established in 1960; it has 7 optical telescopes, including 2 meter Carl Zeiss Jena telescope, 7 scientific departments and Baku City Branch, for more information on instrumentation, please, visit:

www.shao.az

, contact:

elay@shao.ab.az

- **Batabat Astrophysical Observatory** under the Nakhchivan Branch of the Azerbaijan National Academy of Sciences; it was established in 2002 on the base of Batabat Department of ShAO; it has Nakhchivan City Branch, Batabat Astronomical Station and Aghdara Astronomical Station, 3 main telescopes,: 60 cm German optical telescope, astrograph and Lunar-planetary telescope.

- **For more details** about astronomy in Azerbaijan, see: Babayev, E.S. Astronomical education in Azerbaijan: existing heritage, current status and perspectives. The Astronomical Society of the Pacific Conference Proceedings Series, IAU 8-th APRIM Proceedings, USA, vol. I (ISBN 1-58381-134-6), S.Ikeuchi, J.Hearnshaw and T.Hanowa (Eds.). 2003, vol. CS-289, pp.157-164.

- **Astronomical researches** are also professionally conducted in:

- o Research Institute of Physics under Azerbaijan National Academy of Sciences

- o Department of Astrophysics of the Baku State University

- o Azerbaijan State Pedagogical University

- o Nakhchivan State University

1. 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.)

Bit more than Phase 2

In modern Azerbaijan astronomy has about 50 year's history. There is serious scientific society of astronomers which member's number varies between 50 and 60. Observatories have good telescopes, mainly German and Russian origin. There is Azerbaijani Astronomical Society established in 2008, Ph.D. study courses in ShAO and particularly in Baku State University. There are published: International Journal "Sun and Geosphere" (

www.shao.az/SG

) and "Azerbaijani Astronomical Journal" (

www.shao.az/AAJ

). Besides, astronomical papers are published in special issues "Physics and Astronomy" of the Transactions of the Azerbaijan National Academy of Sciences.

Economical and political changes have affected astronomical researches in Azerbaijan. Only in 1997, after a stagnation period after the gaining independence in 1991, there was started new stage of development and in 2008 and 2009 in reached its maximum thanks to the special Decree of the President of the Republic of Azerbaijan on restoration and modernization of Shamakhy Astrophysical Observatory (in total about 7 mln Euro). Next year ShAO will celebrate its 50 years anniversary in totally new state and "face". There will be nice astronomy museum as well as comfortable working conditions.

But, unfortunately, financing of researches and salary is very low (it increases but slowly). It affects negatively the level of young researchers, communications, participation in conferences, getting scientific literature so on.

2. Public Understanding of Astronomy:

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

Government supports astronomical study and researches, excursions to Observatories, creation of Astronomy Museum, publishing books, journals with articles on astronomy, so on. For example, Child Astronomy Encyclopedia is under publication by the help of Administration of the

President of the Republic of Azerbaijan. Azerbaijan National Academy of Sciences publishes scientific popular journal “Elm ve Heyat” (Science and Life) with astronomical articles in each issue.

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

World Space Party – Yuri’s Night at 12 April each year

Novruz Day – 20-21 March each year – equinox day – unofficial day of start of new year in Azerbaijan

World Astronomy Day – each year according to the calendar

Journal “Universe and Human” is under registration which will be published by the Azerbaijani Astronomical Society

Magazine “YOL” has special part named as COSMOS which publishes popular articles on space and astronomy

1. 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?

Any astronomical event such as eclipse, comet flyby, strong solar flares, Venus passage on the Sun’s disk, so on is highly discussed and shown on TV and newspapers, journals, FM radio so on.

Mass media is not only willing it even “bothering” astronomers to get more and detailed information. Astronomers usually try to control the quality of information for public in order to

avoid pseudo-scientific information spread. So, there are good ties between astronomers and journalists.

For example, daily news on space weather and interesting news from space are published in most famous newspaper “Zerkalo” (Mirror) (www.zerkalo.az). Each issue of “Medical Newspaper” gives information about the state of solar and geomagnetic activity.

Live broadcasts are usual practice for astronomical events. Almost each month we have 15-20 minutes programs on astronomy in such TVs as state AzTV, Public (İctimai) TV, private Lider TV, ATV, Space, so on. Most popular time – morning news time and evening time is used for these purposes.

1. 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?

Astronomy is quite popular in Azerbaijan. Its history comes from 13-th century, with Maragha Observatory established by the great Azerbaijani astronomer Nasiraddin Tusi.

Every week-end there are guests coming to Observatory for excursions. High number in summer period.

When you are asked about your specialty and hearing an answer “astronomer or astrophysicist”, you always can see a smile and very special respect to you – starting government officials ending airport gate. You always will face “a problem” of astronomical questions being among society, anywhere. These can be questions on Universe or Earth, philosophy of cosmos or UFOs, solar eruptions or cosmology, travel to Moon or Azeri names in sky (asteroids, craters), meteorites or eclipses.

So many names “related” to Moon (Ay), Sun (Gyun, Gyunesh), Venus (Zohre), Star (Ulduz), so on or their compositions. And quite enough legends.

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

Between Phases 2 and 3 (due to lack of tutorial and educational material; there are enough high level professionals to conduct outreach activity)

3. Astronomy in Schools:

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

Astronomy is obligatory teaching at any (!) high secondary school or lyceum in Azerbaijan.

The government (Ministry of Education) prepares separate educational programs for schools, publishes astronomy books.

Also, Tusi Summer Astronomical School and Astronomy and Space Science Conference of Young Scientists are organized by the Azerbaijan National Academy of Sciences (by ShAO) on a regular basis.

As it was mentioned above, Child Astronomy Encyclopedia is under publication by the help of government.

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

Azerbaijani Astronomical Society pays a great attention on education and outreach programs, organizing abovementioned activities, like 12 April, 4 October day of launch of Sputnik, so on.

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

Astronomy is a separate subject in the high secondary school and lyceum curriculum. Usually astronomy is taught by teachers of physics or by the teachers of physics and astronomy, mainly graduated from the Baku State University or Azerbaijan State Pedagogical University. Age groups: 15-16.

At present, the course of Astrophysics is included in the curricula of undergraduate physics study programs of all aforementioned universities (see: question 1 (I, ii)). Age groups: > 17

1. 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?

Astronomy has a status of separate subject in the high secondary school curriculum. Students like very much astronomy subject especially when it is done by teaching and demonstrating tutorials.

However, astronomy course is short for training competitive lecturers in astronomy in some universities.

Between 1990 and 2005 there were comparatively low interest in maths and other exact sciences. Now one can see increased number of students in such faculties as physics, applied maths, engineering, so on.

1. 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.)

Phase 2

The situation with astronomy teaching in schools and universities is satisfactory. It could be higher, but unfortunately, only there, where teachers themselves are highly interested in astronomy, the level of astronomy knowledge is higher than in other places. The requirements of final school exam for astronomy are too low and the majority of teachers and students do not pay serious attention to astronomy questions in general test exam system.

Any other general comments or information that you feel would be useful for this survey?

In general, situation is satisfactory in astronomy teaching and outreach. Enthusiasm is very high, but there are financial difficulties and lack of modern tutorial materials (even up to now we do not have planetarium in Baku, and Astronomy Museum to be established soon is far from capital city and not everybody can go there).