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LOCAL NEWS

BAO Expands Its International Collaboration

A cooperation agreement will be signed between the Byurakan Astrophysical Observatory (BAO) and the Arab Union for Astronomy and Space Sciences (AUASS). The AUASS represents the field of Astronomy across the entire Arab world, including 22 countries. Jordan, Egypt, Algeria, and the United Arab Emirates (UAE) are among the countries where Astronomy is well-developed. Areg Mickaelian, director of the BAO, has been invited to the AUASS 14th Arab Conference to be held in Sharjah, UAE on November 13-16. He will present the keynote talk on “Big Data in Astronomy”. During that time, a cooperation agreement between BAO and AUASS is planned to be signed. Prof. Hamid Al-Naimiy (UAE) and Dr. Awni Khasawneh (Jordan) represent AUASS and University of Sharjah.

Since 2015, the Byurakan Astrophysical Observatory has been hosting the South West and Central Asian Regional Office of Astronomy for Development and coordinates the development of Astronomy in this large region. Moreover, in 2018 a cooperation agreement was signed between the IAM HACA and the Pan-Arab Regional Astronomical Centers in Amman, the capital of Jordan.

This year marked the first attempt to organize the Interregional Astronomical Summer School (IRASS) in Byurakan, which was attended by students and young astronomers from a number of Arab countries. The BAO will contribute to scientific programs in Arab countries, training of astronomical personnel, astronomical lectures in various countries, development of the pan-Arab virtual observatory project and other initiatives.



Seminar on the Repair and Transformation of the Observatory's Largest Telescope



Alexey Grave. BAO. 2023

On October 23, yet another seminar was held at the Byurakan Astrophysical Observatory (BAO), dedicated to the work of the BAO observational instruments. The speaker was Alexey Grave, the senior engineer of the BAO who presented the results of the work carried out on the largest telescope of the Observatory.

Throughout this year, repair and re-equipment work was undertaken, as a result of which it was possible to bring the telescope to the

testing condition. Maintaining and operating large scientific instruments demands significant investments, but despite limited resources, the BAO Directorate is committed to maximizing the efficient use of the Observatory's observational capabilities. Notably, the 2.6m, 1m, and 0.5m telescopes of the Schmidt system, along with the 48cm telescopes of the Cassegrain system, are already fully operational. In addition, a new CMOS digital receiver has been deployed on the 2.6m telescope.

ANNIVERSARIES

Garik Israelian's 60th Anniversary



Garik Israelian

Dr. Garik L. Israelian, a famous Armenian-Spanish astronomer working at the Institute of Astrophysics in Canary Islands (IAC), celebrated his 60th anniversary on October 3. Dr. Garik Israelian, born in 1963, graduated with First Class Honours in 1987 (Yerevan State University, Armenia) and completed his PhD at the Byurakan Astrophysical Observatory in 1992. Since then he has worked as a researcher in the Universities of Utrecht (The Netherlands), Brussels (Belgium) and Sydney (Australia). In 2000, he became a Principal Investigator of the project “Stellar chemical abundances: clues on the formation of the Galaxy, black holes and planets” at IAC. The IAC is one of the most important centers of astrophysics operating the largest telescope in the world: the 10.4m GTC. Israelian’s discoveries were covered by BBC, CNN, TVE etc, and reflected in special publications in dozens of national (Spanish) and international newspapers and magazines (New York Times, Der Spiegel, Science News, Scientific American etc.). Dr. Israelian has supervised five Doctoral dissertations, and lectured 32 hours post-graduate courses on Stellar Atmospheres and Radiation Transfer at the Universities of Geneva (Switzerland) and Tokyo (Japan). He is a trusted referee of the magazines Nature, Science, Astrophysical Journal etc. One of the most important scientific contributions of Dr. Israelian is considered the article published in 1999 in Nature. 200 years after the original idea by John Michell regarding the existence of black holes in the Universe, Dr. Israelian led an international collaboration, which provided the first observational evidence that supernovae explosions may be responsible for the formation of black holes (John Cowan, Nature, 401, 124, 1999). This discovery was considered by Hans Bethe as “one of the most important discovery in black hole astrophysics”. Dr. Israelian has served on numerous astronomy committees and panels. He has presented invited talks, reviews and contribution talks at more than 50 international conferences. Since 2000 he has collaborated with Michel Mayor’s team at Geneva University (Switzerland) and Nuno Santos with whom he has published more than 30 scientific articles. They have made several groundbreaking discoveries related to the properties of stars with extrasolar planetary systems. In 2010, they were awarded the first Viktor Ambartsumian International Prize. On behalf of the Armenian Astronomical Society we wish him good health and success and new scientific achievements.

OTHER NEWS

Great Dimming Event of Betelgeuse Wasn't a Precursor to a Spectacular Supernova

The [Great Dimming Event \(GDE\) of Betelgeuse](#), where the red supergiant star visibly faded in late 2019 and early 2020, puzzled and fascinated the world as it happened. Some thought that the star, which is coming to the end of its life, was about to explode and go supernova.

In this glowing Picture of the Week, astronomers have shed new light on how Betelgeuse became darker, confirming that the [GDE wasn't a precursor to a spectacular supernova](#) after all.

Dec 2018

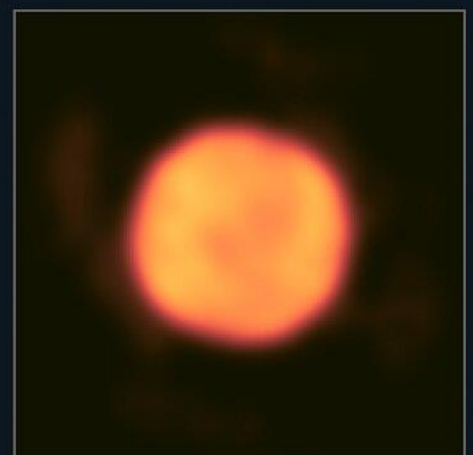
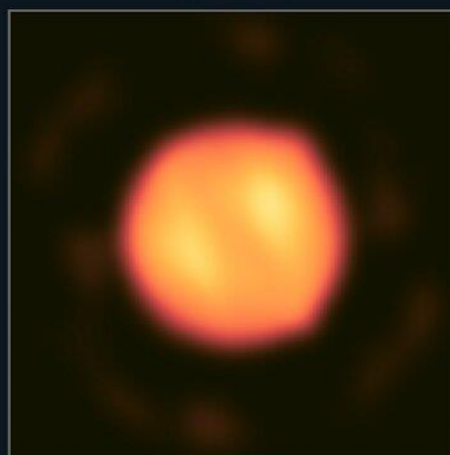
Feb 2020

Dec 2020

Photosphere



Silicon monoxide



Betelgeuse's Great Dimming Event in high resolution

Here we see Betelgeuse as it was in December 2018, February 2020 and December 2020, capturing the famed star before, during, and after the GDE. A team led by Julien Drevon, Florentin Millour and Pierre Cruzalèbes at the Université Côte d'Azur (France) used the MATISSE infrared instrument on ESO's Very Large Telescope Interferometer (VLTI) to obtain high-resolution images of the star. The top images here show its "surface" or photosphere, whereas the bottom ones trace silicon monoxide, a molecule that can act as a seed to form dust grains.

The keen eye may notice that Betelgeuse's photosphere got brighter during the so-called dimming event. We now know dust was being produced during the GDE, which made the star appear dimmer to us in visible light, but brighter to MATISSE as dust glows in infrared light. In addition, the changes in the structure of the photosphere and the silicon monoxide are consistent with both the formation of a cold spot on the star's surface and the ejection of a cloud of dust.

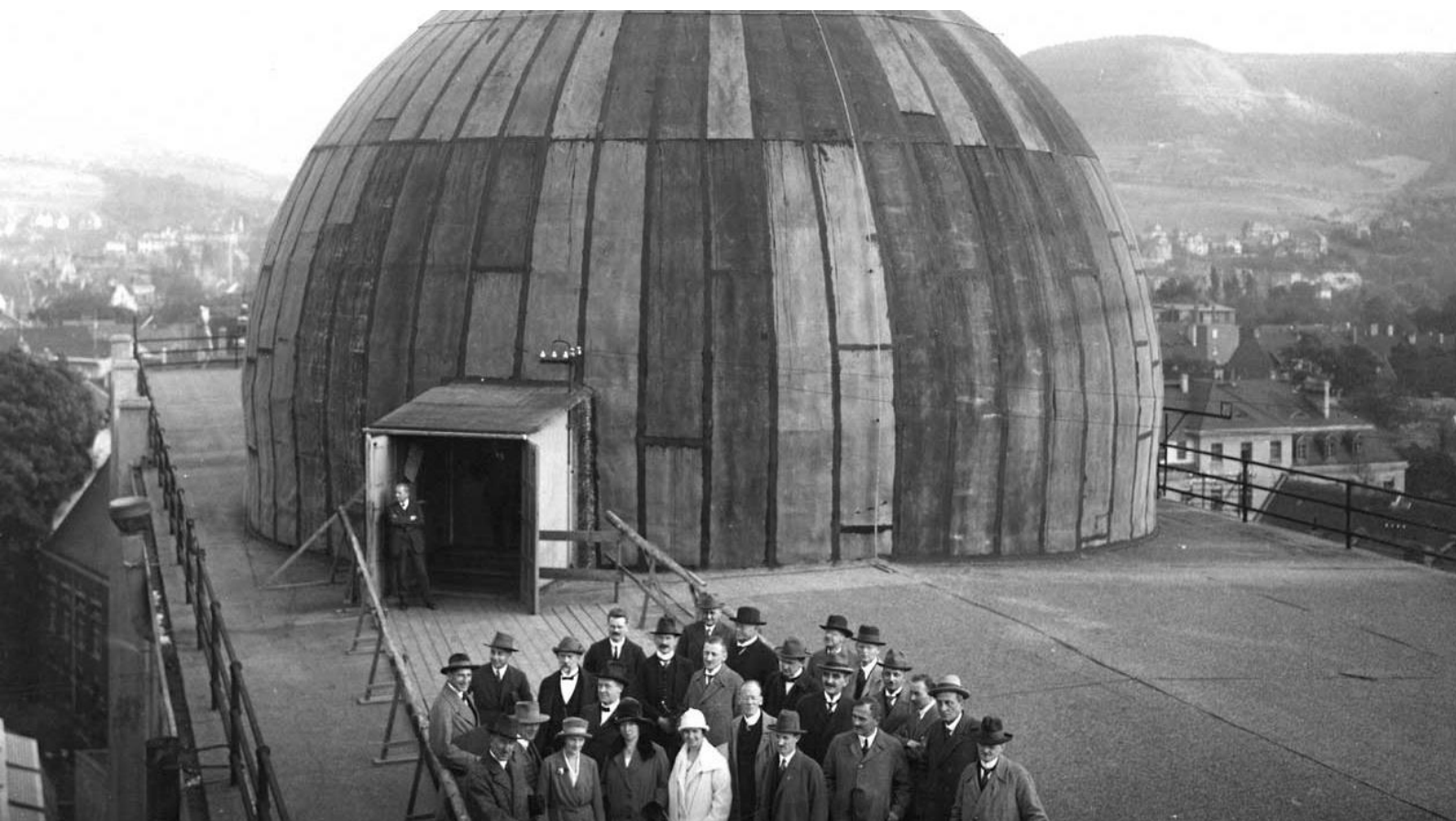
Betelgeuse's size on the sky is similar to that of a 1euro coin seen from 100 km away. The VLTI combines the light of several telescopes to create a much larger "virtual" telescope that can discern small structures on Betelgeuse. Thanks to this, we can witness in detail how this massive star ages and evolves.

100 Years of the First Planetarium

It's the centenary of the very first planetarium.

In 1913, Oskar von Miller, the founder of the Deutsches Museum (German Museum) in Munich, conceived an idea for a device that could illustrate the apparent movements of the sun, moon, planets, and stars. He approached ZEISS for suggestions on creating such a planetarium. However, World War I interrupted the progress of this project.

In March 1919, Walther Bauersfeld, a member of the Carl Zeiss Jena Board of Management, unveiled a new design for a projection planetarium. He, along with his team, began working on the intricate details of the project. The long-awaited moment finally arrived in October 1923 when the artificial sky lit up in the Deutsches Museum for the first time, far exceeding expectations. On 7 May 1925, [the ZEISS Planetarium](#) in the Deutsches Museum in Munich began operation. Subsequent developments ranged further to Model IX and projectors for small and medium dome sizes. Later, ZEISS equipped its planetariums with computer-aided control systems and developed fiber optics to depict the night skies more brilliantly than ever. The evolution of ZEISS planetariums, which can now be found all over the world, eventually led to the VELVET video projector – featuring superior contrast for perfect full-dome projection and to the UNIVIEW software suite for all types of digital projection content.



ArAS News is the electronic newsletter of the Armenian Astronomical Society. It was distributed to all ArAS members from the beginning of 2002, 4 times a year, typically at the end of each trimester. In 2009-2014, 8 issues annually and since 2015, 12 issues annually have been released.

ArASNews publishes information materials on ArAS, Byurakan Astrophysical Observatory and the Armenian astronomy in general, reports on ArAS Annual Meetings and participation of the Armenian astronomers in important international meetings, articles on occasion of anniversaries of famous Armenian astronomers and ArAS members, acceptance of new ArAS members, achievements of the Armenian astronomers, astronomical education in Armenia, Armenian archaeoastronomy, as well as science articles (reviews) on important studies.

So, if you want to share your studies with the scientific community, send us your articles to melin.asryan@gmail.com. They will be reviewed for the publication in ArAS Newsletters next issues.

[ArAS Newsletter issues](#) are available online.