An Interactive Sky Map based on the Byurakan Plate Archive

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The modern astronomy in Armenia begins with the foundation of the Byurakan Astrophysical Observatory (BAO). It is one of the most important astronomical centres in Eastern Europe and Middle East region, both by its scientific instruments and achievements. The Observatory was founded in 1946 on the initiative of Viktor Ambartsumian, the famous Armenian scientist of the 20th century. BAO is situated on the southern slope of Mt. Aragatz (with highest peak at 4090 m altitude), near village Byurakan, some 30 km Northwest to Yerevan, the capital of Armenia. The altitude is 1405m. BAO is affiliated to the Armenian National Academy of Sciences (NAS RA) and is one of its most important institutions.

The main scientific instruments at BAO are: 2.6m telescope, 1m and 0.5m Schmidt telescopes, a few other telescopes of 40-60 cm size.

Byurakan Astrophysical Observatory (BAO) Plate Archive is one of the largest astronomical archives and is considered to be BAO main observational treasure. Taking into account decades hard work of Armenian astronomers and the work of BAO telescopes, as well as the results of their activities, we can say that BAO Plate Archive is one of our national scientific values. Due to Viktor Ambartsumian's brilliant ideas and the mentioned observational work, RA Government has recognized BAO as National value.

Today BAO archive holds 37,500 astronomical plates, films or other carriers of observational data. However, previous observational and informational registration methods currently do not make it available to wide range of scientists, and especially its usage for solution of new research problems.

The digitization of astronomical plates and films pursues not only the maintenance task, but also it will serve as a source for new scientific research and discoveries, if only the digitized material runs according to modern standards and, due to its accessibility, it will become an active archive.

The digitization project is aimed at compilation, accounting, digitization of BAO observational archive photographic plates and films, as well as their incorporation in databases with modern standards and methods, providing access for all observational material and development of new scientific programs based on this material.

The electronic archive will be a part of the Armenian Virtual Observatory (ArVO) and hence, will be incorporated in the International Virtual Observatories Alliance (IVOA).

Creation of BAO observational database and the interactive sky map for BAO observations will be accessible through the project webpage. All observations will be collected in the Electronic Database; they can be sorted by the selected parameter or the database can show the part of observations by any given parameter:

- Telescope

- Epoch of Observation
- Observer
- Observing mode (photometric or spectroscopic)
- Filters (UBVRI)
- Sky Area
- Observing Target
- Limiting Magnitude

The scanned plates will be available for download in several formats. The option of searching for certain object will be also available. The Database is intended to work together with world astronomical databases and catalogues.

The scanned plates will be placed on the sky map according to their coordinates, the map will show all BAO observations or their corresponding part by given parameters:

- observing projects (series of observations in frame of the same project, sometimes even involving several telescopes),
- coordinates (sky area),
- telescope(s),
- observing mode,
- limiting magnitude (magnitude intervals),
- date(s) of observation (definite date or dates intervals),
- observer, etc.

By clicking on definite area on the map, it will show the scanned plate of the observed area and all its parameters. Several formats (FITS/FIZ, quick-view JPG, ZIP/GZIP/TAR, etc.) of the scanned plates will be downloadable. This interface will serve for study of available observing data and derivation of new research projects depending on the sky area, observing mode, limiting magnitude, etc. Given the wide range of the time domain (1947-1991), the Database and the Map will be rather useful for variability studies.