P R O G R E S S R E P O R T

Subject: IBSP project "Enlargement of Collaboration in Ground-Based Astronomical Research in SEE Countries: Variable Stars Research and Studies of Small Bodies of the Solar System"

The project was accepted for implementation in 2005 and received during the last months of 2005-first quarter of 2006 - the financial support of UNESCO Office in Venice which amounts to USD 25 000 (twenty five thousand US dollars). The purpose of this regional project is to foster scientific collaboration in countries of SEE and Ukraine in the field of astronomy. It is also aimed at helping participating countries to solve problems in astronomical research and education, which are common for countries in transitions to market economy. The only big observatory at the start of this project in the SEE region is the Rozhen National Astronomical Observatory , with a 2 m RCC telescope. It is therefore only natural that the Rozhen NAO became a regional center for the implementation of this project. In 2004, the Balkan Astronomical Meeting took place in Rozhen NAO with more than 90 participants from the SEE. This Meeting could be regarded as a precursor of the present IBSP – project.

The IBSP project is supported by the following main institutions:

1. Institute of Astronomy, Bulgarian Academy of Sciences, Bulgaria;
2. Faculty of Science, Shumen University, Bulgaria;
3. Department of Physics, Section of Astrophysics, Astronomy and Mechanics, Aristotelion University of Thessaloniki, Greece.
4. Department of Astrophysics, Astronomy and Mechanics, National and Kapodistrian University of Athens, Greece.
5. Institute of Physics, Faculty of Natural Sciences, St. Cyril and Methodius University, FYR of Macedonia;
6. Astronomical Institute of the Romanian Academy, Romania;

7. Astronomical Observatory Belgrade, Serbia and MN;
8. Astrophysics Research Center (CAAM) and COMU Remote Sensing Center (CUM), Canakkale University , Turkey;
9. Science Faculty, Astronomy and Space Sciences Department, Ege University, Turkey;
10. TUBITAK National Observatory, Scientific and Technical Research Council of Turkey (TUBITAK), Akdeniz Universitesi Yerleskesi;

Associated members to this project are:

1. Research Institute, Nikolaev Astronomical Observatory, Ukraine;
2. Institute of Astronomy, Karazin Kharkiv National University, Ukraine;
3. Kazan State University, Russia;
4. Institute for Theoretical Physics and Astrophysics of the University of Kiel, Germany.
5. Baja Astronomical Observatory of the Bocs-Kiskun County Government and the Astronomical Joint Department of Pecs University Szegedi, Hungary.

During the first 6 months of implementation of this project, following activities were carried out, according to principal objectives of the project:

1. Research programs. Observing campaigns were carried out, using all observing facilities of the Rozhen Nat. Astron. Observatory, the Astronomical Observatory of Belogradchik, TUBITAK National Observatory, Nikolaev Astronomical Observatory and other facilities. The Institute of Astronomy, BAS, granted free observing time and free accommodation in Rozhen NAO and in AO Belogradchik for astronomers from Serbia and MN, Romania and Turkey. The research programs include : CCD Measurements of double and

multiple stars , studies of close binary stars, studies of late-type active stars (FK Com and HD 199178), studies of the small bodies of the Solar system (asteroids and comets).

A list of publications follows:

G. Djurasevic, D. Dimitrov, B. Arbutina, B.Albayrak, and S.O. Selam, 2005, "A Study of Close Binary System EE Cet",
Mem. Soc. Astron. Ital. vol 7, pp 168-169.

R. Pavlovic, Z. Cvetkovic, D. Olevic, A. Strigachev, G.M. Popovic, B. Novakovic, 2005, "CCD Measurements of Double and Multiple Stars at NAO Rozhen", Serbian Astron. Jour. vol 171, 49-53.

Z. Cvetkovic, B. Novakovic, A. Strigachev, G.M. Popovic, 2006, "CCD Measurements of Double and Multiple Stars at NAO Rozhen II."
Serbian Astron.Jour. vol 172 (in press).

K. Panov, D. Dimitrov, 2006, "Long-Term Photometric Study of FK Com and HD 199178 ", Astronomy and Astrophysics, submitted.

R. Popescu, P. Popescu, P. Paraschiv and A. Nedelcu, 2005, "Astrometry Test of MSCRED IRAF Software Package", Serbian Astron. Jour. vol 170, 123-125.

T. Hegedus, T. Nuspl N. Markova, H. Markov, H. Rovithis-Livaniou, I. Vince and J. Vinko, 2005, "First Results of the Central-East-South European Binary Star Group" proceed. Syros conf. 27-30, June.

T. Hegedus, T. Nuspl, N. Markova, H. Markov, H. Rovithis-Livaniou, I. Vince and J. Vinko, 2005, "The Central-East-South European Binary Group: Some First Results", proceed. Bucharest conf. 16-18 Sep.

A.Dumitrescu, M.D. Suran, H. Rovithis-Livaniou and L. Iliev, 2006, "Analysis of the first ground based observations of the eclipsing binary Hip 12039 (V376 And)", Romanian Astron. Jour. , submitted.

I.N. Belskaya, J.L. Ortiz, P. Rousselot, V. Ivanova, G. Borisov, V.G. Shevchenko, N. Peixinho, 2006, "Low Phase Angles Effects in Photometry of Trans-Neptunian Objects: 2000 Varuna and 19308 (1996 TO66)" Ikarus, in press.

2. Astronomical conferences and meetings .

A number of papers (reports) have been presented at regional conferences and astronomical meetings:

"SCINTIFIC PROGRAMS AND ASTRONOMY EDUCATION IN SEE AND UKRAINE", 2005, 16-18 Sep. Bucharest (see application: program of the conference) . Conference proceedings are in press.

SOLAR AND STELLAR PHYSICS THROUGH ECLIPSES, 2006,
27-29 March, Side, Antalya, Turkey. (see application: Abstract book). Conference proceedings are in press. This conference is carried out under the Contract 879.555.5.

ASTRONOMY AND SPACE SCIENCE, the 5th Bulgarian-Serbian Conference, 2006, May 9-12, Sofia. (see application: program of the conference and Abstract book). Conference proceedings are in press.

Forthcoming International Conference :
ENLARGEMENT OF COLLABORATION IN GROUND BASED ASTRONOMICAL RESEARCH IN SEE COUNTRIES: STUDIES OF THE NEAR-EARTH AND SMALL BODIES OF THE SOLAR SYSTEM, 2006, Sep 25-28, Nikolaev, Ukraine. (see application: program, First Announcement, Second Announcement). This conference is carried out under the Contract 879.556.5 with UNESCO Office in Venice. The conference is dedicated to the 185 th anniversary of the Nikolaev Astronomical Observatory.

2. Summer schools at Rozhen NAO. In 2005, several groups of students from several Bulgarian universities carried out their practical education at Rozhen as well as students from the Skopje University, Macedinia. Summer schools and practices are planed also for 2006.
   In future, Rozhen NAO could be used for students practices also from other SEE countries.

3. Build-up of existing observing facilities and construction of new instruments.

The UNESCO – IBSP sponsored funding of 25 000 USD for the first year of implementation of this project was divided in 6 different UNESCO contracts, respectively with Bulgaria, Turkey, Serbia and MN, Romania, Greece, and Ukraine, as follows:

Bulgaria: Building an auto-guiding system for the 2 m telescope of Rozhen Nat. Astron. Observatory - 7500 USD

Turkey: Support for organizing the conference “Solar and Stellar Physics through Eclipses” (2006, see above) - 5000 USD

The contribution by UNESCO has been entirely spent for the participation of SREAC members in this meeting. No benefit for the Turkish colleagues.

Serbia and MN: Portable computer for data processing- 2000 USD

Romania: Remote control for the 60 cm telescope in AO Belogradchik and travel expenses for Romanian teams for observing campaigns in Bulgaria and Turkey- 5000 USD

Greece: 2 -portable computers and 1- desk computer for data processing- 4500 USD

Ukraine: Support for organizing the conference "Enlargement of Collaboration in Ground Based Astronomical Research in SEE countries:
Studies of the Near Earth and Small Bodies of the Solar System"(2006, see above)- 1000 USD.

All contracts have been carried out and all reports have been submitted to UNESCO Office in Venice. Of the 6 contracts, two are connected with support of astronomical conferences, two contracts are connected with purchase of computers , one deals with a building of new auto-guiding for the 2 m Rozhen telescope and the last contract supports the building by Romanian colleagues of a guiding system for the Bulgarian 60 cm telescope in Belogradchik , as well as observing travel expenses. The last contract shows clearly how far the collaboration between SEE countries has developed: a Bulgarian telescope is being up-graded by Romanian team, with the financial support of UNESCO Office in Venice. Details of the 6 different contracts are presented to UNESCO Office in Venice by the dead-line of each contract.

An important point about funding of the IBSP Project is the local resources of each participating country. Despite the considerable financial difficulties, which are more or less the same in each SEE country (except Greece), local resources have been used in the form of salaries for all participants as well as maintenance of observatories and facilities in participating countries. The Institute of Astronomy, BAS, maintains the Rozhen Nat. Astr.

Observatory (the expenditures are about 100 000 Euros per year, personal salaries NOT included), Turkish institutes maintain the TUBITAK Nat. Observatory and the Canakkale Astronomical Observatory, the Astronomical Institute of the Romanian Academy maintains the Bucharest Observatory, The Serbian participant maintains the Belgrade Observatory, the Research Institute Nikolaev maintains the Nikolaev Astronomical Observatory. By the submission of this project ,we elaborated on the local expenses of each participating country. Clearly, the input of local resources is quite considerable.

4. Meetings of SREAC members.

The SREAC (Sub- Regional European Astronomical Committee) has been established to coordinate the collaboration on Astronomy between countries from SEE and Ukraine. SREAC is a member of the European Astronomical Society. Although SREAC is not explicitly mentioned in this IBSP project,

SREAC is one additional coordinating body for the implementation of the project. During the last 6 months, 2 meetings of SREAC members were carried out:

- Bucharest meeting , Sep. 18, 2006 ,
- Side meeting, Turkey, March 29, 2006.

At the Bucharest meeting, a new President of the SREAC was elected, Prof Dr. Zeki Aslan.

5. Problems common for SEE countries

I would like to point out again some of the most important problems.

- It is becoming increasingly difficult to subscribe for (at least) the main

  astronomy journals.

- For all countries from SEE, submitting of a paper to the European journal of Astronomy and Astrophysics needs page charges payments. Some general solution is necessary, which provides the respective yearly contribution of each SEE country for printing the journal, which will wave the page charges.

- Traveling and meeting people is essential for science , but is becoming increasingly more difficult, because of financial restrictions.

- Fast INTERNET connections are not always available.

- Up-grade of observing facilities and modern receivers. In SEE, the traditional astronomy is in the optical. During the last decades, many new windows were opened at different wavelengths, using space facilities. However, the need for an optical identification of the new exotic x-ray- and gamma ray-sources gives the optical astronomy new opportunities.

- astronomical facilities in the SEE should be used more effectively for educational purposes. New physical concepts could come from astrophysical studies. This makes Astronomy (research and education) top priority of the 21st century.

6. Proposals and future developments in connection with this IBSP project.

The funding granted by UNESCO Office in Venice helped to start this project. The project is, however, a fundamental one and the proposed duration is a 3 years period. Participating countries express their wish and hope to continue the development of this project, according to its goals:

Studies of the Small Bodies of the Solar System, attention to the Near Earth Asteroids, build-up of a digital database for SBSS, Studies of binary stars, stellar activity processes and their connection to solar analogues (RS CVn stars, low mass active stars, binaries with a compact companion etc).

It is essential to continue this joint project, which is something quite new and very promising with respect to the international collaboration in SEE.

We plan new astronomical meetings for 2007 and a summer school in Rozhen Nat. Astron. Observatory, for spectroscopy education for young astronomers from SEE. Several lecturers will be invited, including well known scientists from France. It depends, of course, on the funding.

In the framework of the present project, please, find enclosed 3 specific IBSP Proposals, by Romania , Ukraine, and Turkey, respectively.
They should be regarded as specific implementations of the general IBSP project for the next future. Details could be elaborated and sent to UNESCO Office in Venice, if required.

Applications: copies of publications, programs of conferences, project proposals.