

The work of IAU Commission 46 Program Group for the World-wide Development of Astronomy, and reports on astronomy in Mongolia and Cuba

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ABSTRACT

In this paper we discuss the work of the IAU Commission 46 (Astronomy education and development) Program Group for the World-wide development of Astronomy (PGWWDA). In particular we describe the current situation of astronomy in Mongolia and Cuba, following recent visits to meet astronomers in those two countries, and highlight some of the problems that they face. Ways of improving contacts between astronomers in Mongolia and Cuba and those elsewhere in the developed world are discussed.

Key words: IAU Comm. 46 – PGWWDA; astronomy in developing countries – Mongolia, Cuba

1 INTRODUCTION

Commission 46 is the IAU commission that deals with astronomy education and development. It lies within Division XII of the Union for Union-wide matters. The Comm. 46 president is Prof. Jay Pasachoff (Williams College, Mass., USA). Comm. 46 has nine program groups as follows:

- (i) World-wide Development of Astronomy (WWDA)
- (ii) Teaching Astronomy for Development (TAD)
- (iii) Collaborative programs (CP)
- (iv) International School for Young Astronomers (ISYA)
- (v) Exchange of Astronomers (EA)
- (vi) Exchange of books and journals (EBJ)
- (vii) Newsletter
- (viii) Public education during solar eclipses
- (ix) National liaisons

each of which deals with some different aspect of the promotion of astronomy education or the development of astronomy around the world.

This article discusses the work of the first of these program groups, hereinafter PGWWDA. The current chairperson (since 2003) is John Hearnshaw (New Zealand). Before that Alan Batten was chair, and before 2000 the group was known as WGWWDA, being a working group of the IAU Executive Committee instead of a program group of Comm. 46.

The role of PGWWDA is to identify countries with the potential to develop astronomy education and research. Generally such countries already have some astronomical activity at a professional level, but typically might not be an IAU

member country. Countries where astronomers are perceived to be somewhat isolated from the latest trends in astronomy are especially meriting attention by our program group.

The principal activity undertaken by PGWWDA is to visit countries where the astronomers are interested in increasing contact with the IAU and would welcome such a visit. Having made a typically week-long visit and talked to astronomers in their home institutes, the next step is to report back to the IAU Executive Committee and to the Comm. 46 president. The report will typically contain information about the current situation for astronomy in that country and make recommendations both to the IAU and to the host astronomers on how astronomical contacts on the international scene can be improved. PGWWDA will also encourage follow-up with work other program groups of IAU Comm. 46 (such as TAD, ISYA, EA) or with other non-IAU agencies that promote astronomy in the developing world (for example, the United Nations Office for Outer Space Affairs, and the Japanese Official Development Agency).

In 2004 and 2005 PGWWDA has made visits to Mongolia, Kenya and Cuba. A visit to Trinidad is currently being planned. In addition, PGWWDA member A. Alsabti has made several visits to Iraq and reported back to Comm. 46 and the IAU Executive.

2 PGWWDA IN MONGOLIA

Mongolia is a vast land-locked country between China and Russia in eastern Asia, with a population of only 2.6 million people, many of whom are nomadic. The area is over 1.5 million square kilometres, making the population density one of the lowest in the world.

John Hearnshaw visited Mongolia, March 11–18, 2004 on behalf of the IAU (Hearnshaw, 2004). The visit was hosted by the National University of Mongolia (NUM) in Ulaan Baatar, where I was received by Prof. G. Batsukh, of the Department of Geophysics within the School of Physics and Electronics. Astronomy is taught in this department at undergraduate level by four academic staff, but at present there are no graduate students in astronomy in Mongolia. I gave four astronomy seminars at NUM to staff and students. The lectures were in English but with a running translation.

During my stay, I was able to meet with the NUM Vice-president for Academic Affairs, with the NUM Vice-president for Research and with the acting president of the Mongolian Academy of Sciences. This last meeting was especially important, as the benefits of Mongolia joining the IAU were discussed, and an application for IAU membership has since been made. The Academy of Sciences runs the Khurel Togoot Observatory, about 20 km east of Ulaan Baatar. The observatory has 15 staff working in geophysics and astronomy. A visit was made there on 15 March; the altitude is 1620 m and although there was a snow storm at the time, the weather throughout the year is exceptionally good for astronomy, with 1900 clear night-time hours annually (Batsukh et al., 1995). The observatory has a Zeiss 20-cm solar coronagraph, installed in 1961, but with no CCD camera. There is also a 40-cm Meade telescope and small CCD camera used for astrometry. A larger telescope and modern CCD camera at such a site would certainly be justified and enable Mongolia to do research in stellar astronomy.

As a result of this visit, a number of recommendations were made to the IAU and to Mongolia. The top priority was for Mongolia to become a member of the IAU. An application was made in mid-2005. It was recommended that follow up visits should be made to NUM by the Comm. 46 TAD program group, and discussions are currently underway to arrange this. There is a strong need for Mongolian astronomers to have the chance to go to institutions in the developed world for research visits. The possibility of organizing such visits is being discussed. Possibly Mongolia could one day host an IAU International School for Young Astronomers. There is a strong need for some modern observational equipment in Mongolia, and given the excellent climate for optical astronomy, there is a case for a developed nation to consider placing a medium-sized telescope there as part of a collaborative program. At the present time the Japanese Official Development Agency is considering an application from Mongolia for a small (perhaps 45-cm) telescope and CCD camera for teaching purposes as a gift to NUM.

3 PGWWDA IN CUBA

Cuba has a population of 11.2 million; it has been independent since 1902 and a communist country since the 1958 revolution. The U.S. embargo on Cuba has had a huge effect on the economy, and this has effectively isolated it from its largest neighbour. Given that support from Russia is no longer forthcoming, scientists in Cuba are largely prevented from having meaningful collaborations with those in the USA or Russia. However good relations exist with Canada, Mexico, Venezuela and several major European countries. Both authors visited Cuba January 9–16, 2005 on be-

half of the IAU (Hearnshaw & Fierro 2005). The visit was hosted by the Institute of Geophysics and Astronomy (IGA) in Havana (12 km west of the city centre) and we were received by the IGA director, Dr Lourdes Palacio, and by Prof. Jorge Pérez Doval, head of the IGA Department of Astronomy. IGA is part of the Ministry of Science, Technology and the Environment (CITMA). There are four departments, one of them being astronomy. The astronomy department has 20 staff, of whom nine are research astronomers, the rest technicians or engineers. The scientific interests of the IGA astronomers are solar radio astronomy, solar optical spectroscopy, comets, asteroids and computational astronomy (orbits). There is one stellar astronomer (Ernesto Rodríguez), who is currently doing a PhD at the Institute of Astronomy in the Canaries (but he was in Cuba at the time of our visit).

We also met in Havana Dr Oscar Álvarez from CITMA, an astronomer working in public education and developing a proposal for a new planetarium in Havana, and also Dr Rolando Cárdenas, who was visiting from the Villa Clara University, Santa Clara and who works in gravitation and theoretical cosmology.

IGA has various small solar radio-telescopes for observing solar flares, and also has an ageing 60-cm Cassegrain reflector (at the Arroyo Naranjo Observatory near Havana). The telescope is in working order, but needs a CCD and some modern instruments. The Cacahual solar observatory of IGA, which we also visited, has a heliostat and high dispersion solar spectrograph, but no modern detector. As a result all these observing stations need upgrading to restore them to useful research facilities. The Cuban economy does not at present allow the needed capital expenditure for astronomy.

At the present time Cuba is an interim member of the IAU, but it needs to consolidate its membership by paying IAU dues to receive the many benefits that membership should bring. The U.S. blockade has made the economy weak, and astronomers and other scientists feel isolated. The IAU could help promote contacts and collaborations with countries such as Mexico, Canada, Spain and other EU countries, where good relations already exist. A major need within Cuba is for the training of astronomers in the universities. At present this is hardly happening in Cuba, so there is no supply of new young graduates trained in astronomy who would fill staff vacancies in institutes like IGA, teach astronomy in the universities and also in the high schools. On the other hand, there are many amateur astronomers in Cuba, so interest in astronomy amongst the public certainly exists. As a whole, Cubans are highly literate and well educated, and all education is free. A new astronomy program is being planned for the Humboldt University in Havana. The hope is that this will in due course provide for the future training of astronomers in Cuba.

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