Astronomy Education in and outside Beijing Planetarium

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BIOGRAPHIES
Dr. Dongni Chen got her PhD in Astrophysics from Shanghai Observatory, CAS in 2006, and has devoted herself in communication and education of Astronomy to the public as staff of Beijing Planetarium since then. She is the deputy director of BP and in charge of all activities related.

ABSTRACT
Astronomy is not a compulsory course in China. Although more and more people realize the importance of Astronomy for students, there still exit kinds of difficulties in teaching astronomy in school.

Beijing Planetarium has focused on solutions to the shortage of teachers, text books and teaching materials of astronomy education. We collaborate with our international colleagues from IAU, NASE, AstroEdu, Universe Awareness and AWB, to promote the education of astronomy both in and outside of Planetarium.

I would like to present what we have done since 2014 and show the situation of astronomy education nowadays in China.

INTRODUCTION

I.1 Astronomy Education in Beijing Planetarium
Beijing Planetarium was built in 1957, is still the unique large Planetarium in mainland of China. Besides two dome theaters, one 3D theater and one 4D theater, BP has around 3000 square meters exhibition. Colorful astronomy education activities are based on these attractive dome shows and exhibitions.

Figure 1 – students are learning to use the astrolabe during summer camp of astronomy

Figure 2 – The volunteer is introducing the astrolabe to family groups in the exhibition “Playing with the stars”
1.2 Astronomy Education outside Beijing Planetarium

Besides the regular outreach of astronomy based on BP’s shows and exhibitions, our mobile planetarium has traveled more than 100000 km in China during the past 10 years and more than 10000 people have chance to reach astronomy outside Beijing Planetarium each year.
Figure 7 – BP’s Mobile Planetarium goes to a middle school in Liaoning Province, north-east of China

Figure 8 – BP’s staff is introducing how to use the telescope while the MP goes to a primary school

Figure 9 – a staff of the mobile planetarium is introducing the Moon to children
II. NASE COURSE IN CHINA

The Network of Astronomy School Education (NASE) was introduced to China in 2012, when the NASE president Dr. Rosa Ros and vice president Beatriz García were attending the 25th IAU GA in Beijing. The NASE course is a wonderful solution for astronomy education outside museums of science and technology and planetarium, since its main object is to teach the teachers in primary and middle school how to “teach astronomy” in their own class. The shortage of astronomy teachers, the text books, the materials and the places could be resolved altogether.

While the NASE course is welcomed by Chinese teachers, there still exist at least three gaps between a normal teacher in school and the NASE course. First of all, the language. Most teachers in primary and middle school could not read the English version of NASE course. Secondly, the content. Though NASE course is mainly composed of 4 lectures and 14 different activities of astronomy, not all the lectures and activities are suitable for Chinese students. Thirdly, the materials. Since all the teachers who are interested in NASE course and would like to bring astronomy into their class are part-time astronomy teachers. There are lot of basic tasks to accomplish before they have time to do anything related to astronomy, they are short of both time and energy.

In order to help teachers who might be a teacher of physics or geography, general science and even arts to take astronomy course easily, we provide the menu of solutions. Firstly, we translate the “14 steps to the universe” into Chinese. So many thanks to all the authors Francis Berthomieu, Alex-andre da Costa, Susana Deustua, Ju-lieta Fierro, Beatriz García, Mary Kay Hemenway, Ricardo Moreno, Jay M. Pasachoff, John Percy, Rosa M. Ros, Magda Stavinschi, they grant China Science and Technology Press permission to publish a Chinese translation. Thus teachers may learn by themselves from the book.

Furthermore, we organize the training course of teachers all around China each year, provide the Box of Astronomy which is composed of the illustration menu, all materials used both for students and teachers to the teachers. With the box, the teachers learn how to use the materials and teach their own students according to the menu step by step.

Figure 10&11 – Dr. Ros (Left) and Dr. Garcia (Right) were teaching in NASE course in Beijing Planetarium in 2012

Figure 12 – The author is training the teachers how to play with the solar system using the materials from box of astronomy, FAST, Guizhou Province, China
Figure 13 – The teachers are measuring their own galaxies in the training class very carefully, Nixia Province, China

Figure 14 – The teachers are showing their works so happily, since they just get their visa to all planets in the solar system, FAST, Guizhou Province, China

There have already more than 200 teachers taken in the NASE course in the past 4 years, and the Beijing Planetarium honorably got the Best 2017 NASE course.

Figure 15 – All the members of the group of Beijing Planetarium for NASE-China

III. FUTURE OF PLANETARIUM IN CHINA

The Shanghai Planetarium has just finished her frame work, while the Nanjing Planetarium has announced her collection of design scheme. More museums of science and technology are rebuilt and most of them having a dome with diameter larger than 15m. Brighter future! More intense competition! More children interested in universe!
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