

SPACE SCIENCE AND REMOTE SENSING EDUCATION IN MONGOLIA

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ABSTRACT:

With the rapid development of Space science and technology, space science and remote sensing specialist are increasingly demand in Mongolia.

This paper gives an current practices in space science and remote sensing education in Mongolia. We need to determine giving space science and remote sensing course program. The Space Science, Remote Sensing and Astronomy program run in Mongolia for bachelor and master degrees. Still we need more specialists, trainers and educators in this field. We think that practical experience of image processing, astronomy, geographic information system is important for education in Mongolia. We need more international cooperation and collaboration and sharing experiences.

1. INTRODUCTION

The history, current situation, education and future directions of Mongolian space science and astronomy is reviewed. This paper discusses recent efforts to develop space science education and research capacity in Mongolia. Various capacity-building initiatives in space science including remote sensing and astronomy in Mongolia.

Mongols are almost the only nation still keeping their nomadic traditions and lifestyle. Moreover, as nomads, their astronomic knowledge was transferred down from generations with ability to determine quite precisely the year, month, day & timing by celestial locations of the Sun and Moon, other planets, stars and their constellations (A.Dulmaa, R.Tsolmon., 2009). The space science has been developing since ancient times as a science for Mongols with deep sacral worship of the blue sky and eternal heavens. Mongols developed a rich astronomical & educational knowledge foundation from the ancient times. They educated the next generation by home schooling, created rich literature and special devices, that draw attention to the world astronomical education.

The star map, created by Mongol astronomers and found in XV century. There are 773 stars from northern hemisphere and 602 stars from southern hemisphere. (Figure1)



Figure 1. From the left side books are Mongol encyclopedia of 1247, with glossary section on astronomy, from right side book has a history of the ancient Astronomy and Calendar System of Mongolia and rest of Asia

Remote sensing/GIS in Mongolia

There are several educational organizations which have Remote Sensing/GIS activities. One is the National university of Mongolia

Remote Sensing/GIS activities:

- “Introduction of Remote Sensing and GIS” IDRISI KILIMANJARO program, International training course, NUM (1-9 December, 2005)
- “Land cover change in the Eastern part of Mongolia” National training course, NUM (20-25 December, 2008)

- “How to download multi-image for Landsat satellite” cooperated with NASA-National university of Mongolia, (23 June, 2010) etc.,
- First International Workshop on Land Cover Study of Mongolia using Remote Sensing GIS, 8-10 June 2004
- First National Conference on Remote Sensing and Geographic Information System applications, 2 May 2005
- The 2nd International Conference on Land cover/Land use study Remote Sensing/GIS and the GOF-C-GOLD regional capacity building meeting in Mongolia, 8-9 June 2006
- Second National Workshop on Application of Remote Sensing/GIS for Mongolian Environment, 7 Dec 2007
- The Third International and National Workshop “Applications of Geo-Informatics for Mongolian Natural Resource and Environmental, 29-30 June 2009
- “GIS Day”, 18 Nov 2009
- The 4th International and National Workshop “Applications of Geo-informatics for Natural Resource and Environment”, 21-22 June 2010
- The 5th Annual International Conference on the Remote Sensing and Geographic information system in Mongolia, 6 June 2011

The national University of Mongolia has also following astronomical activities.

- First international astronomical summer school was organized at the National University of Mongolia (NUM) in Ulaanbaatar, July 21-26, 2008
- Astronomical Summer School in Mongolia National University of Mongolia, Ulaanbaatar July 21-26, 2008
- Total solar eclipse at Bulgan sum Khovd province August 1, 2008
- Empowering Astronomical Communities in Mongolia Workshop, National University of Mongolia, Ulaanbaatar, July 1-2, 2009
- Astronomical Summer School (for teachers)
National University of Mongolia, Ulaanbaatar
July 3, 2009
- Star party 2009, June 30, 2010
- The 5th Annual International Workshop on the Remote Sensing and Space Science in Mongolia, 7 June 2011

- Star party 2011, June 7, Ulaanbaatar
- Astronomical Summer School in Khovd province June10, 2011
- Astronomical Summer School in Dundgobi province in center Mandalgobi June 26, 2011
- Astronomical Summer School in SouthGobi province in center Dalanzadgad June 27-28, 2011
- Astronomical Summer School in Khuvsgul province in center Murun August 26, 2011

2. DISCUSSION

We need collaboration and cooperation in teaching and training in Space Science education in Mongolia. Space science researchers in Mongolia seek to achieve the creating and strengthening partnership between space science agencies and user agencies and promotion common data processing standards and interpretation methods, which are necessary for inter-comparison of regional studies. In order to develop astronomy and space science in Mongolia we look forward to many more years of cooperation with international and other educational organizations. Our recommendations: Space Science and Astronomy should be studied as an individual subject in schools, starting from the primary schools to high schools, reflecting lessons learnt and best practices of the global trends.