GALILEO TEACHER TRAINING PROGRAM (GTTP2013) 8-9 FEB 2013 SOS HERMANN GMEINER SCHOOL GANDAKI, POKHARA, NEPAL

Photo 1: Group Photo - GTTP2013, Pokhara, Nepal.

Summary:
The 2013 Nepal Galileo Teacher Training Program (GTTP) was organized by Nepal's Global Hands on Universe (GHOU) and the Nepal Astronomical Society (NASO), as funded by the International Astronomical Union's Office of Astronomy for Development (OAD). The workshop took place on 8 and 9 February, 2013 at SOS Hermann Gminer Higher Secondary School in Gandaki, Pokhara, Nepal. In total, forty-three teachers and science communicators from different regions participated in the event. The participants attended three lectures and four workshops on different astronomical and space science topics given by professional and amateur astronomers, and also had an opportunity to learn more about astronomy through direct sky-viewing and observation. The objectives of the event were to introduce simple, hands-on activities to bring astronomy to the classroom, and to create networking opportunities for educators and science communicators.

Background:
GHOU-Nepal has been organizing mini workshops and interaction programs for teachers and science communicators since 2010, in the hopes of bringing programs to all five regions of Nepal. In March 2012, the first event was organized in Kathmandu, hosted by Eureka High School with the support of the Espero Foundation and NASO. To continue these efforts to bring hands-on, astronomy activities to the classroom, NASO organized GTTP2013 in Pokhora, the second-largest city in Nepal.

GTTP 2013 Program

Day1: 8 February 2013

Registration and Group Photo: Registration started at the SOS School at 9am. The registration packet contained a schedule, handouts for all the workshops, a DVD with relevant software, a notebook and pen, and a sky map of the northern hemisphere. Participants socialized until 10am over tea, and a nice group photo was taken in front of the venue, as seen on page 1 of this report.

Photo 2: Registration desk.

Introduction to GTTP and the OAD by Sudeep Neupane

Sudeep Neupane, founder and vice president of NASO and chairperson of GHOU Nepal, opened the workshop by presenting background information on GTTP and the OAD. After Mr. Neupane introduced all members of the organizing committee and special guests, LOC chair Mohan Murari Khanal also gave a short welcome speech to guests and participants.

Photo 3: GTTP Nepal coordinator Sudeep Neupane introducing GTTP and the OAD during the opening ceremony.

"The Moon Over Us" by Bonnie Thurber

Bonnie Thurber gave the first talk of the workshop, on "The Moon Over Us," a resource developed by iCollaboratory, a not-for-profit volunteer organization in the United States. Currently, educators from the US, China and Brazil participate in this project, which promote the use of web-based resources to practice 21st century, technology-based learning.

During her talk, Dr. Thurber described the project, its accomplishments and its benefits. "The Moon Over Us" includes digital photos and research results of the Moon, an explanation of the phases, as well as poetry, dialogues and reflections about the Moon. The goal of the project is to expose educators and learners to the Moon from a variety of perspectives in the hopes that by starting with something familiar, educators and learners can be inspired to continue engaging with astronomy.

The talk was followed by a workshop in the computer lab, which demonstrated how participates could get involved with the project. After giving a tour of the iCollaboratory webpage, Dr. Thurber encouraged all GTTP2013 participates to get involved with the initiative from their classrooms in Nepal.

Photo 5: "The Moon Over Us" workshop, an iCollaboratory project by Bonnie Thurber.

Report from the Shanghai Astronomical Museum by Zhang Yao

Outreach coordinator of the Shanghai Museum, Zhang Yao, gave a talk on the astronomy activities taking place at her institution, and offered suggestions for how those activities could adapt for the classroom.

Rocket Science, Rocketry and Water Rocket Launching Competitions in Schools by Er. Krishna Raj Adhikari

Engineer Krishna Raj Adhikari, founder of Nepal Science and Research Center (NESARC), delivered a lecture on rocket science and how it can be incorporated into classroom curricula. Er. Adhikari organizes water rocket competitions across Nepal, and gives top students the opportunity to compete on an international level.

During his talk, Er. Adhikari introduced the basics of water rocketry, and emphasized the benefits of organizing rocket competitions to promote science and technology in Nepal. The talk was well-received, and many educators were enthusiastic afterwards about bringing rocket activities to their schools. This was the first time that GTTP Nepal included a discussion of Space Science, and the incorporation greatly improved the program.

Photo 7: Er. Krishna Raj Adhikari presenting his talk entitled "Rocket Science and Water Rocket Launching Competitions."

Workshop on Solar System Constituents by Sudeep Neupane and Prabodh Prabhaker Rijal

To introduce the basics of astronomy, Mr. Neupane and Prabodh Prabhaker Rijal held a workshop on the Solar System and the objects within it. During the workshop, participants were divided into four groups. Each group was assigned a topic, and asked to prepare a short presentation to the other participants. The four topics were (1.) planets and dwarf planets, (2.) comets, (3.) meteors and meteorites, and (4.) asteroids and impact possibility. In addition to presenting on their topic, each group made suggestions for how to incorporate the content into the science curriculum. Each group gave extremely thoughtful presentations, including one presentation by Group 4 that discussed near-earth asteroids, including asteroid DA14, set to pass by earth the following week.

Photo 9: Participants preparing their presentation during the workshop.

Photo 8: Participants discussing and preparing their presentation on their topic during the workshop.

Photo 11: One of the groups during the workshop preparing their presentation.

Photo 12: A group demonstrating their idea of asteroid belt in the Solar System.

Education in Nepal by Dr. Rishi Shah

Photo 11: Academician Rishi Shah presenting his talk on science education in Nepal.

Dr. Rishi Shah, academician from the Nepal Academy of Science and Technology (NAST) and founder

Photo 14: Star Party led by the Pokhora Astronomical Society

and co-president of NASO, next gave a lecture entitled, "Promoting Astronomy and Space Science Education." Dr. Shah introduced a brief history of amateur astronomy in Nepal, and emphasized the importance of astronomy and space science for the development of Nepali society. He encouraged participants to develop hands-on activities to promote these subjects in the classroom and gave strategies to incorporate astronomy and space science in the curriculum.

Workshop: Astronomy free-wares by Subeg Man Bijukchchen and Suresh Bhattarai

A common misconception in the educational community is that resources are too expensive to use in the classroom. This workshop, led by NASO executive members Subeg Man Bijuchchen and Suresh Bhattari, introduced astronomy free-wares and how to incorporate them into classroom activities. Participants then practiced some of these programs, including Stellarium, Cybersky, and Night vision, in the SOS School computer lab.

Night Sky Observation with the Pokhara Astronomical Society (PAS)

In the evening, the Pokhora Astronomical Society organized night sky observation for the participants of the training. With several telescopes, the group observed Jupiter, the Orion Nebula and other objects. PAS also led observations of the sky at large, showing how to recognize constellations and objects visible with the naked-eye.

Day2: 9 February 2013

Movie: Water Rockets

The second day of GTTP2013 began with a screening of a documentary by JAXA on water rocket competitions in Japan. Afterwards, clips from the Space Generation Advisory Council (SGAC) on space odyssey were shown.

Photo 15: Participants watching movies on astronomy and space science.

Workshop: How to Make Water Rockets?

In parallel with the film screenings, a workshop on water rocket construction took place to demonstrate how to assemble and launch the rockets. Both GTTP participants and SOS grade 9 and 10 students took part in this workshop, as led by Er. Adhikari.

Photo 16: A gr

Photo 17: Instructor Er. Krishna Raj Adhikari with school students demonstrating the method of making water rockets.

Water Rocket

Launching Competitions

In total, eighteen water rockets were launched during the competition, twelve of which were made by students, and eight of which constructed by educators participating in GTTP2013.

Photo 19: Preparing to launch a water rocket at the competition.

Closing Discussion

To bring GTTP2013 to a close, participants engaged in a short synthesis discussion reviewing the things they learned and giving feedback about the event as a whole. On behalf of participants, Prem Narayan Pokhrel expressed thanks to the organizers and suggested that for future events, organizers ask for questions and concerns from teachers ahead of time so the training can directly address their needs.

LOC chair Mohan Murari Khanal congratulated all participants and thanked the organizers for their valuable input. The event produced 43 new Galileo teachers with the skills to enhance astronomy and science education throughout the country.

Acronyms:

GHOU	Global Hands-on Universe
GTTP	Galileo Teacher Training Program
IAU	International Astronomical Union
LOC	Local Organizing Committee
NASO	Nepal Astronomical Society
NAST	Nepal Academy of Science and Technology
OAD	Office of Astronomy for Development
PAS	Pokhara Astronomical Society
SOC	Scientific Organizing Committee