



The Terrestrial Planets - Edutainment and Science for Grades 7-9

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Abstract

Over the last years, public outreach has become an integral part of scientific work. We developed a concept to introduce our up-to-date scientific work to teenagers between 13 and 15 years of age. The main ambition is to motivate adolescents doing science, to provide a cheerful contact with science and the local university, and to have fun. The project is a cooperation of the I. Physikalisches Institut at the University of Cologne with the JuniorUniversity program of the University of Cologne and the Cologne Science Adventure

1. Introduction

Inspired by different projects in the United States we started to think about a way to present our scientific work to the public. We are a small working group at the I.Physikalisches Institut at the University of Cologne using our infrared heterodyne receiver THIS to determine Doppler winds, temperatures and abundances in the atmospheres of the planets Mars, Venus and Earth. About two years ago, we decided to address in a first step hard-to-reach young people at an age between 13 and 15 years. Within one year a concept for a one-day workshop with the name "Message from the Universe" was developed. We want to provide young people a cheerful contact with science and inform them, and to extend the targeted audience, and their families and friends about our scientific work.

2. Concept & Application

Before the actual happening the participants have to apply for the workshop by answering questions about the solar system. On one hand we want them to express their motivation, on the other hand we want to motivate them by offering a challenge. The workshop is conceived for 25 candidates. Two introduc-

tory workshops with high fun factor offer a "first contact" with the solar system i.p. with the planets Earth, Mars and Venus. E.g. the construction of a lander made of marshmallows and straws which should be able to safely house an egg even when throwing down on the floor from about 1 m is accompanied with information of the conditions on the planets surface and atmosphere.

After these workshops a live connection to a professional telescope should provide direct contact to an active scientist and give insight into scientific working environment. Two scientific workshops provide deeper insight to planetary science and spectroscopy. These workshop offer various hands-on experiments (infrared camera, absorption spectroscopy etc.) as well as the opportunity to play with astronomical software to prepare an observing run. To improve the self confidence and to spread out the information the participants have to present their work-of-the-day to their families and friends at the end of the day. Finally we use the opportunity to present our scientific activities on high level, which is possible with a well prepared audience. To round up the project an online evaluation provides feedback and lead to improvements of the concept.

To use existing structures and to involve outreach-experienced people we cooperate with established institutions in the area. With Ursula Pietsch-Lindt from the Cologne JuniorUni program we have an experienced partner providing a perfect network for our intentions. The second team is the Cologne Science Adventure "Odysseum" providing a skilled team and inspiring location.

3. Outlook & Additional Activities

The idea is to continuously use this concept - including improvements - and to offer that workshop every year. The first "run" took place in November 2009 followed

by November 2010 and it will be continued over the next years.

At the moment we are designing an adaption of the workshop for younger children in cooperation with the KölnerKinderUni, a science program at the university of Cologne for children from 10-12 years and an implementation of the workshop to the zdi-Schülerlabor "Unser Raumschiff Erde", a science lab for school students grade 10-12.

Beside the well developed project above we continuously offer various smaller public outreach presentation and workshops in nursery, primary and secondary schools in the area of Cologne.