

AG 2019

Report of Abstracts

Abstract ID : 80

The New German ESERO Office: An Educational Effort by the European Space Agency ESA

Content

In May 2018, Germany finally obtained an “European Space Education Resource Office”, ESERO for short, which coordinates and promotes educational resources relating to or provided by the European Space Agency ESA. The headquarters of ESERO Germany are located in Bochum, at the Working Group Geomatics, which is part of the institut of Geography of Ruhr-Universität Bochum. Partners include, among others, the Astronomical Institutes in Bochum and Bonn, Bochum Planetarium, the Institute for the Didactics of Physics in Cologne and zdi.NRW. The main task of the network is the advancement of STEM education over the entire K-12 range through the development and distribution of teaching material, concepts for innovative lessons and teacher training sessions. Obviously, a special focus is placed on ESA-related themes like Earth observation, astronomy and spaceflight. The first phase of implementation included the analysis of curricula of all STEM-related subjects (Physics, chemistry, biology, mathematics, computer science, geography), systematically identifying astronomical or space-related content.

The talk will describe the basic structure and aim of ESERO and give a brief review of the results of the analysis of the curricula.

email

huettemeister@planetarium-bochum.de

to accept:

yes

Primary author(s): Prof. HÜTTEMEISTER, Susanne (Planetarium Bochum); KÜPPER, Alexander (Institut für Physikdidaktik); Dr RIENOW, Andreas (Geographisches Institut); SCHULT, Cristal (Institut für Physikdidaktik); HOLLÄNDER, Judith (Planetarium Bochum); NADOLSKY, Christina (Geographisches Institut); SCHULTZ, Johannes (Geographisches Institut); Dr BOMANS, Dominik (Astronomisches Institut); TRIMBORN, Klaus (zdi.NRW)

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Submitted by HUETTEMEISTER, Susanne on Monday 22 July 2019

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Diversity of astronomical preconceptions in (strong) heterogeneous learning groups in the orientation level (grades 5 and 6) in Germany

Content

Especially in the orientation level, learning groups are very heterogeneous, as the pupils come from different elementary schools and have treated different contents in the subject general science. In inclusive learning groups, the heterogeneity is further intensified.

One of the tasks of the orientation level is the approximation of the prior knowledge acquired in primary school. However, there is almost no evidence yet of how various the (strong) heterogeneous or inclusive learning groups are in terms of their prior knowledge, and what preconceptions they bring with them to the orientation level physics lessons.

This talk attempts to close this gap for the astronomical contents solar eclipse, lunar eclipse and the phases of the moon. Based on the preconceptions mentioned in the literature, this talk presents the results from an open questionnaire, which was answered by 341 pupils in (strong) heterogeneous or inclusive learning groups. The identified preconceptions and their distribution are presented. Conclusions for teaching practice in strongly heterogeneous learning groups will be discussed.

email

alexander.kuepper@uni-koeln.de

to accept:

yes

Primary author(s) : Mr KÜPPER, Alexander (University of Cologne)

Co-author(s) : Prof. SCHULZ, Andreas (University of Bonn); Prof. HENNEMANN, Thomas (University of Cologne)

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Stellar requirements for the emergence of life

Content

The detection of extraterrestrial life would be perhaps the greatest physical sensation ever. But where to look? Is every planet suitable for the development of higher life? Can life form in any stellar system at all? In general, liquid water is used first and foremost for the habitability of a planet. In the right distance, liquid water can exist around every star. In this talk it is shown that a reduction of the question if liquid water exists ignores essential aspects, since other properties of the stars - in particular the time spent on the main sequence - also have a great influence on the possibilities of life on other planets.

The presented ideas offer the possibility to treat some basics of astrobiology at school or at introductory courses for astrophysics at university.

email

hohmann@physik.uni-siegen.de

to accept:

yes

Primary author(s) : HOHMANN, Sascha

Track Classification : Astronomy and Education

Contribution Type : Splinter Talk

Status: SUBMITTED

Submitted by **HOHMANN, Sascha** on **Wednesday 31 July 2019**