

Workshop Oct. 8, 2021









Outreach Programm

Institute of Geosciences University Mainz

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Times have past for science to function sufficiently locked up in an ivory-tower (Elfenbeinturm)



Quelle: Wikipedia commons

The world <u>and</u> the problems we are facing have grown too complex to be solved by scientific entities alone.

Holistic approaches are required; scientific efforts must be flanked by the understanding and acceptance of the public.

We cannot superimpose "scientific" solutions upon the society.

For the public to accept, the public needs to understand.



Understanding the world – Enlightenment

Western world had its Enlightenment roughly within the 18th century.

Ok, we've done our share, we got it, we do have a general understanding of things

Really?!

In the times of fake news and growing selective and successful disinformation:

- Are we as a society still enlightened?
- Is Enlightenment really a process, we only needed to go through once to be vaccinated for all times?

Unlikely.



We must not confuse advancing technical progress with a growing understanding of the world by the society as a whole.

To understand "Was die Welt im Innersten zusammenhält" (J.W. GOETHE)

is **not becoming easier** for the public just because we advance technically.

The opposite is likely to be true.



We've been making immense technical progress over the past time periods.

- ⇒ Seemingly impossible things have now become technically possible.
- ⇒ We achieved things we could not even imagine some decades ago.

In consequence, for non-specialists, this must lead to a great insecurity in terms of:

what is possible / what is not what could be true / what cannot what to trust / what not



Placing and **evaluating** the tremendous amount of **information** we're daily bombarded with Deciding **what is actual information**, **what is fake news/disinformation**

This has (again) become extraordinary difficult!

Science has (again) become somewhat intransparent for the general public!

Loss of trust in science

Hampers solution-finding processes



Two examples:

Corona-crises

eroding trust in scientific "authorities"

Climate-crises

- difficult for the general individual to evaluate the situation, for decades
- hard for the individual to understand and see the necessity for need for action
- the irreversibility of the processes we initiated within thw atmosphere is still not understood
- hard to accept the consequences of the suggested mitigation actions

Hard to see why we need radical action to be taken



Climate-crises



One of the most important issues of our time!

This, we will only be able to mitigate by coherent worldwide action

That requires full support by the general public and a critical dialogue with it

It is utterly important to

re-establish full critical(!) trust in science establish a general <u>understanding</u> of the underlying problem



Is Enlightenment really a process, we only needed to go through once?

Obviously not.

It probably is a process we – as a society – need to go through *periodically*.

Given the still increasing rate of technical progress

even periodically on the scale of a human lifetime



What to do? And who?

Knowledge needs to be exported from the ivory-tower to the general public.

Exported in a format readable and understandable by the public.



That is Scientific Outreach

And who would have the responsibility to initiate this; if not the we, scientists?!



Scientific Outreach

Nothing complicated!

Can come in several facets!

What actions to take:

Go local?

Go international?

Interdisciplinary approach?

What target group?



What can Geosciences offer?

A particular view on the world that looks at the planet as a whole system;

we can present the **bigger picture** or the full puzzle (as far as we know it)

Can also offer views into general physical/chemical processes,

but within a context that avoids the direct connotation with chemistry or physics classes

We can demonstrate how, by <u>looking into the past</u>, we can <u>learn for the future</u>.



What can Geosciences offer?

Looking into the past, we can learn for the future.

Knowledge we ca export:

- The system planet <u>can</u> (and always does) change over time.
- Small changes may significantly alter the environment, e.g., climate.
- How the Earth looked like under different conditions.
- The <u>timescales</u> associated with such environmental changes in the past.

By looking into the past, we can **raise awareness** of the general **operating mode** and **vulnerability of our system Earth**.

Important understanding for the topics *climate-crises – resources – sustainability*



Our outreach concept

It a young rather recently started program, still in the growing phase.

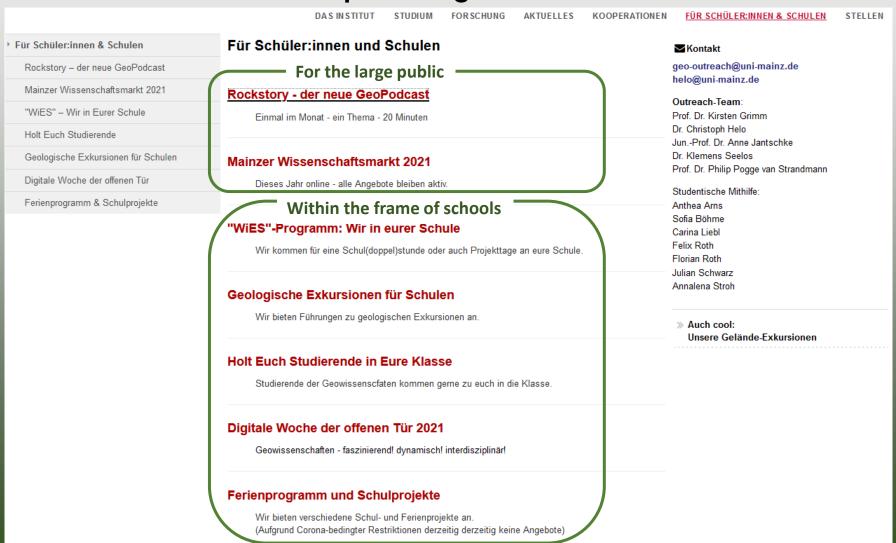
Target group: pupils / (high-school) students



Our current actions are to a large degree regional, few international



Our outreach concept - regional actions





Our outreach concept – WiES-Programm

We provide the topic/frame – exact course of the day/input is led by pupils interests

(this is key! Science is there to answer **your** questions!)







Work with analogue experiments and materials



Our outreach concept - Geological Fieldtrips

Geologische Exkursionen für Schulen

Wir bieten Führungen für Schulklassen zu geologischen Tagesexkursionen an. Derzeit sind folgende Exkursionen im Programm:

Vulkane mitten unter uns - Vulkanismus in der Eifelregion

Tagesexkursion

Die Exkursion führt ein in die Zeugen vulkanischer Aktivität im Gebiet des Laacher Sees, Osteifel. Im Vordergrund stehen die verschiedenen, für den Eifelvulkanismus typischen Eruptionsformen.







Marmor im Empire State Building durch "Land unter" an der Lahn - flachmarine Entwicklungsgeschichte des Taunus im Erdaltertum

Tagesexkursion

Die Exkursion führt in die ca. 60 km entfernte Lahn-Dill-Mulde. Dort werden wir eine Führung in den größten und gleichzeitig tiefsten Kalksteinbruch von Rheinland-Pfalz wahrnehmen. Anschließend geht es ins Lahn-Marmor Museum inklusive Steinbruch nach Villmar an der Lahn. Hier wurde die Fassadenverkleidung für das Foyer des Empire State Buildings in New York aber auch für den Kreml in Moskau abgebaut.

Die Lagune vor der Haustür

Halbtagesexkursion

Die Exkursion führt zum Geopfad des Steinbruchs Mainz-Weisenau. Dieser Steinbruch ist ein Fenster in die Erdgeschichte: hier kann die Entwicklung des Oberrheingrabens und die erdgeschichtliche Entwicklung der letzten 31 Millionen Jahre von einem tropischen Meer bis zu den Sanden des Urrheins von den Schülerinnen und Schülern selbst erforscht werden. Eine zusätzliche Rolle spielt hier auch das Thema Rohstoffentstehung und -gewinnung.







Introduce into some basic concepts on how the system Earth and its environments can change over time.



Our outreach concept

Projekte und Ferienprogramm für Schüler:innen

Ferienprogramm

Aufgrund der aktuellen Lage können wir derzeitig leider keine Ferien-Programme anbieten

Klimageschichte unter dem Mikroskop - rezentes Klima in der Staubkammer

Oberstufe:

Veranstalter: Institut für Geowissenschaften

Die Welt der Vulkane

5. - 8. Klasse;

Veranstalter: Ada-Lovelace-Projekt (nur für Mädchen)

Projekte für Schulklassen

Blick in die Urzeit - Rheinland-Pfalz vor 400 Millionen Jahren

Das Projekt beschäftigt sich mit der Entstehung von Fossilien und gibt einen Überblick über die Erdgeschichte mit dem Focus auf das Devonmeer und seine Lebewesen vor 400 Millionen Jahren. Dieser Lebensraum wird mit Modellen nachgebaut.

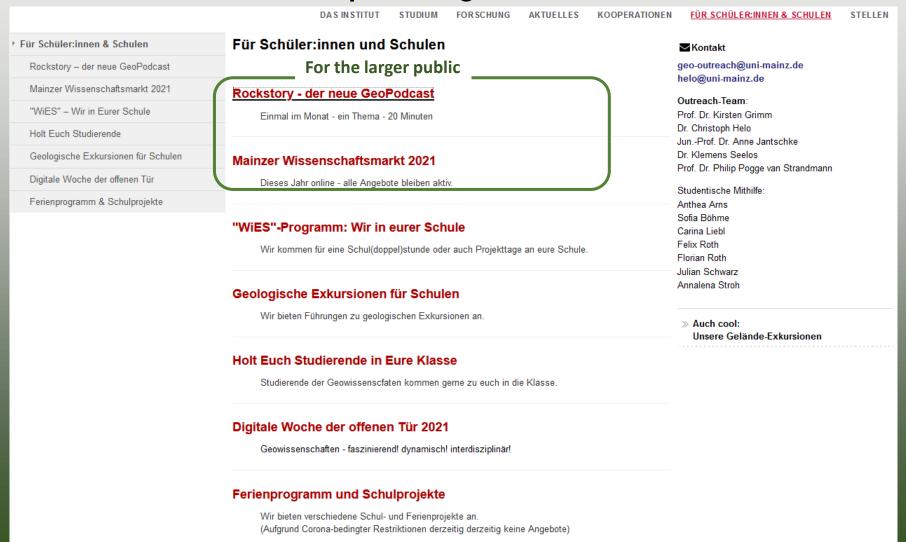
5. - 7. Klasse; Termin nach Vereinbarung

Weitere Informationen: kgrimm@uni-mainz.de

How do we learn from the past, e.g. about the climate?



Our outreach concept - regional actions





Our outreach concept - GeoPodcast

DASINSTITUT STUDIUM FORSCHUNG AKTUELLES KOOPERATIONEN

Rockstory - der GeoPodcast



Ein 20-minütiger Podcast zu unserem System Erde, mit geowissenschaftlichen Themenbereichen wie Vulkanimus, erneuerbare Energien, regionale Entwicklungsgeschichte des Lebens, Klimatologie/-wandel, uvm ...

Eine neue Podcast-Folge gibt es immer in der Mitte des Monats. Hier und auf Nullneun Uni Mainz .



Wasserf - Wicher es etamm, und warum es auf der Erde eigentlich 21:57 :







Rockstory - der GeoPodcast :

05 Breaking Liquids

Rockstory der GeoPodcast 04 Wasser-Woher es kom... Rockstory - der GeoPodast 03 Das Meer vor unserer... Rockstory –der GeoPodcast : 02 Die Steinlaus mag's...

Rockstory – der GeoPodast : Folge 01 Das...



Our outreach concept - Mainzer Wissenschaftstage





Our outreach concept - international actions





Our outreach concept - international actions



The GO-Project: Global Citizens – Global Outreach

Multidisciplinary, intercultural exchange program **for students**, led by Scotland Hub at the JGU.

This years topic:

"A fearful Hope – Imagining a blueprint for a sustainable future"

A contribution to the exhibition at the UN Climate Change Conference
(COP26) in Glasgow



The Outreach-Team

Staff:

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Jun.-Prof. Dr. Anne Jantschke

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Thank you for your attention!