CERN Open Days 14-15 September 2019

CLOUD Experiment's Planning

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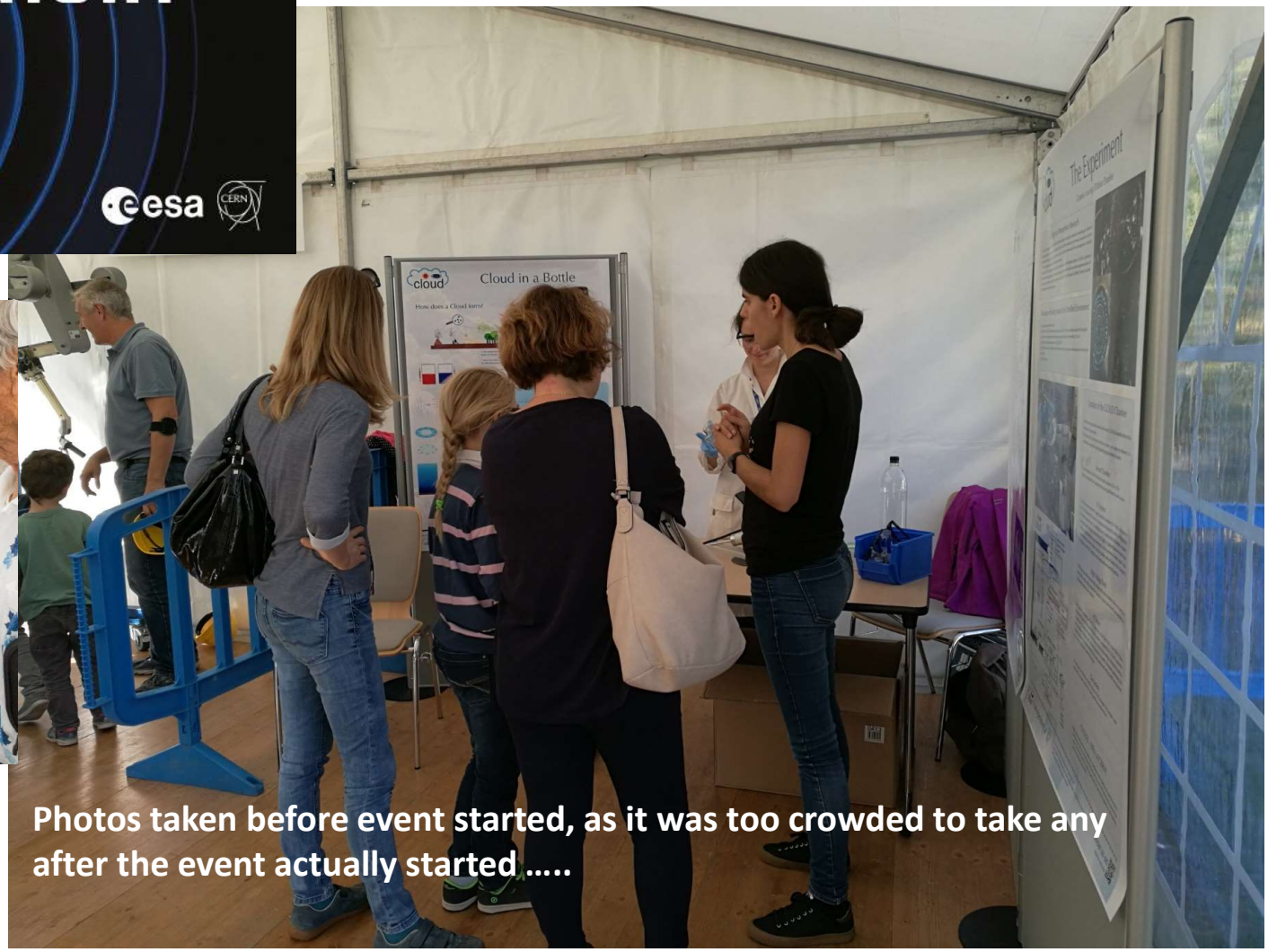
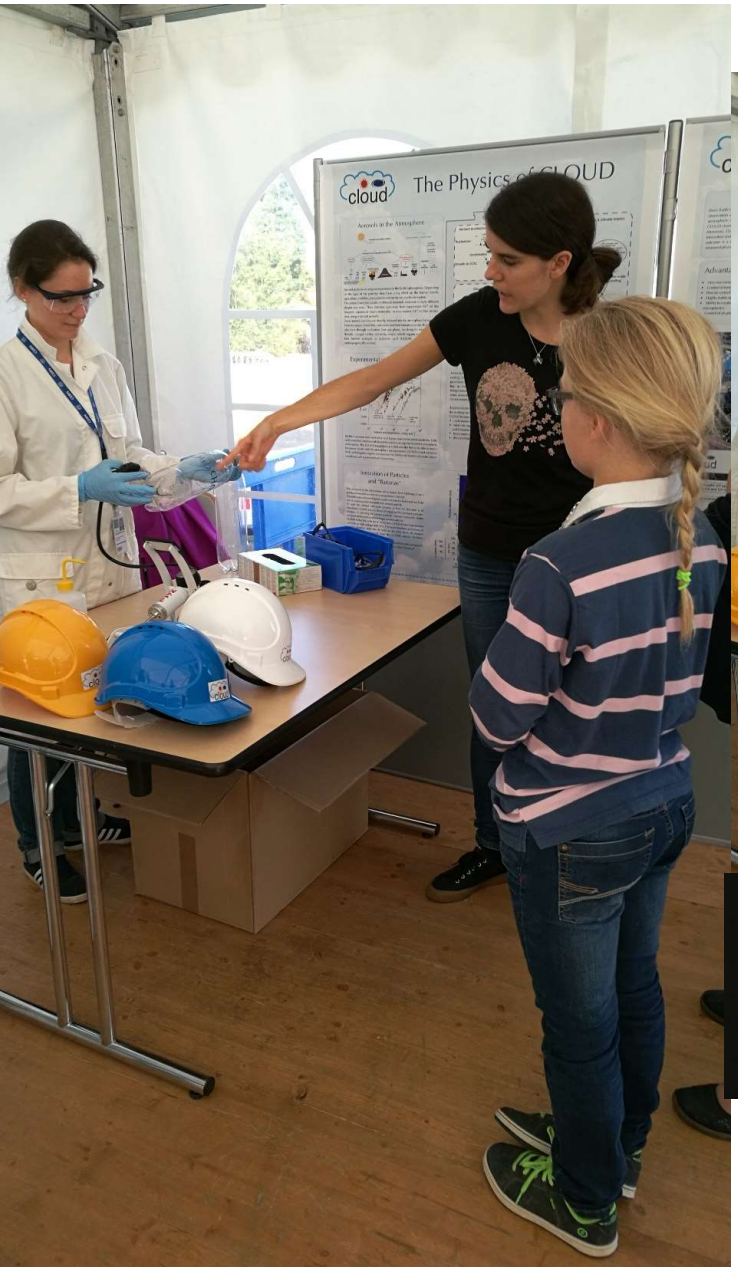
15/07/2019

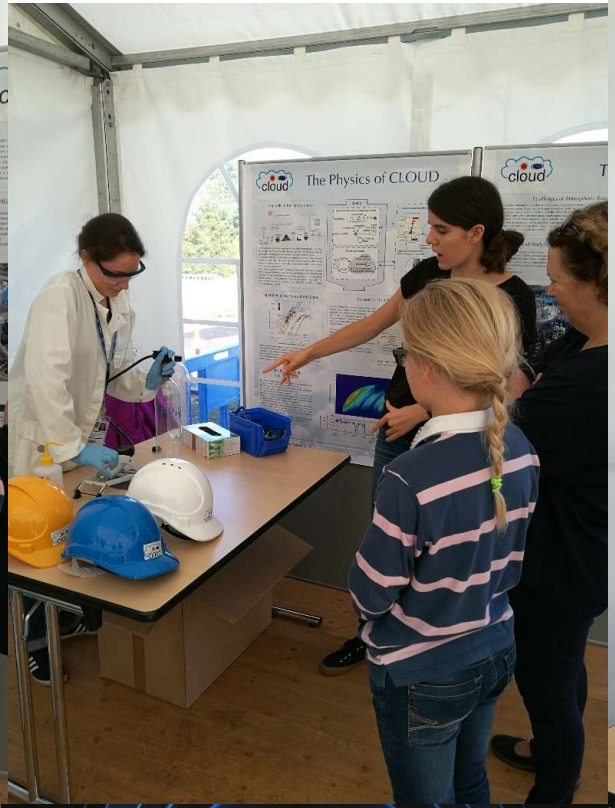
CLOUD activity plan

- For two years now, we have had a stand with the other small experiments at that Researcher's Night. We enjoyed the experience very much. We would like to participate to the CERN OpenDays 2019.
- CLOUD activity space needs: 5 x 5 m
- We will have 3-4 A0-sized posters to present. We will have 3-4 CLOUD people standing all times at our stand. All times at least one of us speaks fluent French. We will plan to place our demo kit to a table to show people how aerosol particles and clouds are formed.
- In addition, we are collaborating with an artist Helen Cawley. To improve outreach, we could have arty-science posters, videos with headphones for visitors, and some demos (e.g. small cloud chamber or small scalptures explaining CLOUD) for the public to see/ interact with.



Photos taken before event started, as it was too crowded to take any after the event actually started …..





// RESEARCHERS' NIGHT AT CERN //

FRIDAY 29 SEPTEMBER 2017

5PM - 11PM

esa

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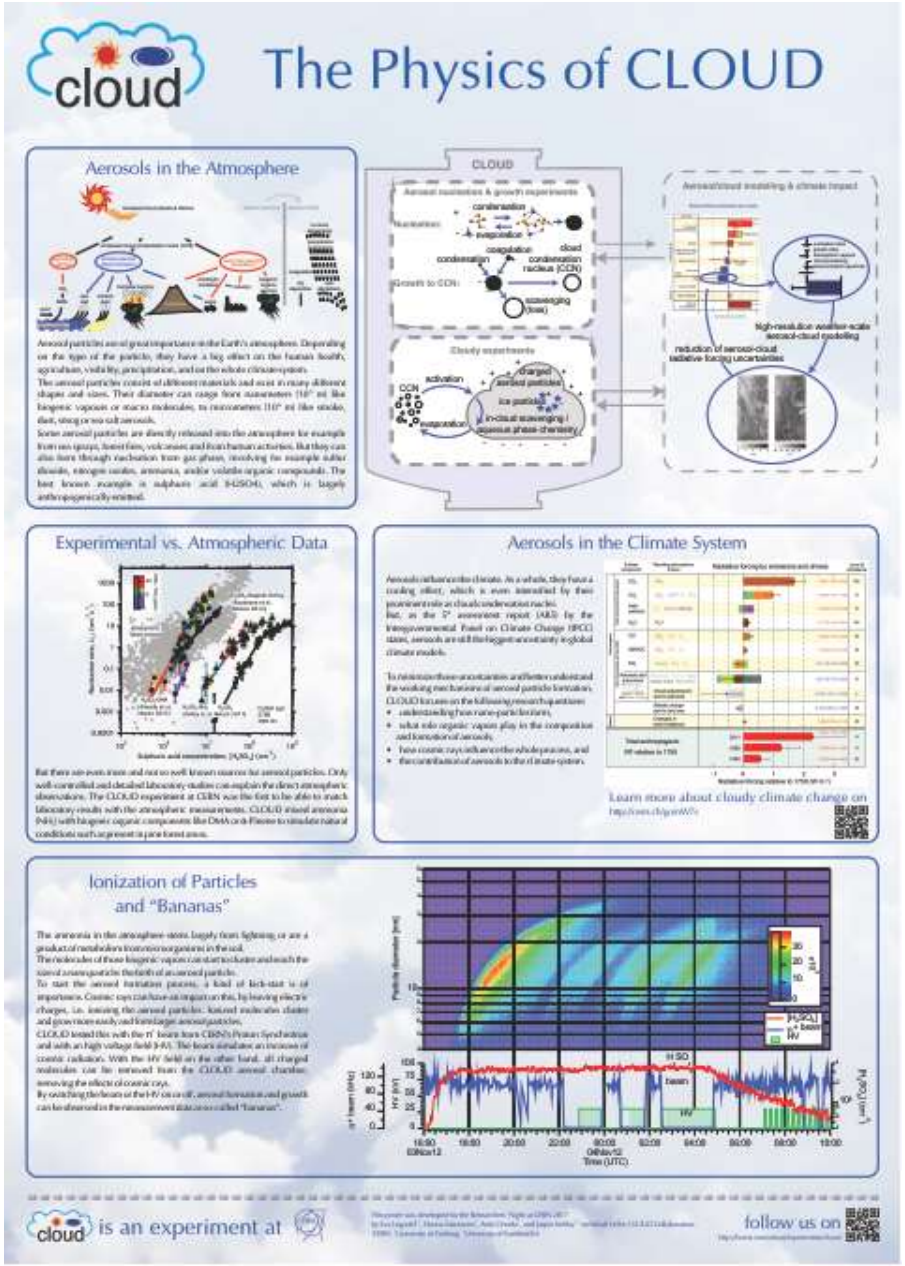

EP-DT and CERN Open Days logos still to be added

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Poster made by Eva Leypold, CERN CLOUD trainee

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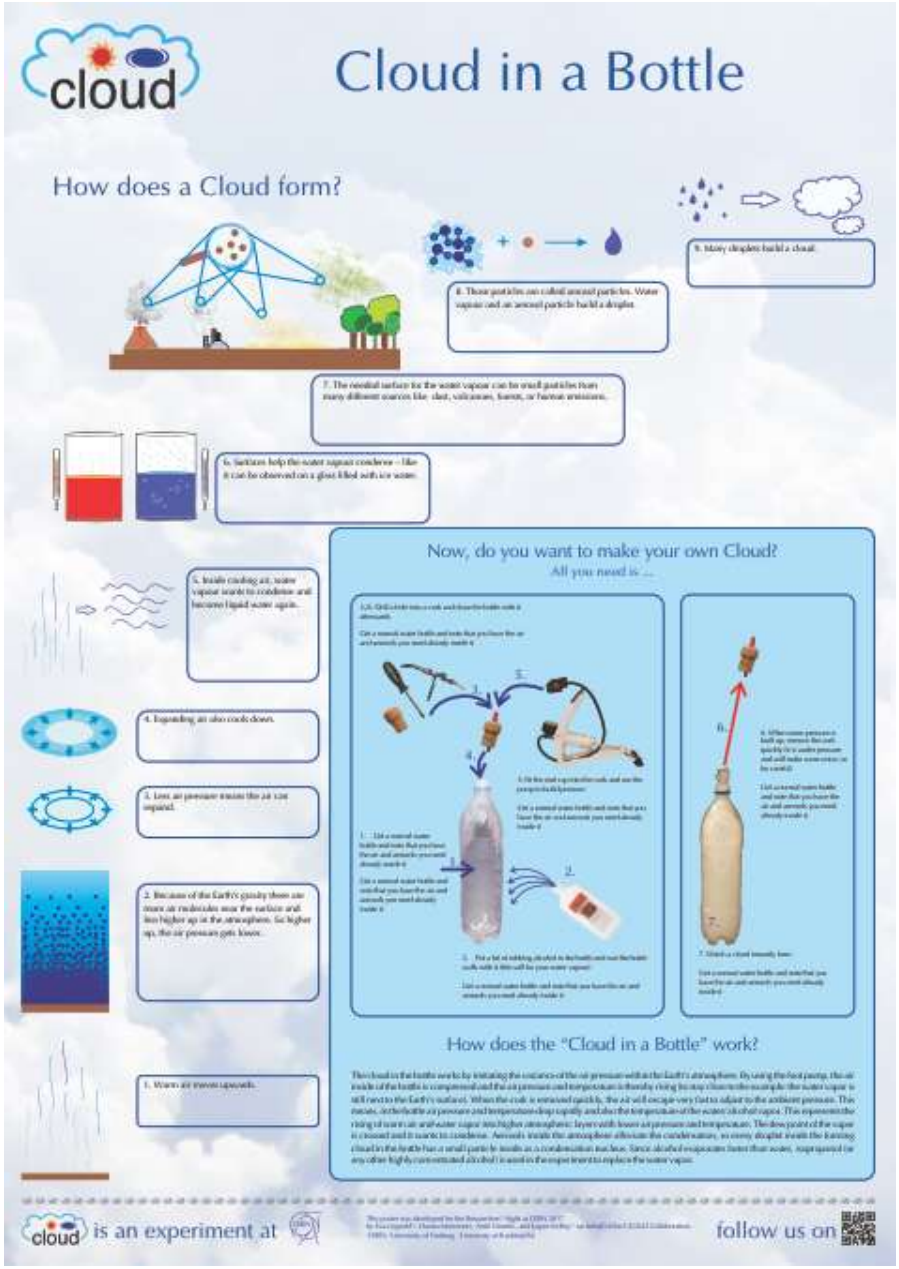

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Nucleation experiment:

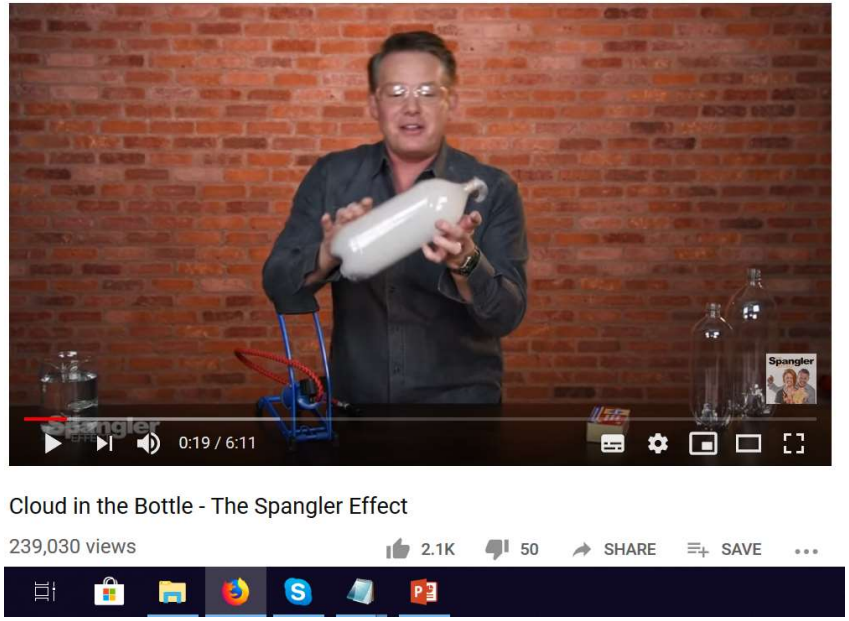
CLOUD was the first to discover pure biogenic nucleation.

Maybe we could show"pure biogenic nucleation" with limonene from orange peals and ozone ?
This illustrates how the compounds in the atmosphere react to form aerosols, we would "only" need an ozone generator, and I understood that we could bring it from Univ. Frankfurt.
https://www.youtube.com/watch?v=fkjEm-sPfoE

Cloud in the bottle experiment:

This illustrates how the clouds are formed in the atmosphere. We would not have clouds without aerosol particles.
https://www.youtube.com/watch?v=cXpuo3YHOn0

This is the same principle as how we create a cloud inside the CLOUD chamber to study cloud properties.



Collaboration with artist Helen Cawley

Helen's plans:

Having attended La Nuit des Chercheurs, and worked a lot in public engagement, I believe that visitor experience will be improved at the Open Day with immersive artworks, since East Hall where the experiment takes place will not be open to the public. Tangibility and object oriented narrative is an important tool in conveying complex information in a short time frame, to audiences of all ages. Visual and interactive cues will prompt conversations and questions that CLOUD scientists and I will be there to take on.

The proposed works are:

The official CLOUD video from the CERN website, then a video by myself inspired by CLOUD, both on a loop.

An alpha-Pinene station; a plinth upon which various related objects will be situated to support a conversation about chemicals and clouds, the discoveries of CLOUD, and transition of states. This will consist of a small sculpture made from tree resin. A pot containing a sponge saturated with pine oil that the audience can smell, and pine needles. This station will constantly be manned for safety, and the natural oil safe for use.

A small scale model of the CLOUD chamber.

A series of drawings I have been working on that depict the environments where the chemicals used in the experiment come from.

A small illuminated cloud sculpture on a plinth. Purely for aesthetics, and photograph opportunities. Social media #'s and public uploads are an important consideration for an open day, and outreach in general. CERN's online presence would benefit from such objects.

www.helencawley.com

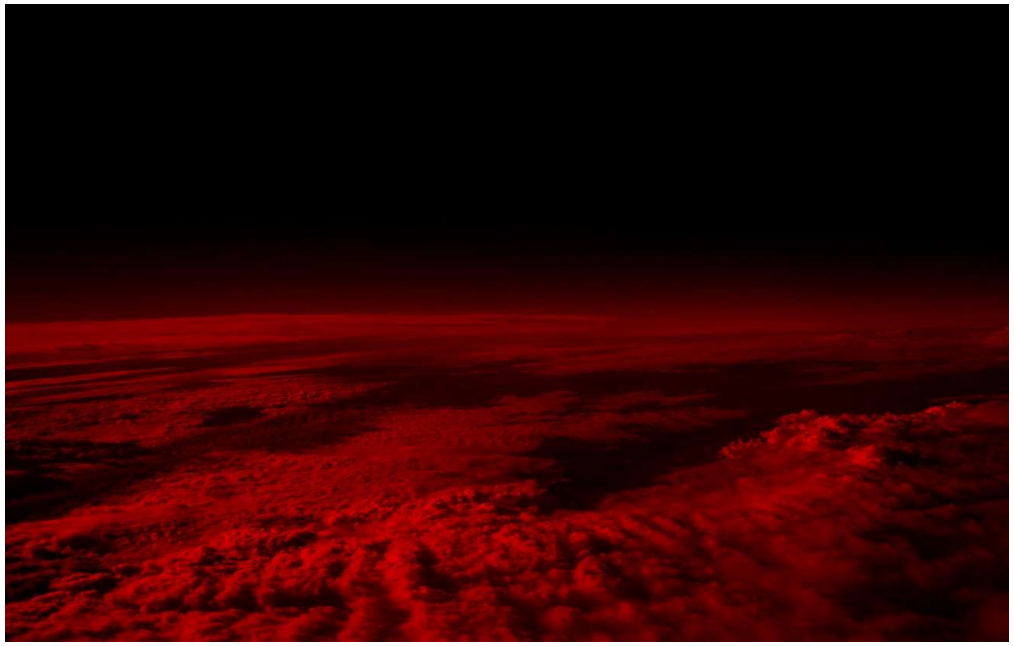
Instagram: @helen__cawley

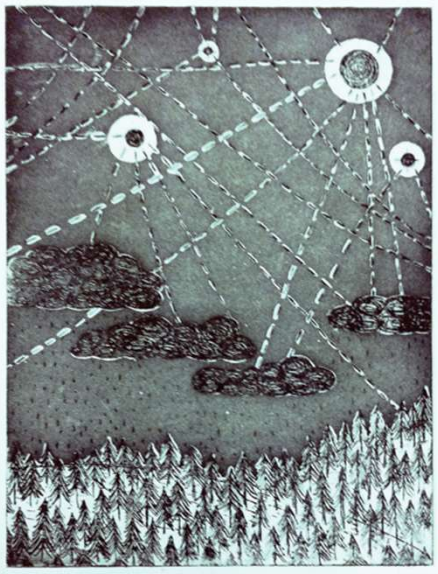
Helen's artwork will not be these pieces but much smaller ones.

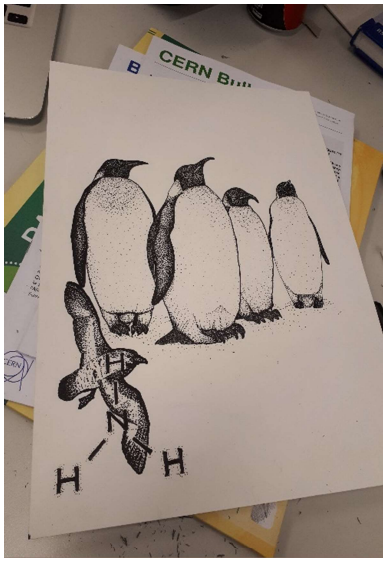
Helen Cawley

The CLOUD Project fellowship ends in June with and the PhD begins in October.

Exhibitions, new artworks, talks and blog posts will be updated on website in due course.



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OpenDays CLOUD Volunteers:

- Ruby Marten (MPA User, Paul Scherrer Institut; English)
- Victoria Hofbauer (MPA User, Carnegie-Mellon Univ.; German, English)
- Loic Gonzalez Carracedo (MPA User, Univ. Vienna; French, English, Spanish)
- Lucía Caudillo (MPA User, Univ. Frankfurt; Spanish, English)
- Guillaume Marie (MPA User, Univ. Frankfurt; French, English and little Italian)
- Tatjana Müller (MPA User, Univ. Frankfurt; German, English)
- Steffen Bräkling (MPA User, TOFWERK; German, English)
- Wiebke Scholtz (MPA User, Univ Inssbruck; German, English)
- Birte Rörup (MPA User, Univ Helsinki; German, English)
- Surdu Mihnea (MPA User, Univ Helsinki; Arabic, English)
- Helen Cawley (MPA PJAS, artist; English, some French)

CLOUD Activity Organizer:

- Hanna Manninen (MPE Fellow, EP-DT-CO; English, Finnish)

CERN CLOUD Team Leader:

Antti Onnela, EP-DT

Space and material needed:

Space needed: Approximately 5 x 5 m of indoor/undercover space is needed due to heavy flow of people through the space.

Furniture and other: One long table and bench is needed for CLOUD volunteers to carry out CLOUD in a bottle experiment and showcase that aerosol particles exists everywhere and are in constant interaction with the surroundings.

One table or plinth is needed for a TV screen or a computer screen, is needed to show videos on a loop. 2 sets of headphones would be needed for people to hear the video. Power will be needed for the screen and computer.

3 x A0 size wall for CLOUD science posters

3 x A0 size wall or 3 m long grid wall for 2D artworks by Helen Cawley

3 x plinths (approximately 1m height, and 50 x 50 cm): 1 plinth for a miniature model sculpture, 1 plinth for a small sculpture and 1 plinth for an artwork with a light.

Electricity: 4 plugs 220V: 1 for a laptop, 1 for a screen, 1 for light and 1 for aerosol monitor.

Safety issues

- **Chemicals:** Only hazardeous material we will bring is a small closed bottle of isopropanol (about 100 mL). We will have safety glasses for us and the guests who follow the demo (but they don't really need any). There will be only very small amount of isopropanol vapour (no liquid) that guests may be in contact with. We (CERN volunteers) will also wear safety gloves and lab coats. Here is a link to the demo that you see what how we use the isopropanol: https://www.youtube.com/watch?v=cXpuo3YHOn0
- We will use both water and isopropanol to create a vapour cloud inside the limonade bottle. We will not use matches nor smoke.
- Volatile organic compounds (e.g. orange peal). One of the sculptures is made from plinth and we will have a small pot of pine oil that people can smell, and another pot of pine needles. There products people can collect from nature or buy from a normal shop.
- We will need **electricity**, 4 plugs 220V: 1 for a laptop, 1 for a screen, 1 for light and 1 for aerosol monitor.