

CHES/iEarth joint course on “communication skills in outreach and teaching”

CHES is training the climate scientists of tomorrow, iEarth is changing teaching culture in Norwegian geosciences. Naturally, PhD students from both centers have a lot to talk about, and that they are coming at it from different angles makes it even more interesting!

Virtual seminar series:

This course started out virtually in spring, and for 13 weeks, 13 PhD students plus organizers met online for two hours to discuss a diverse range of topics with enthusiastic guest speakers:

- Ivar Nordmo spoke about [different metaphors of learning](#), and how the way we speak about learning influences our thoughts on the matter
- Torgny Roxå introduced us to teaching cultures, cultural changes within academia, and how we influence each other
- Virginia Schutte gave us insights and practical tips both on JEDI (justice, equity, diversity and inclusion) and on science communication
- Kikki Kleiven gave us new ideas about [teaching geosciences](#)
- Sam Illingworth made each of us write 3 poems! (See a selection below)
- Jostein Bakke gave us many tips for good outreach
- Catherine Bovill and Mattias Lundmark worked with us on [“students as partners”](#)
- Anders Alberg gave many suggestions for building good supervisor-supervisee relationships
- Mirjam Glessmer talked about [building networks in academia](#)
- Rie Malm led discussions on teaching and pedagogy related to field work

In-person workshop in Bergen:

In September, we were in the lucky position to run an in-person workshop (covid19 restrictions lifted) to bring it all together! We ended up being 8 participants physically in Bergen (enjoying the beautiful new rooms in the basement of the Geophysical Institute, and the excellent catering from the new café there!) and two participants joining online. All in all, an inspiring three days of workshops!

The three days were structured to start out with a generous coffee break combined with a **morning activity**: Some fun science communication practice. One day, for example, we wrote five lines about our research, and then checked with the [xkcd “upgoer 5” editor](#) which of the words we used are not part of the “ten hundred” most common words! We then rewrote the text only using these ten hundred most common words and found out that some people are “rock-knowing”, and others work on “the big blue water”, or “big turning air things”! Another morning, we made [fortune tellers](#) (some of us got distracted with the [“kitchen oceanography” examples on the table, i.e. creating double-diffusive layers with milk and coffee](#)). The last day, we tried to visualize things that are difficult to imagine, e.g. how wide a low-pressure system is relative to its height.

But the most important part of the workshops were our phenomenal guest speakers. Robert Kordts led a session on microteaching and gave helpful feedback (some of the things tried out in the microteachings were directly implemented as outreach for the Bjerknes center the next day!). Anders Ahlberg worked with us on providing feedback and understanding research ethics. Torgny Roxå helped us get into why some people resist knowledge. On the last day, Kikki Kleiven and Helge Drange shared their experience in doing science communication as climate scientists and gave feedback on our own attempts.

Thank you to CHES and iEarth for making this possible, and for our cool group of participants and guest speakers for being so constructive and engaged!

Kjersti Daae

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Mirjam Glessmer

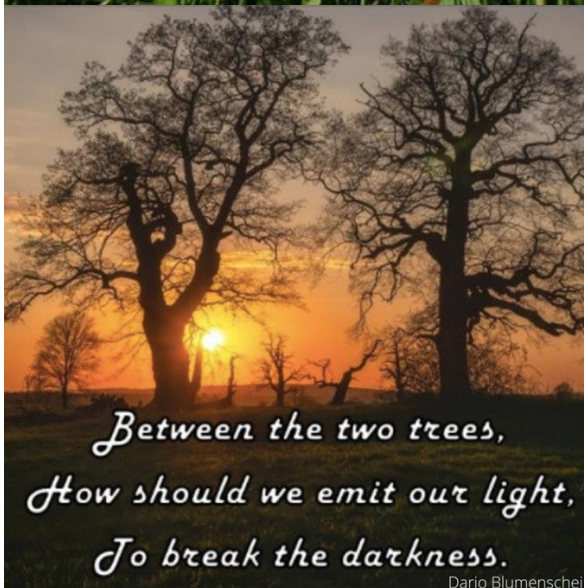
Mirjam Glessmer

Below are haiku poems the participants made during the online seminar and some pictures from the workshop:



I am not a poetry person. When I heard that the next lecture of our iEarth course it would be about poetry in science communication I had a totally non-exciting feeling. Sam sent us some poems to read before the lecture and I have to confess I couldn't get to the last one. However, when class started he asked us to read some of the poems we liked the most and then told us some stories and facts about each of them. Knowing the story behind the poem and the authors make them more interesting. Getting in touch with some short poem structures and finding that you can write your own short and simple poem make things more fun. In the end, figuring out how to use poetry to better communicate your science turns out to be a super-interesting, useful and pleasant tool.

Leilane Passos



A poem about the two main paradigms in education and the illuminating power of knowledge.

Dario Blumenschein

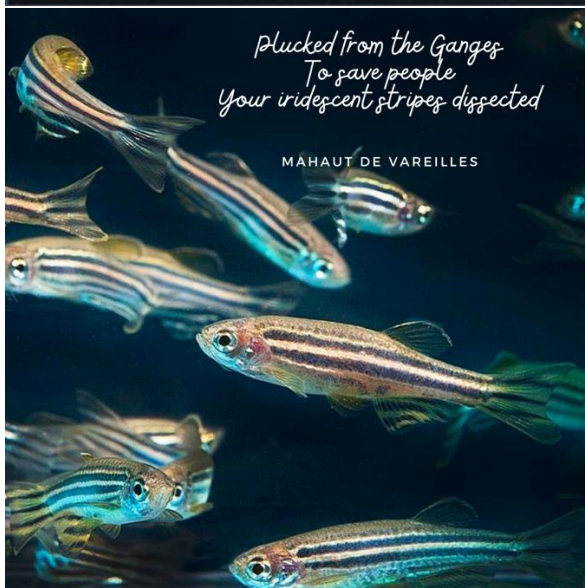


a picture taken on a cruise in the Arctic



The inspiration for the poem is from a scientific cruise to the Barents Sea this spring, where we encountered some melting sea ice flowing in from the central Arctic. This sea ice had formed in the long and dark Arctic winter, but with increasing sunlight and warmth, it will eventually melt by summer.

Jakob Simon Dörr



The zebrafish (*Danio rerio*) is a tiny, stripy fish found in the rivers of the Himalayan region of South Asia. In the past 50 years it has become a prominent model organism for science. A model organism is a non-human animal species which can be used to understand specific biological processes. Zebrafish have been instrumental for the advancement of developmental biology, molecular genetics, cancer research, drug discovery, and aquaculture, to name a few. And they've even been sent to space!

I was using these model organisms to understand how different protein sources in the fishfeed/diet can affect fish muscle growth. This is interesting for aquaculture because a part of this sector still relies heavily on wild caught fish to feed the farmed fish, which is environmentally unsustainable. We are trying to understand what other, more sustainable, protein sources could be used to make fish feed. Why muscle growth? Because this is the part of the fish we eat.

Mahaut de Vareilles

Photo by Lynn Ketchum, Oregon State University, CC BY-SA 2.0, via Wikimedia Commons



Figure 0.1: Picture by Torgny Roxå. Making fortune tellers for outreach and teaching purposes and also playing with coffee from inspiration by an example fortune teller.



Figure 0.2. Communicating climate change. Here is a nice example of showing how temperature has changed over a very long time - a linear time scale of global warming inspired by the xkcd comic: <https://xkcd.com/1732/>



Figure 0.3 Practicing explaining topics related to global warming. How do you explain e.g. the greenhouse effects or why it rains more in Bergen now than 20 years ago?



Figure 0.4: Students and organizers of the workshop. From back left: Kristine Steinsland, Dario Blumenschein, Jakob Dörr, Johannes Lutzmann, Vår Dundas, Julien Pooya-Weihs, Vanja Haugsnes, Leilane Passos, Mirjam Glessmer, Kjersti Daae. On the computer screen – Rafael Kenji-Horota online from UNIS, Svalbard.