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## Participatory simulation: Climate and ocean literacy in action

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Climate change (CC) and ocean degradation (OD) are major threats to the perpetuation of life on planet Earth. This makes it important for people of all walks to learn about the problems and about how they may contribute to solutions. It is our responsibility to ensure that the planet remains habitable for humans and for all species. One way to learn about CC and OD is through experience and direct interaction with the environment. Experiential learning (Kolb) allows people to learn with both their heads and their hearts, to become engaged with the issues and with their own learning process. Experience can be real, as in an internship or living with sea-level rise, or it can be contrived, as in a game or simulation.

Many simulation/games have been designed to teach climate and ocean literacy (e.g., review by Ulrich). Here we will outline our own experience of two online, large-scale participatory simulations – running over several days. The broad learning objectives for each participant were as follows:

- to become an even better ocean-climate-coast-literate and geoethical stakeholder and
- to help other people to become literate in the ocean-climate-coast processes,

in other words,

- to learn about the ocean, coasts and climate system, to behave in a responsible manner in that system and to learn how to multiply and convey their knowledge and skills to others,
- to learn how to collaborate effectively with and facilitate the inclusion of a range of stakeholders.

The objective of each online, participatory simulation was to write a collective document, in somewhat similar fashion to drafting an international treaty. In so doing, participants need to interact, build trust, negotiate, find compromises, listen to others, articulate their own ideas and wishes, draft text, rewrite drafts and so on. Each simulation is contextualized with a scenario

based on real data, but projected into the future. The interactions are conducted via Discord and Google Drive. At the end, a structured debrief is conducted.

In this presentation, we will share our experiences and explain the learning processes. We will outline:

- The content areas of the online participatory simulations.
- The pedagogical principles, such as learner-centred participatory simulation, feedback and debriefing.
- Participants feedback.

We will provide time to answer audience questions, and provide information on how you can participate in the next simulation run. We hope to see you virtually and in person at the EGU.