EGU21-6454
https://doi.org/10.5194/egusphere-egu21-6454
EGU General Assembly 2021

Introducing the complexity of climate change through a videogame: Change Game – Play with the Planet

Eleonora Cogo, Silvio Gualdi, Mauro Buonocore, and Selvaggia Santin
Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici, Climate Simulations and Predictions, Italy
(eleonora.cogo@cmcc.it)

Although the topic of climate change has gained more prominence in recent years, many people still struggle to understand the complex and widespread implications that it is likely to have on almost every sector of our society and natural environment.

Climate change is a complex issue. The physical process that regulates the feedbacks and interactions of the Earth System's components are complicated, the consequences for society and ecosystems are extensive, as too are the implications for the economy. Many effects are not yet fully understood and are difficult to envisage.

Improving climate literacy and the public's understanding about the causes and consequences of climate change are important to increasing civic participation and engagement. They are necessary for the deep and systemic transformation needed to create resilient and zero carbon societies, in line with the Paris Agreement goals.

Videogames have been identified as an ideal means through which to represent complexity, simulating different scenarios and testing alternative paths. 'Change Game' was developed by the CMCC Foundation, with a view to representing the climate system and its interactions with society and with natural ecosystems. The game was designed to be scientifically grounded, but also engaging and entertaining.

A simplified model was developed to establish the game's values, which covered energy and water consumption, historical GHG emissions by sectors, scenarios to reach net zero emissions, technological solutions, climate impacts, etc.

The player is put in charge of the growth and development of a city on a planet inhabited by a pre-set number of players (5-30) who are also developing their own cities. They have to provide energy, water and food to satisfy their population's needs, build manufacturing and services industries, manage their resources, trade them with other players, invest in research, education and entertainment, and care for the health, happiness and prosperity of their community.

However, the higher the emissions that all the players on the same planet generate, the greater the challenges they will face. These include heat waves, droughts, floods, rising sea levels or the spread of new diseases.

The activities in the game are organised within 9 macro categories: houses, factories (steel, cement, sawmill, food factories), services (school, university, hospital, mall, museum, sports center, trading center, warehouse), mines (rock, mineral, rare elements), agriculture (crops, livestock and fish), forestry (forest, ancient forest, land and marine protected areas), energy (fossil fuel, hydroelectric, solar, wind, offshore wind, tidal, nuclear, biofuel, batteries), water (well, aqueduct, water reservoir, desalination plant), negative emissions technologies.

Through education players can learn to promote sustainable behaviors which affect resource consumption as well as the growth and happiness of their populations. Investment in research determines access to more advanced technological solutions and buildings aimed at reducing GHG emissions or increasing resilience to climate change effects.

Finally, players can interact with neighboring cities on the same planet in the multiplayer environment through trade, climate strikes, corruption attacks and fake news.

Change Game is freely available as an app for Android and IOS mobiles.