

From play to principle or not: Geoethical aspects of climate change simulation/games

Pimnutcha Promduangsri¹, Nicolas Becu² & David Crookall³

pimnutcha.promduangsri@gmail.com | nicolas.becu@cns.fr | gc.crookall@gmail.com

¹ Université Côte d'Azur, Geography & environmental sciences, France

² CNRS - La Rochelle Université & LIENSs, France

³ Université Internationale de la Mer, France & *Geoscience Communication*, EGU Publications

EGU General Assembly 2026, Session EOS4.1, EGU26-387, <https://doi.org/10.5194/egusphere-egu26-387>

Geoethics in climate change (CC) communication

Collective action

- Necessary to **combat CC effects**
- Geoethics emphasises the **duty** of humans to respect the Earth's dynamics and ensures the well-being of current and future generations

Current challenges

- Growing **tensions** affect discussions on CC
- Geoethical **dilemma** or the **conflict** between our exploitation of resources and our duty to maintain the balance of natural systems

Impact of political affiliation

- Varying **priorities** in climate action depending on political beliefs
- Significant **divisions** exist, especially in the U.S.

Reframing the message

- Example: Focus on pollution instead of abstract CC terminology
- Emphasise health implications of pollution, which resonate more with the public

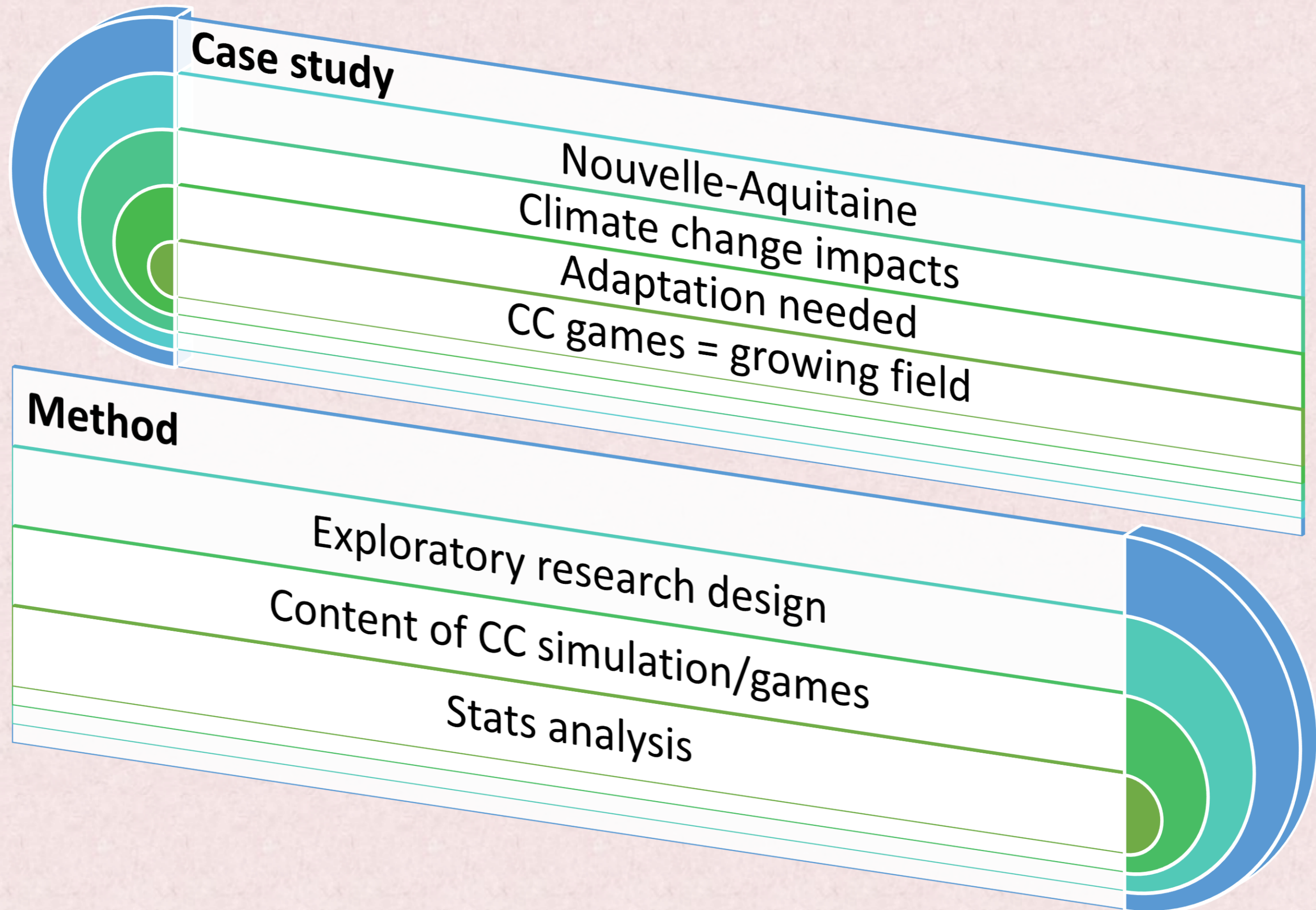
Geoethical communication

- Listen to **diverse perspectives** to understand personal connections and to foster a sense of geo-citizenship where people feel a personal, ethical **connection** to the land, water and air
- Ask questions to promote dialogue and mutual understanding

Approach with empathy

- Recognise the heightened **emotions** in climate discussions
- Focus on **positive** solutions rather than on despair
- **Empower** others through constructive communication to inspire **action**

Parameters of the study



Data sources

Online databases

- Search terms in six languages
- Games from around the world
- Google (scholar)

Online game repositories

- Websites that collect and share games
- E.g., Climate Interactive, Board Game Geek, games4sustainability

Scientific conferences

- European Geosciences Union (EGU)
- International Simulation and Gaming Association (ISAGA)

Expert recommendations

- Colleagues
- Online spaces, e.g., game forums

Results

Dataset of study

63
simulation/
games
(all languages)
(more to be included
later)

Frames of CC games

Social (92%)

Enviro (76%)

Techno (76%)

What is **missing**

CC effects, AMOC

Agriculture

Health impacts

Climate justice

Debriefing

Geoethics

Discussion

Logistics & design

Most common types:

- Board games (37%)
- Role-plays (25%)

Typical session:

- Small groups
- For ~1 hour

Main weaknesses

Most games (63%) provide **no debriefing** guidelines, omitting a **crucial** step

All games fail to mention **geoethics**

Deliverables: Table & web

The analysis will directly shape the design of a practical tool for stakeholders

A web tool will allow users to select games by:

- Theme
- Game type
- Audience
- Duration, language, cost and more



Debriefing chapter.

Explains why debriefing is crucial and how to do it.

Careful: Big file

Conclusion

Main findings

Strong on extreme weather & tech solutions, but weak on **geoethics**, health, agriculture, ocean dynamics and climate justice

A majority of games lack **debriefing guidelines**: Crucial for their full learning potential

Excel spreadsheet = bases for the next step: a public, searchable, online **database**

Recommendations

Include **geoethics** in all new games; health, agriculture, climate justice and important CC effects in most new games

Design **debriefing** materials for all games, right from the start

Provide facilitator and debriefing **training** to ensure high-quality implementation

Develop a user-friendly, community-driven, online database

Colour

Content of the block

- ☐ **Beige:** Name, description, learning goal, game objectives.
- ☐ **Blue:** Essential game data, including fundamental information.
- ☐ **Pink:** Facilitation and step-by-step guides, including debriefing sessions.
- ☐ **Green:** Climate change-related information, including causes, consequences and adaptation/migration strategies.
- ☐ **Yellow:** Additional details, such as developer information, release dates, costs and links to external resources.

Spread
sheet
blocks

Spread
sheet
snippet

Name	N°	Short description (last spreadsheet update 2 March 2026)	Learning goal(s) - summary	SS objective: What participants have to do the game (e.g., will)
Adaptive Futures	01	A game for climate change adaptation.	Understand community-level decision-making processes related to climate change adaptation. It highlights the importance of understanding diverse community values and locations when implementing adaptation strategies like beach renourishment, seawall construction and relocation.	Act as decision-makers for a New Zealand coastal town facing the adverse impacts of climate change, including coastal erosion. The primary objective is to protect the community from these effects by implementing adaptation strategies. Success depends on gaining and maintaining trust with diverse residents who may have different priorities.
TAN: Oil Springs	02	An "Oil Springs" scenario for the CATAN board game introduces a new resource, oil, which enhances production and enables city upgrades, but comes with significant environmental costs. The exploitation of oil creates pollution and climate-changing emissions, leading to the threat of coastal flooding and potential disaster, forcing players to balance economic gain with the common good to avoid ruin.	Understand the complex trade-offs and environmental consequences associated with the exploitation and use of a valuable natural resource like oil. Through gameplay, participants experience how the pursuit of economic development and individual gain can lead to negative externalities such as pollution and climate change, which in turn can cause widespread disasters.	Be the first to reach 12 or more victory points by upgrading settlements and cities, including upgrading the newly discovered oil resource. Players must also manage the inherent risks associated with oil pollution and climate-changing emissions, such as coastal flooding and other environmental disasters. Players must decide whether to prioritize rapid development or limit its use.
		A science-based, interactive video game where players build and manage a city in various environments (urban, rural, mountain, coastal, island, etc.).	Educate players about the intricate relationship between societal development, environmental impact and the challenges posed by climate change.	Build and sustain a thriving city with a diverse population in rural, mountain, coastal or island environments. The game explores the trade-offs between economic growth and environmental sustainability.

Please feel free to comment here:

Name	Min N° facilitator(s)	Debriefing guidelines	Debriefing materials included? (not feedback)	Type of game	Support, materials, platform, medium	(of reso
Adaptive Futures	0	* None	* None	Role-play (single player)	* Online * Indoor	* No
ATAN: Oil Springs	0	* None	* None	Board game	* Board (in a box) * Indoor	* Vi present * Boc
Change Game	0	* None	* None	Mobile app	* Mobile phone * Online	* T

Spread sheet snippets

Name	CC causes	Socio-economics	Justice, equity, inequality	Policy, governance	Environment	Ocean change	Health	CC Mitigation	CC Adap
Adaptive Futures	* None	* None	Peripheral	* None	* Coastal erosion * Extreme weather events	Peripheral	* Heat exhaustion and heatstroke * Spread of disease	* Emission reduction * Renewable energy * Policy frameworks	* Reactiv * Anticipa
ATAN: Oil Springs	* Fossil fuels	* Resource scarcity	Peripheral	* Resource conflicts * Policy changes	* Extreme weather events * Deterioration of air and water quality	No	* None	* Industrial processes * Policy frameworks	* Increm
Change Game	* GHG emissions * Deforestation * Fossil fuels	* Infrastructure damage * Community displacement	Peripheral	* Policy changes	* Extreme weather events	Peripheral	* Heat exhaustion and heatstroke	* Emission reduction * Renewable energy * Transportation * Industrial processes	* Increm
isQ	* GHG emissions * Fossil fuels * Industrial activities	* Resource scarcity	Peripheral	* Migration crises * Policy changes	* Extreme weather events	Intermediate	* Spread of disease * Psychological impact (anxiety, depression,	* Emission reduction * Renewable energy * Waste management * Industrial processes * Policy frameworks	* Incre * Tra