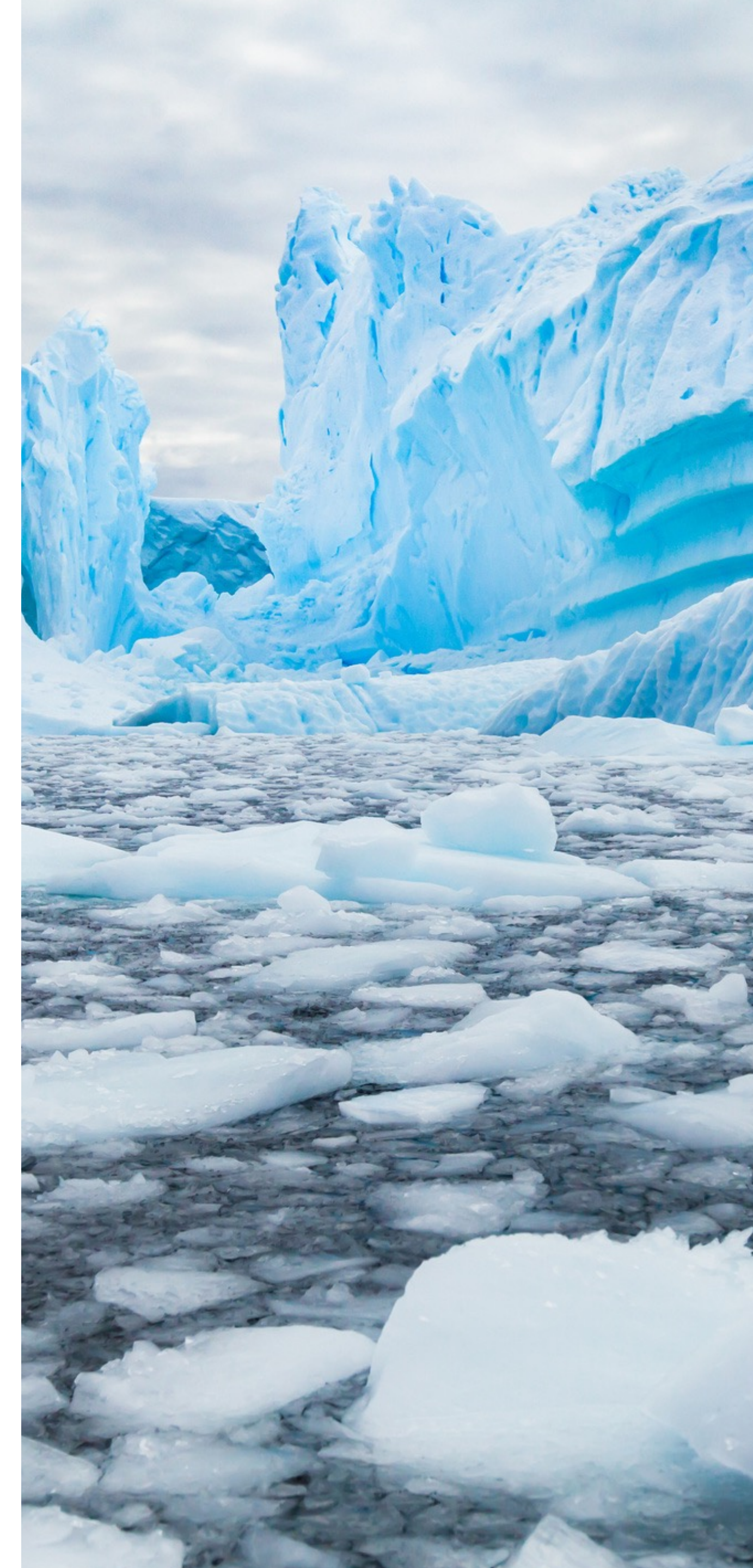



# PROTECT sea-level projection tool, both a scientific tool and a dissemination tool

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and the Scientific Steering Committee of PROTECT  
21/05/2024




**PROTECT is a European research project working on the projections of sea level rise in the future due to the melting of land ice**

 198 000 glaciers  
 2 ice sheets  
 = 65 m of sea level 

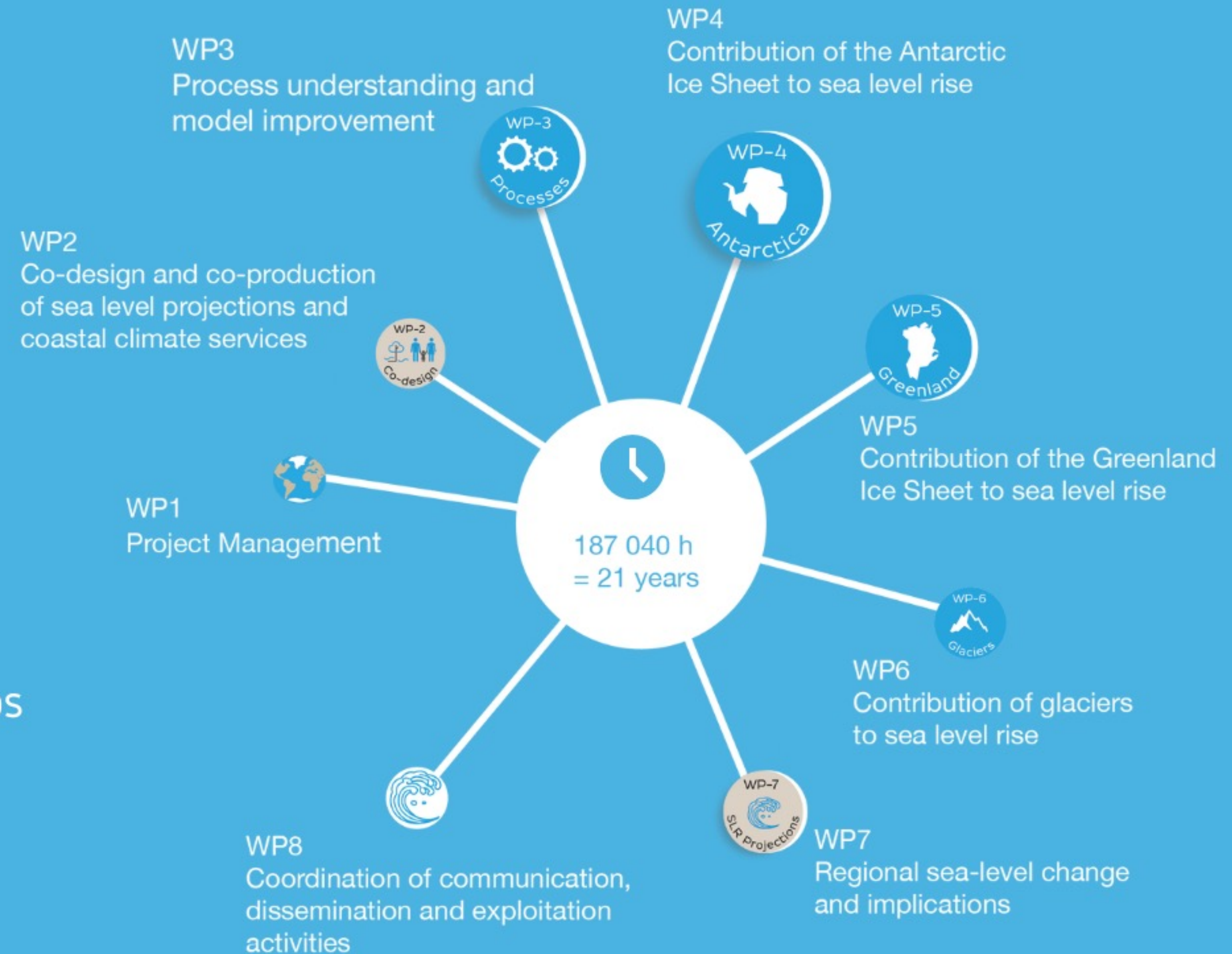
 Global, regional and local projections of sea level rise on several time scales

 27 partners institutions


 10 million euros

 150+ partners

 9 countries



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869304. This material reflects only the author's view and the European Commission is not responsible for any use that may be made of the information it contains.

 <https://protect-slr.eu>

 @ProtectSlr

# Why a webtool?

This webtool was thought before the NASA sea-level projection tool existed

But with the same limitation for the local scale, i.e. the vertical land motion is not included

How to make our tool useful?

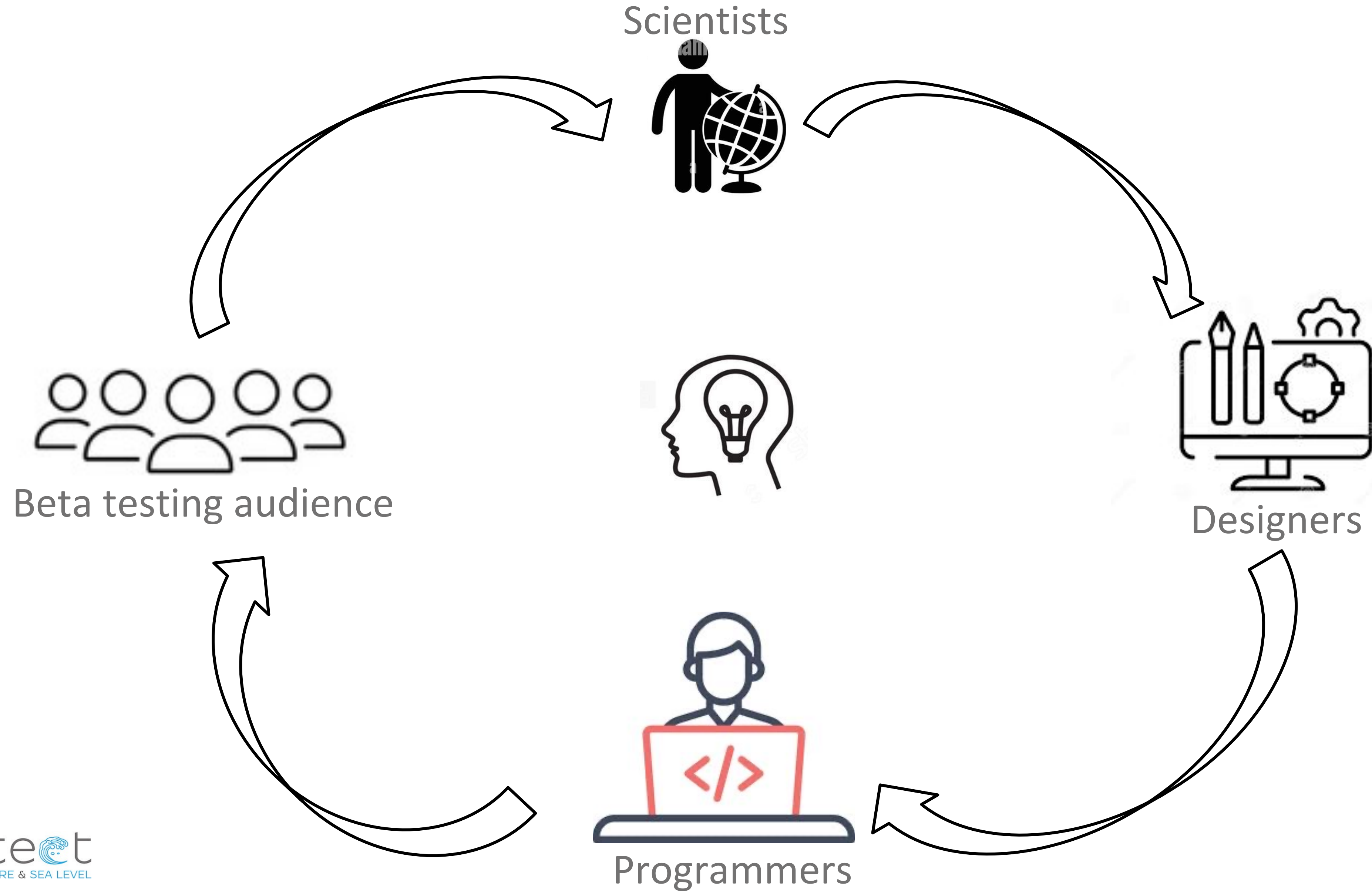
Added value of PROTECT :

1. Link the sea-level scenarios to **real-life needs**
2. Give the possibility to play with sea-level components and **better understand** the contribution of each process
3. **Disseminate** to a wider audience thanks to educational contents: videos, illustrations, case studies

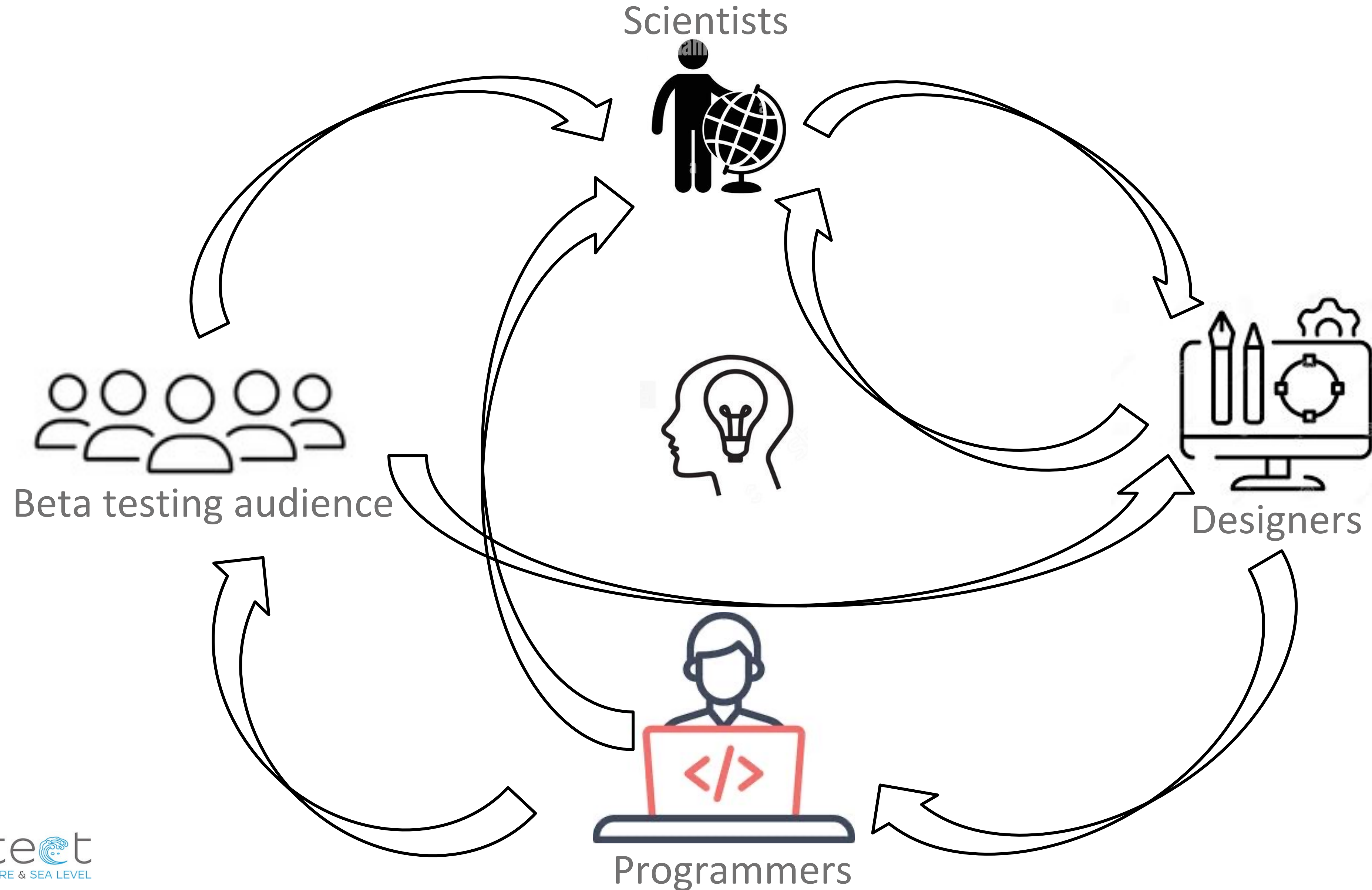
# Webtool in development, based on an existing website

The screenshot shows the homepage of the 'SEA LEVEL PROJECTION TOOL'. At the top, there is a dark blue navigation bar with the title 'SEA LEVEL PROJECTION TOOL' on the left and five buttons: 'Glossary', 'Case studies', 'Introduction video', 'Quick start', and 'For expert'. The main content area has a blue background with white text. On the left, under the heading 'Sea level projection tool', it describes the tool as visualizing and accessing robust sea level projection data from the IPCC 6th Assessment Report (AR6). Below this is a list of features: 'Open-access', 'Interactive regional', 'Coastal Sea Level Rise (SLR)', and 'Web-map service'. A 'Visualise map' button is positioned below the list. On the right, there are two columns: 'Our mission' (Simplify and enhance your access to the consensus projections presented in this influential report.) and 'Our goal' (Empower you with the knowledge and resources needed to navigate the complexities of sea level rise projections with ease and precision.). At the bottom right, a tablet displays the tool's interface, showing a world map, a 'Variable to display' dropdown menu with options like 'SSP1 - 2.6', 'SSP2 - 4.5', 'SSP3 - 7.0', 'SSP5 - 8.5', and 'High end scenario', and a 'Select a year' dropdown set to '2030'. The 'Protect' logo and 'brgm' logo are visible at the bottom left of the page.

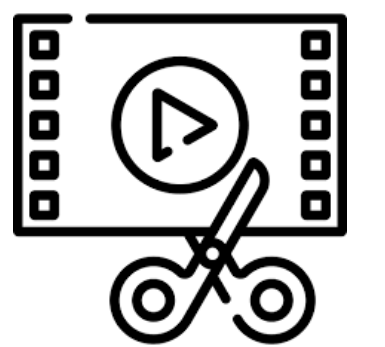
# A webtool: what's behind?



# A webtool: what's behind?



Scientific Illustrator



Video editor



Various scientific specialities

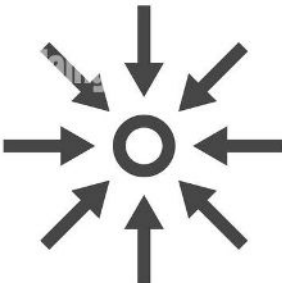
# How to build a webtool?


→ Define the target: objectives and audience

Main issue = make the science understandable:

Scenarios? 

Data? 

Level of simplification (percentiles, uncertainties...)? 

colors? 

Timeline scale? 

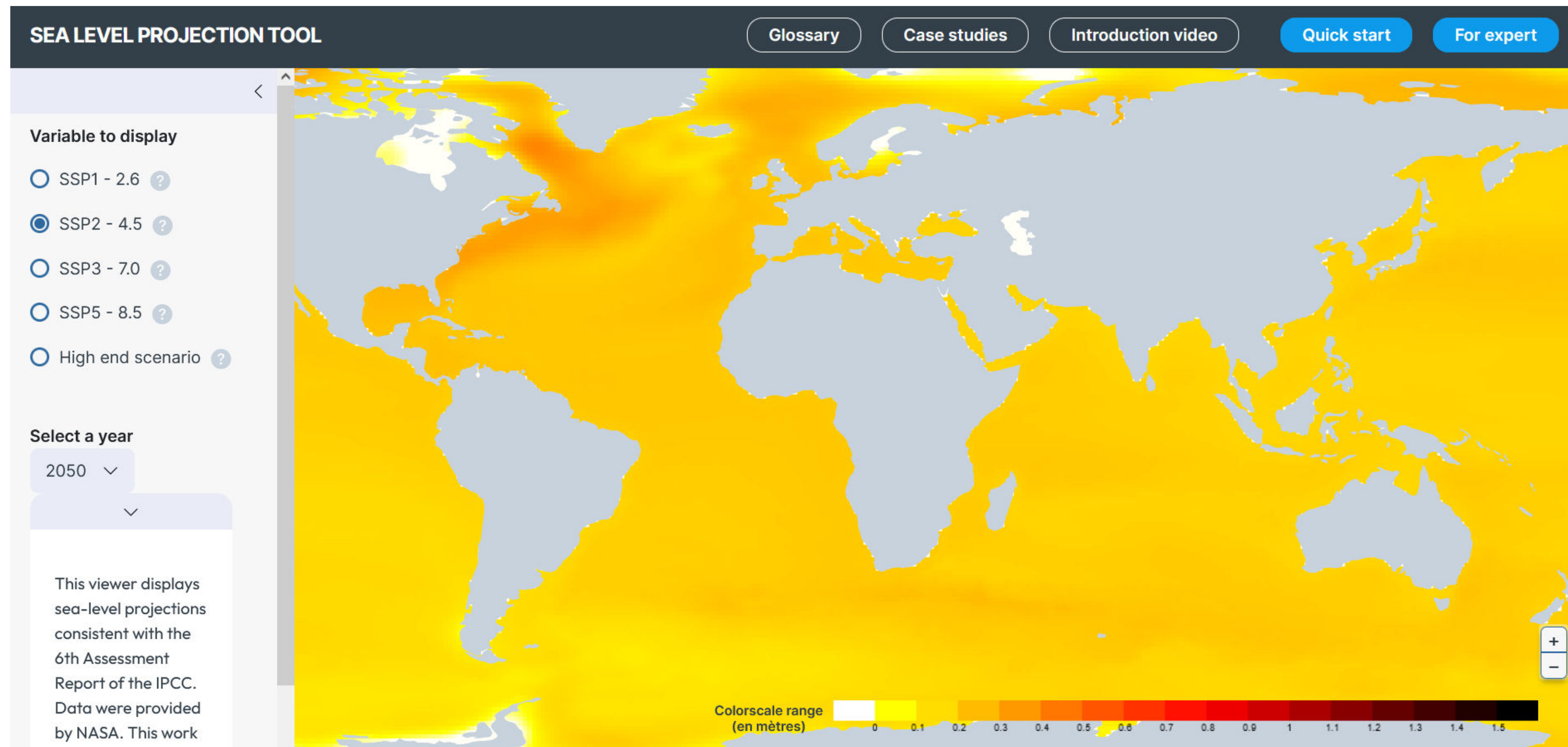
# 1. Valorize the scientific work on projections in PROTECT

→ Use of AR6 projections

→ Until 2150 (potential extension to 2300 with PROTECT)

→ 2 modes : beginners // “experts”

→ A dissemination effort



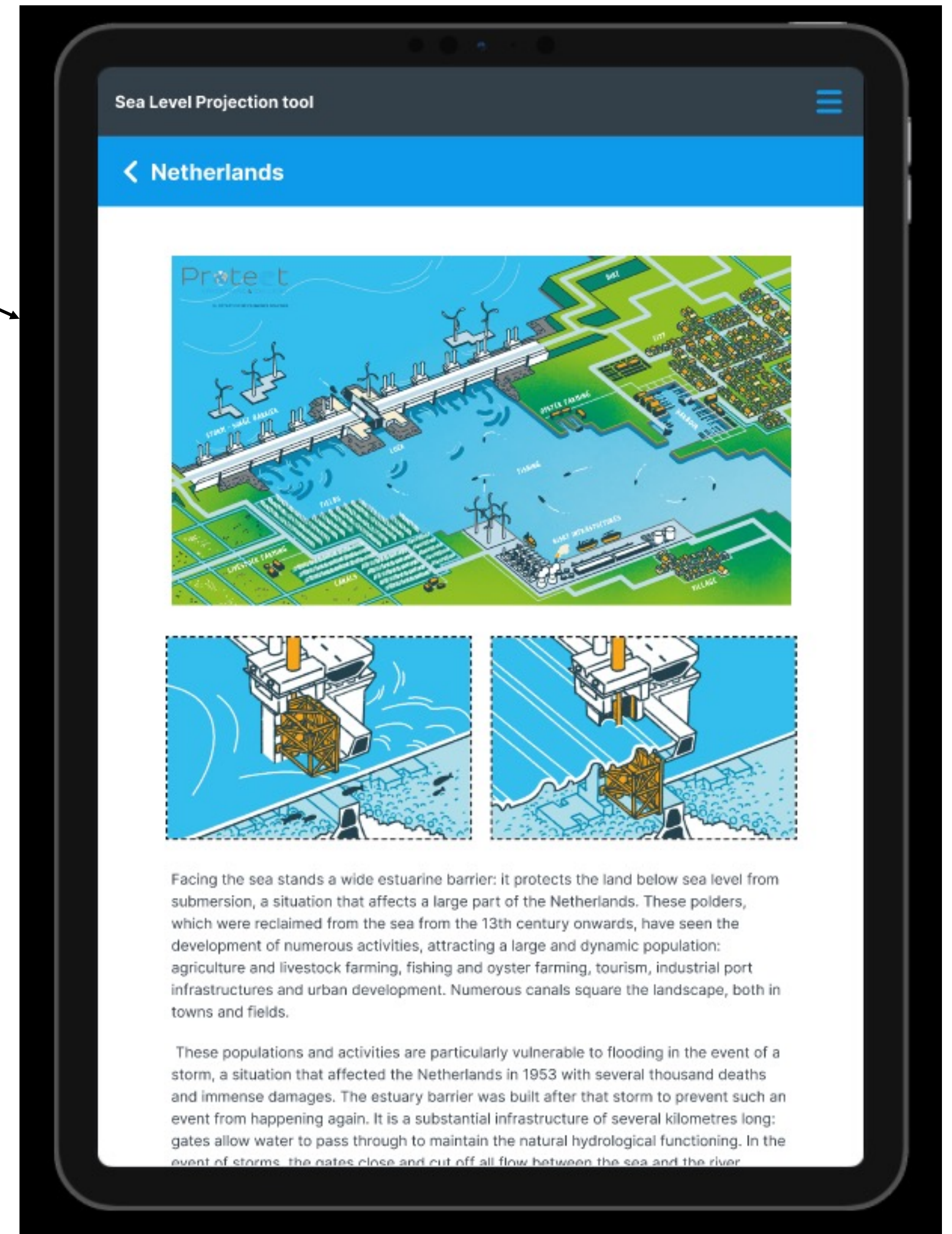
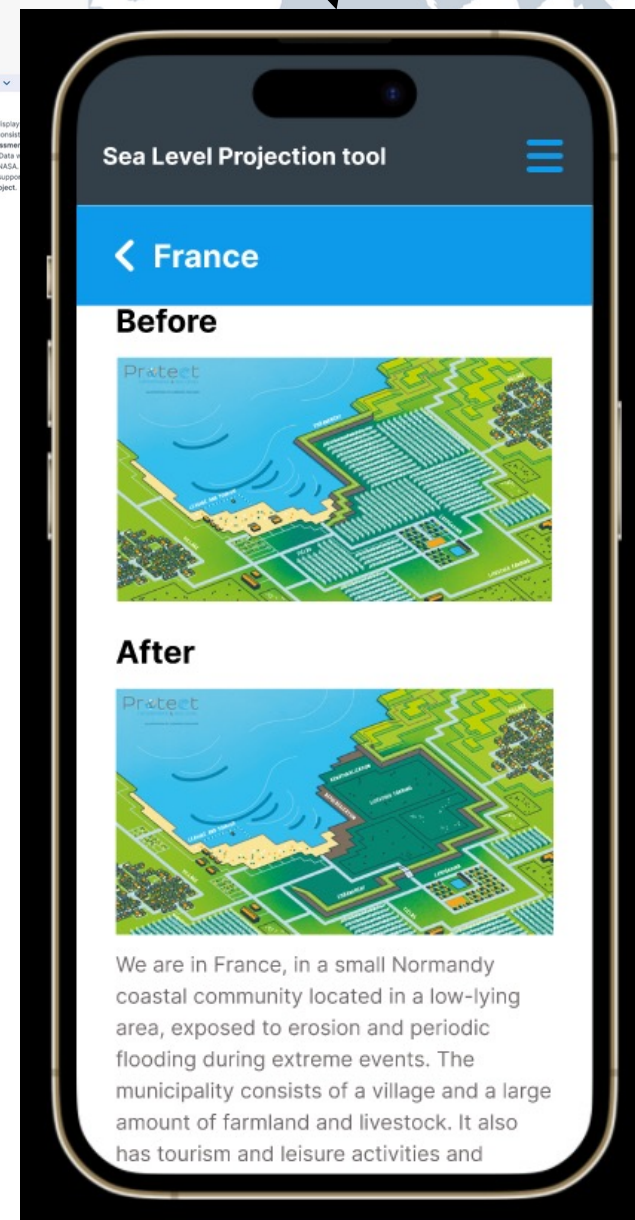
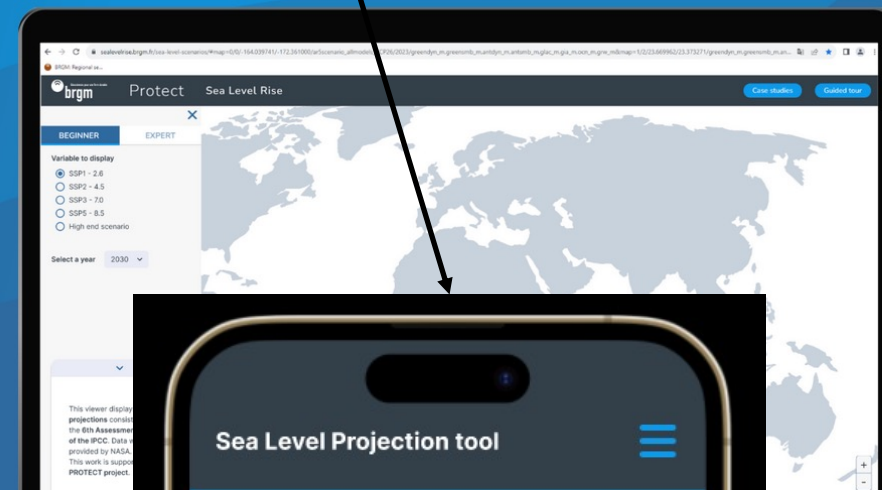
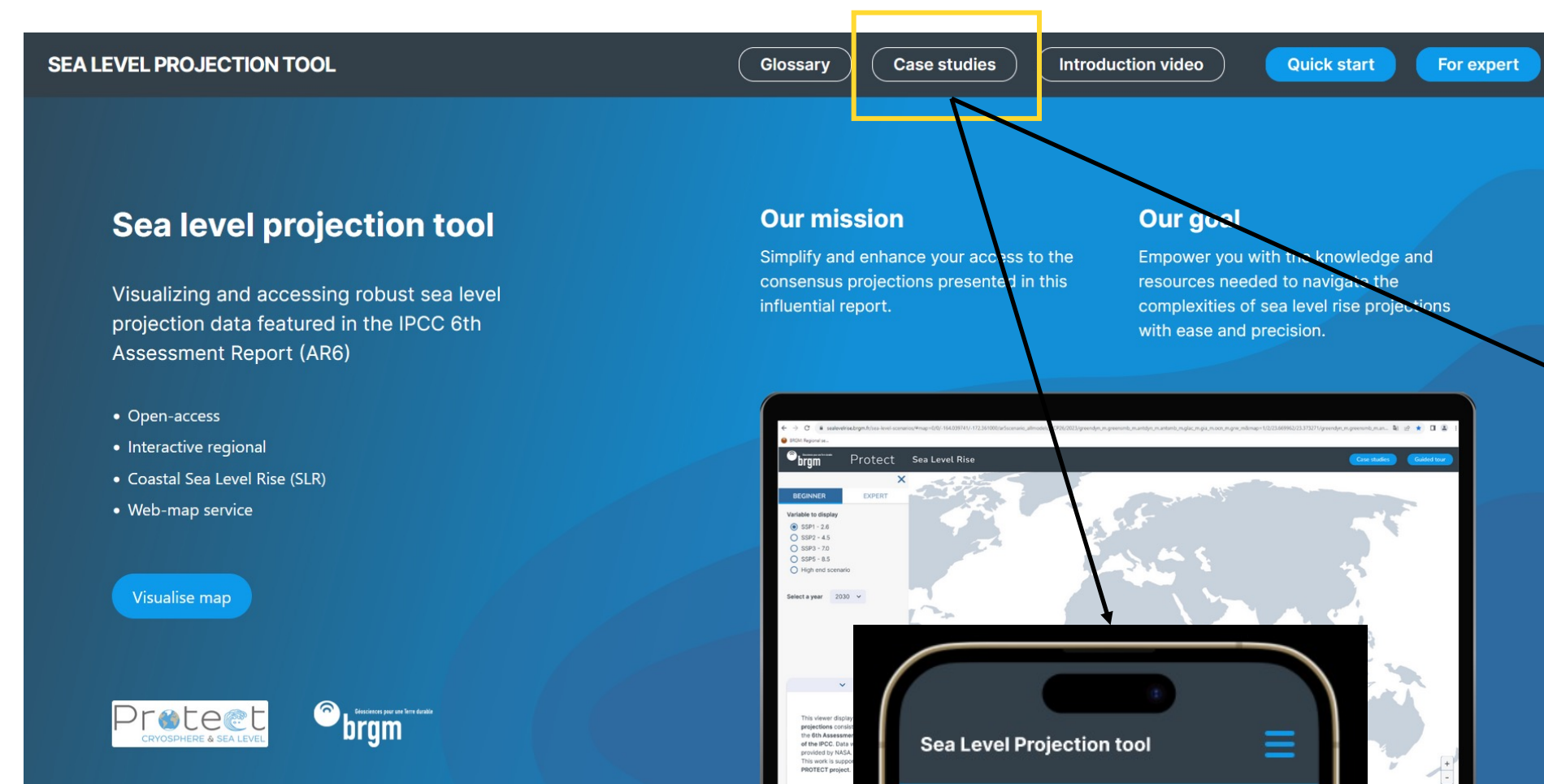


# 2. Explaining how to use SLR projections within real-world decision problems

## The Case studies

- Maldives
- France
- The Netherlands

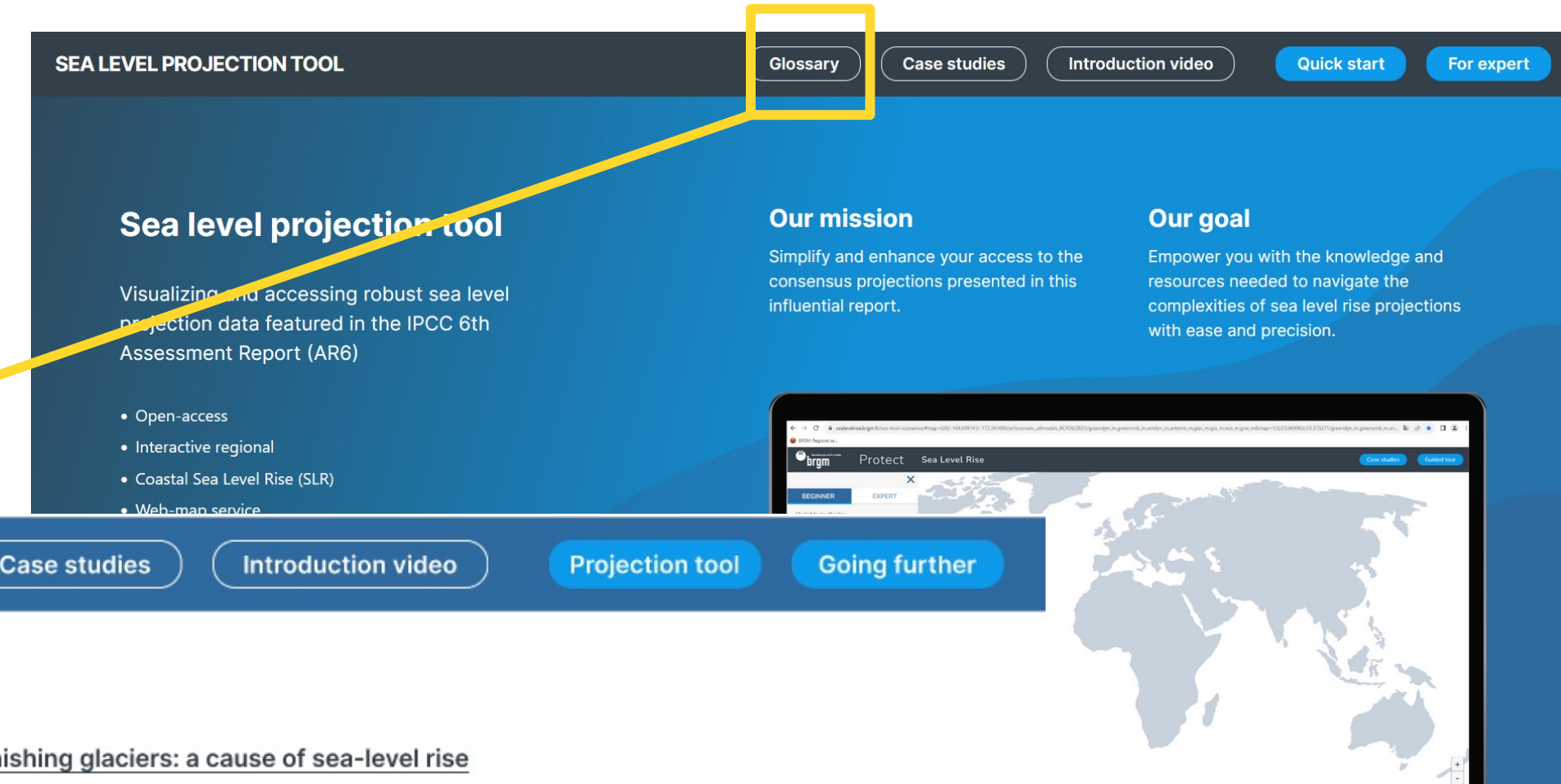
- A storyline for each case studies
- 3 different contexts, 3 different needs of SLR scenarios
- 3 different devices: computer, tablet, phone
- An added value : the illustrations



# 3. Conveying science-based information on SLR to the wider public

## The Glossary

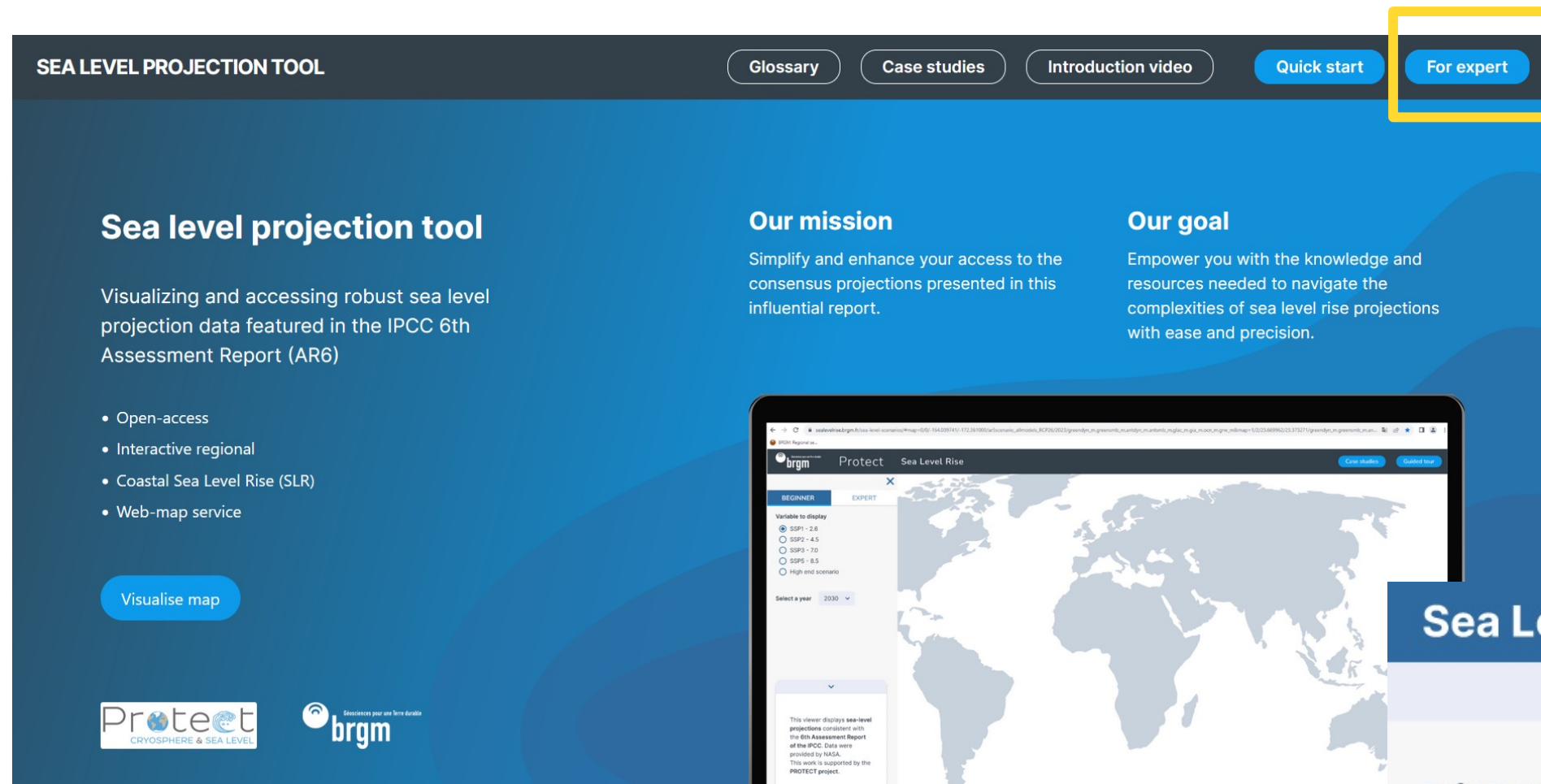
- All SLR components defined
- IPCC definitions
- PROTECT illustrations to help understand
- PROTECT videos to go further



A screenshot of the 'Mountain glaciers' section in the Sea Level Projection Tool. The page has a dark blue header with navigation buttons: 'Glossary', 'Case studies', 'Introduction video', 'Projection tool', and 'Going further'. On the left, there is a sidebar with 'GLOBAL SEA LEVEL CHANGES' (containing links for 'The Antarctic ice sheet', 'The Greenland ice sheet', 'Mountain glaciers', 'Thermal expansion', and 'Land-water storage') and 'REGIONAL SEA LEVEL'. The main content area is titled 'Mountain glaciers' and includes a quote: "Glaciers contribute to sea level change via an imbalance between mass gain and mass loss processes, which leads to adjustments in the glacier geometry over an extended period of time, called the response time. The response time may range from a few years to a few hundred years." (IPCC, 2021). Below the quote is a video player with a play button and the title 'Vanishing glaciers: a cause of sea-level rise and a threat to water supply' by 'Protect Sealevelrise'. At the bottom, there is a large illustration showing the retreat of glaciers. The illustration is divided into two parts: the top part shows four stages of a glacier retreating, with the text 'GLACIERS ARE LOSING MASS, THEIR FRONTS ARE RETREATING.' above it; the bottom part is a cross-section of the ocean and land, showing 'GREENLAND ICE SHEET', 'THERMAL EXPANSION', 'MOUNTAIN GLACIERS', 'ANTARCTIC ICE SHEET', and 'LAND - WATER STORAGE'.

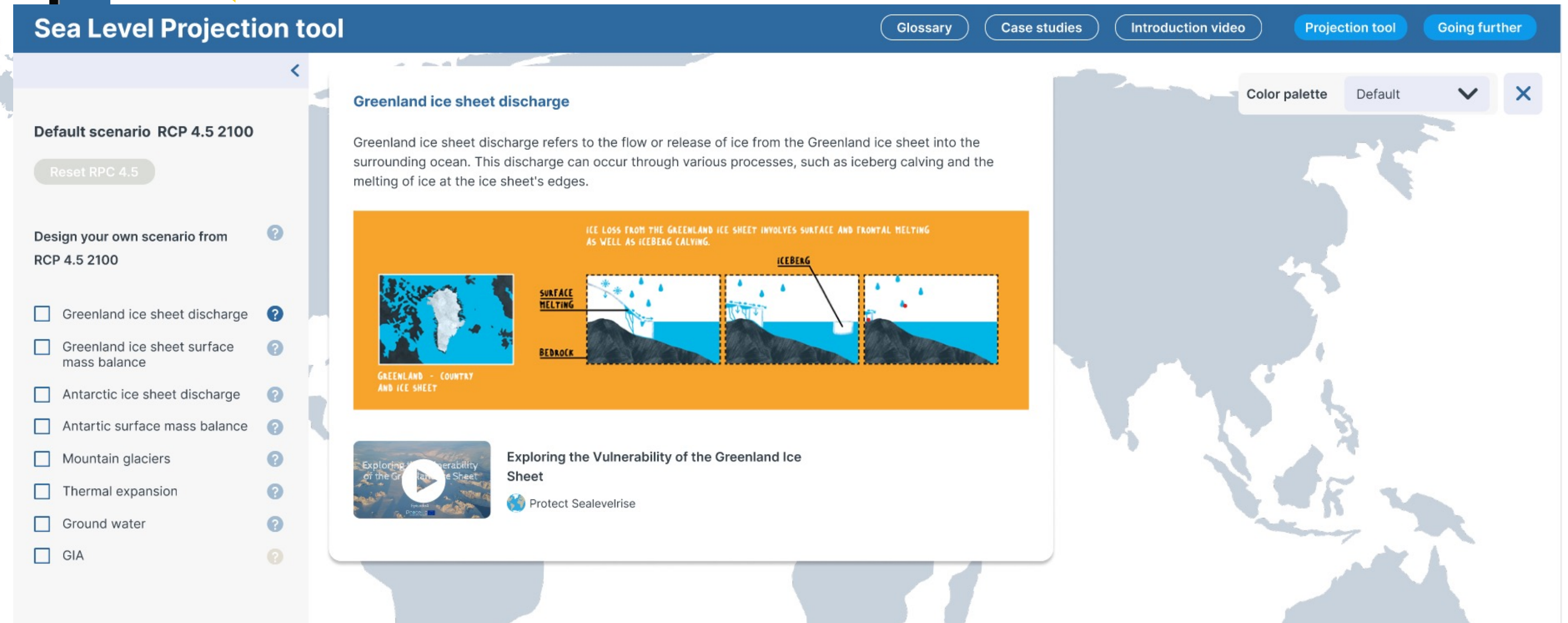
# 3. Conveying science-based information on SLR to the wider public

## The explanations in the “expert” mode



- A default scenario
- The possibility to test each component of the SLR up to 2150

- IPCC definitions
- PROTECT illustrations to help understand
- PROTECT videos to go further



**Thanks for your attention - Stay tuned!**

