ONLINE SESSION

CLIMATE IMPACT ATLASES:

EXPERIENCES AND INSPIRATION FROM THE DUTCH CARIBBEAN

The session will focus on the development and application of Climate Impact Atlases - open-access tools designed to support climate resilience.

It will showcase the use of these atlases in the Dutch Caribbean islands.

WEDNESDAY 8 OCTOBER

10:00 - 11:00 CET

Moderated by

Jim Lilly

IPDC Country Coordinator Bangladesh

Disaster and Flood Risk Specialist, Deltares

Practicalities

- Post your questions in the chat!
- Please turn your microphone off during presentations

Today's program

Opening and Introduction	*Jim Lilly* *Sonja Pans*
Climate Impact Atlases in the Dutch Caribbean *Subtitle*	*Kim van Nieuwaal* *Amber van de Kerkhof*
Application of Climate Impact Atlases *Subtitle*	*Sjon van Dijk*
Interactive Discussion	*All*
Reflection and Closing	*Jim Lilly*

Opening words by the IPDC

Sonja Pans

IPDC Secretariat
Senior advisor, Deltares

Climate Impact Atlases in the Dutch Caribbean

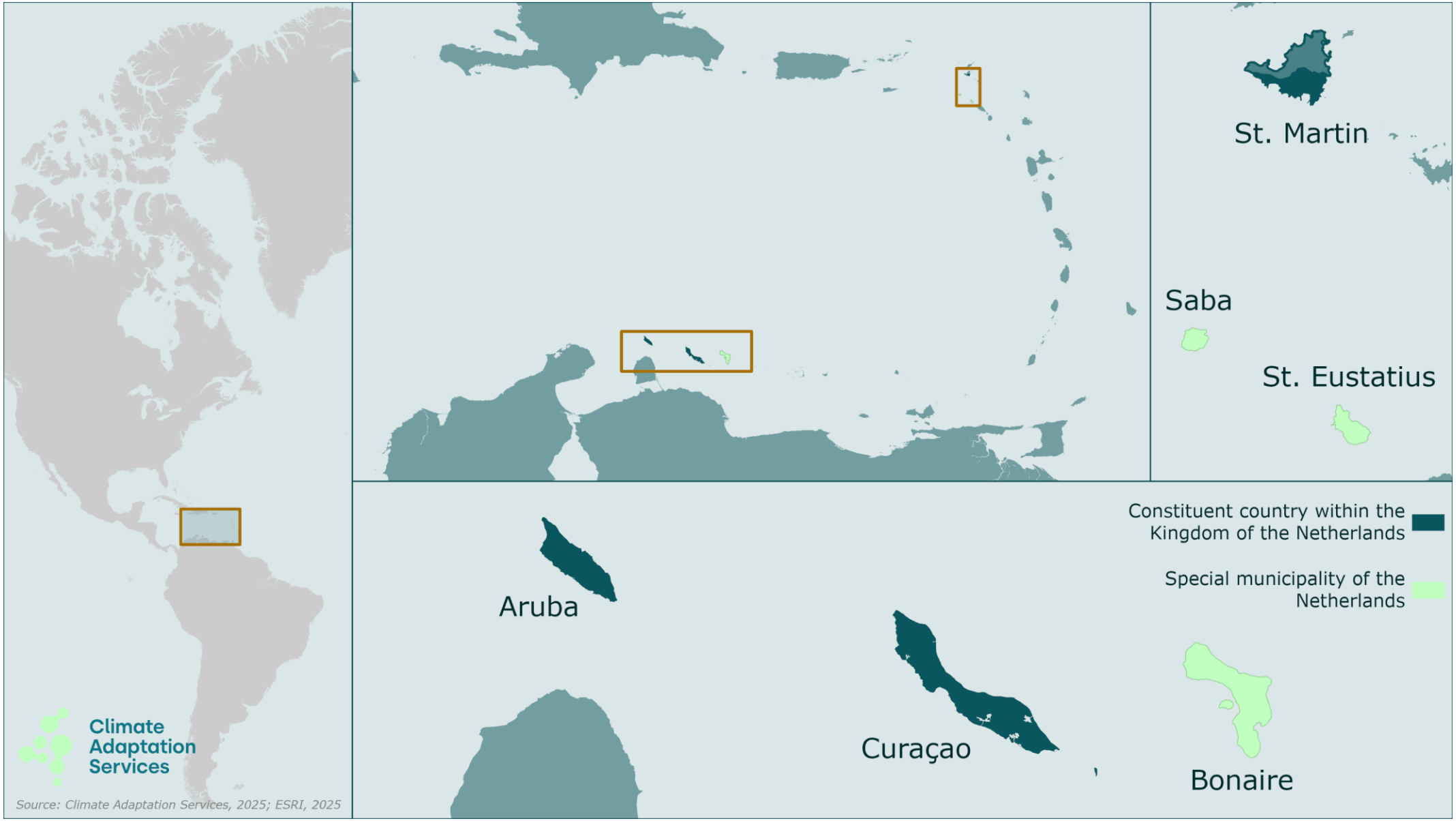
Kim van Nieuwaal

IPDC Management Team

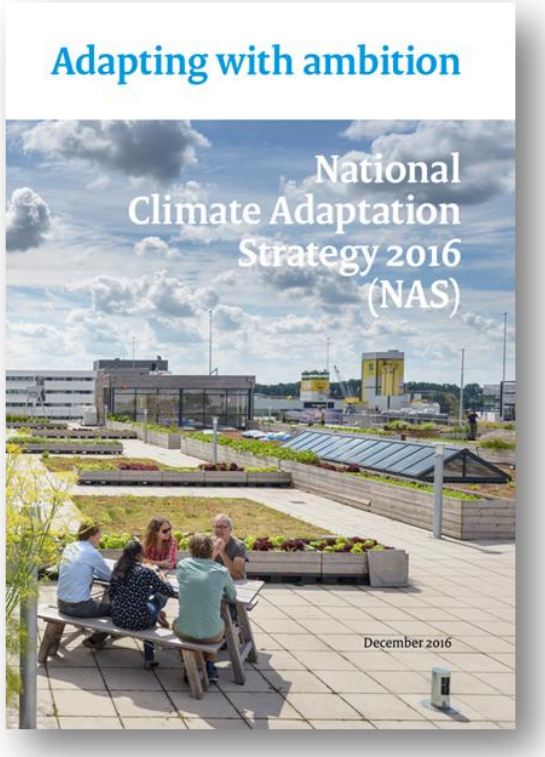
Climate Adaptation Services **(CAS)**

Amber van de Kerkhof

Climate Adaptation Services **(CAS)**


St. Martin
Saba
St. Eustatius
Aruba
Curaçao
Bonaire
Constituent country within the Kingdom of the Netherlands
Special municipality of the Netherlands
Climate Adaptation Services
Source: Climate Adaptation Services, 2025; ESRI, 2025

Dutch Caribbean islands mentioned in NAS-NL-2016 and in forthcoming NAS-NL-2025



The Caribbean Netherlands

A separate plan

Climate-related issues in the Caribbean Netherlands are significantly different to those in Europe and demand a separate plan. During the first half of 2017, the Ministry of Infrastructure and the Environment will hold talks with the 'special municipalities' of Bonaire, Sint Eustatius and Saba, and will offer assistance in producing a climate adaptation strategy. Should they so wish, the autonomous islands of Aruba, Curaçao and Sint Maarten can avail themselves of the same opportunity, subject to the approval of Interparliamentary Council of the Kingdom.

IPDC DUTCH CARIBBEAN TIMELINE UP TO NOW

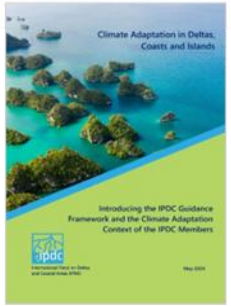
December, 2022
Regional Conference
Curaçao

March, 2024
Working Conference
Rotterdam

August, 2024
IPDC Dutch
Caribbean Scoping

March, 2023
IPDC Launch
New York

May, 2024
IPDC Report with input from
Dutch Caribbean



Co-designed projects that strengthen island adaptation plans

Analysis

Ambition

Action

Curaçao

Aruba

St. Martin

Bonaire

St. Eustatius

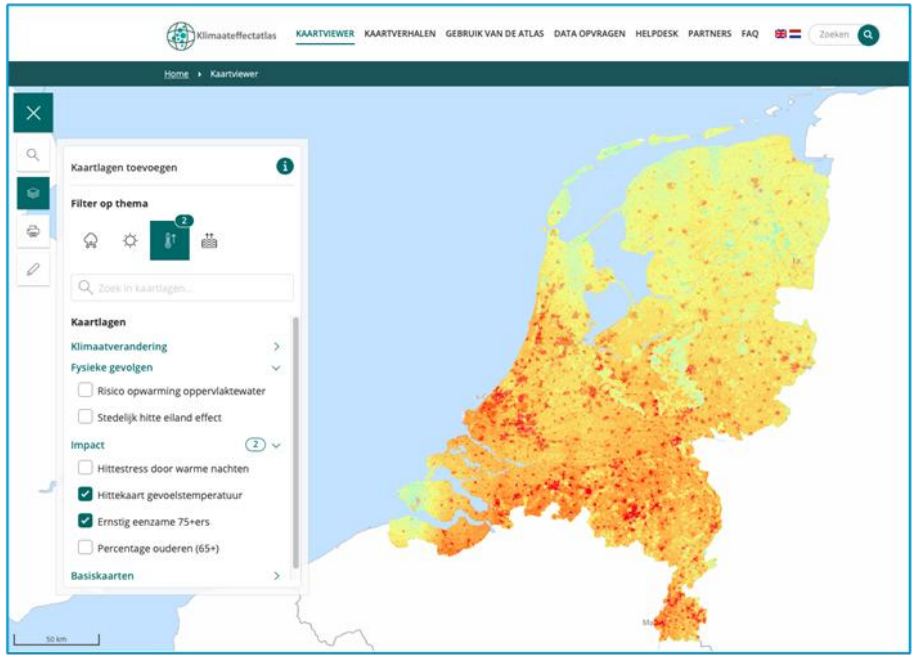
Saba

Climate Impact Atlases

Island (Adaptation) Plans

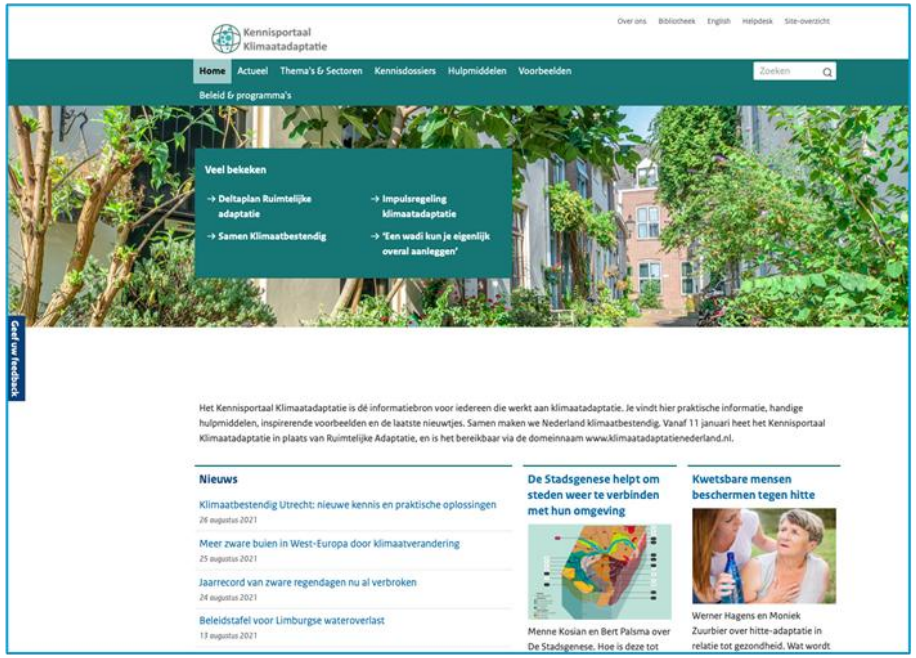
Model of the Netherlands – coordinated by CAS - as source of inspiration for Dutch Caribbean

Climate Impact Atlas



klimaateffectatlas.nl/en/
~ 500 visitors / day

Knowledge Portal

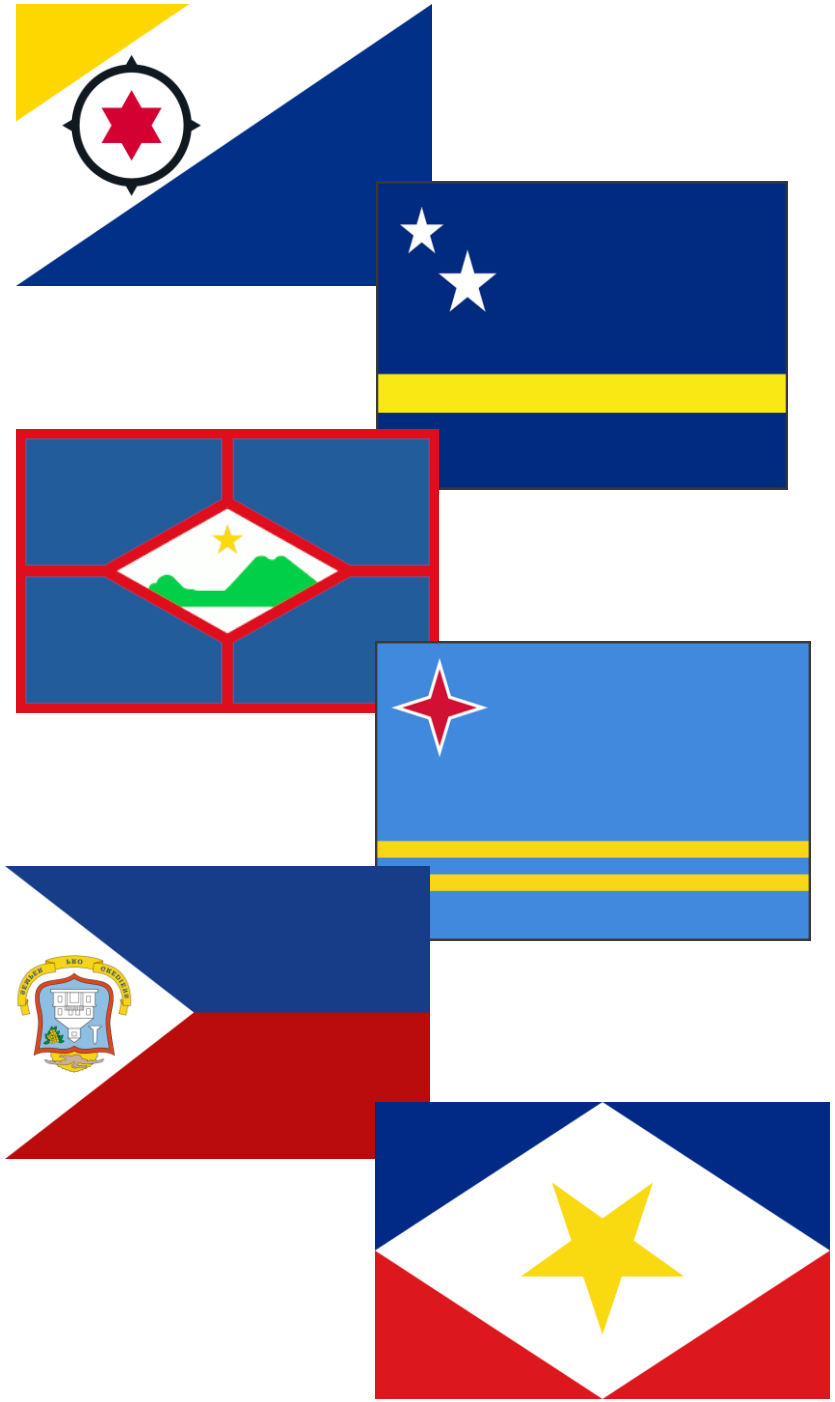


climateadaptationplatform.nl
~ 1500 visitors / day

With local partners, NGOs, knowledge institutes, businesses & government

A real joint effort!

Let's take a closer look at the Climate Impact Atlases

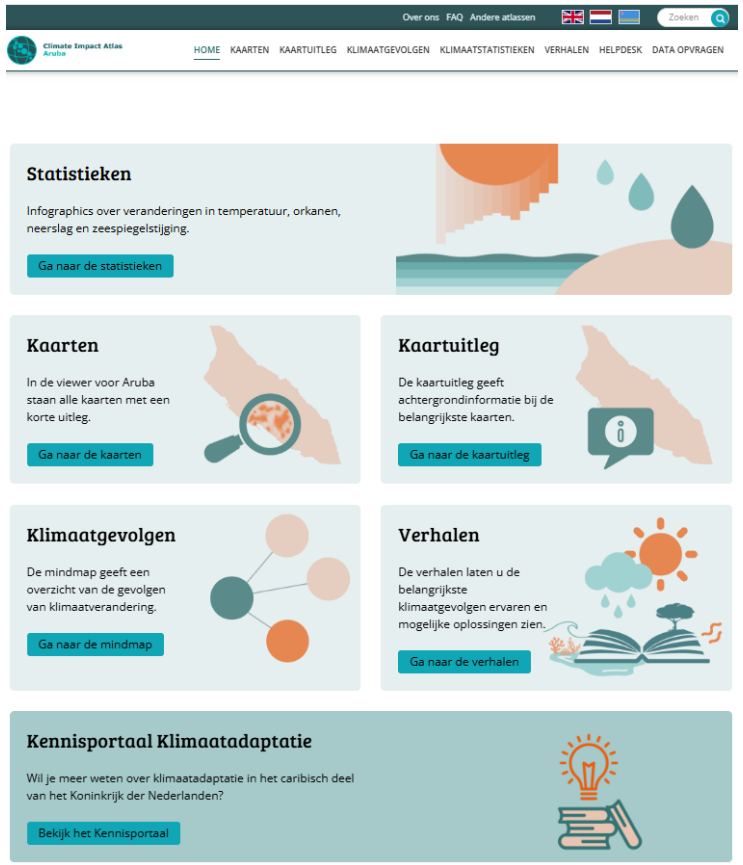


Why develop a Climate Impact Atlas?

- We need local data to act: National plans need tailored, local-level (down-scaled) climate data to make evidence-based decisions.
  - Aim: work together with local parties, to incorporate local expertise & tailor to each island's context and needs.
- The Climate Impact Atlas is an action tool: A digital, open-access website & map showing risk hotspots, vulnerabilities, and climate trends, helping decision-makers, businesses and communities to plan smarter.

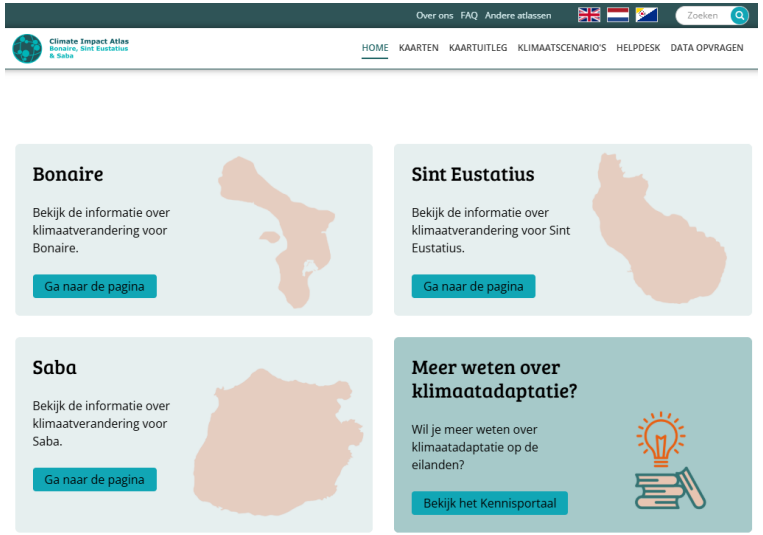
The Climate Impact Atlases of the Dutch Caribbean

Curaçao



Aruba

BES islands



St Martin

Coming soon!
Launch 2025

Visit the atlases
at: https://www.klimaateffectatlas.nl/en/caribbean-atlases

The 6 components of the atlases

Map explanations

The map explanations provide background information on the most important maps.

Go to the map explanations

Climate statistics

Information on changes in temperature, rainfall, wind speed and sea level rise.

Go to statistics

Climate impacts

The mind map gives an overview of the impacts of climate change.

Go to the mind map

Stories

The stories illustrate how climate changes are affecting the people on St. Martin and what we can do about it.

Go to the stories

Maps

The map viewer for Aruba contains all the maps with a brief explanation.

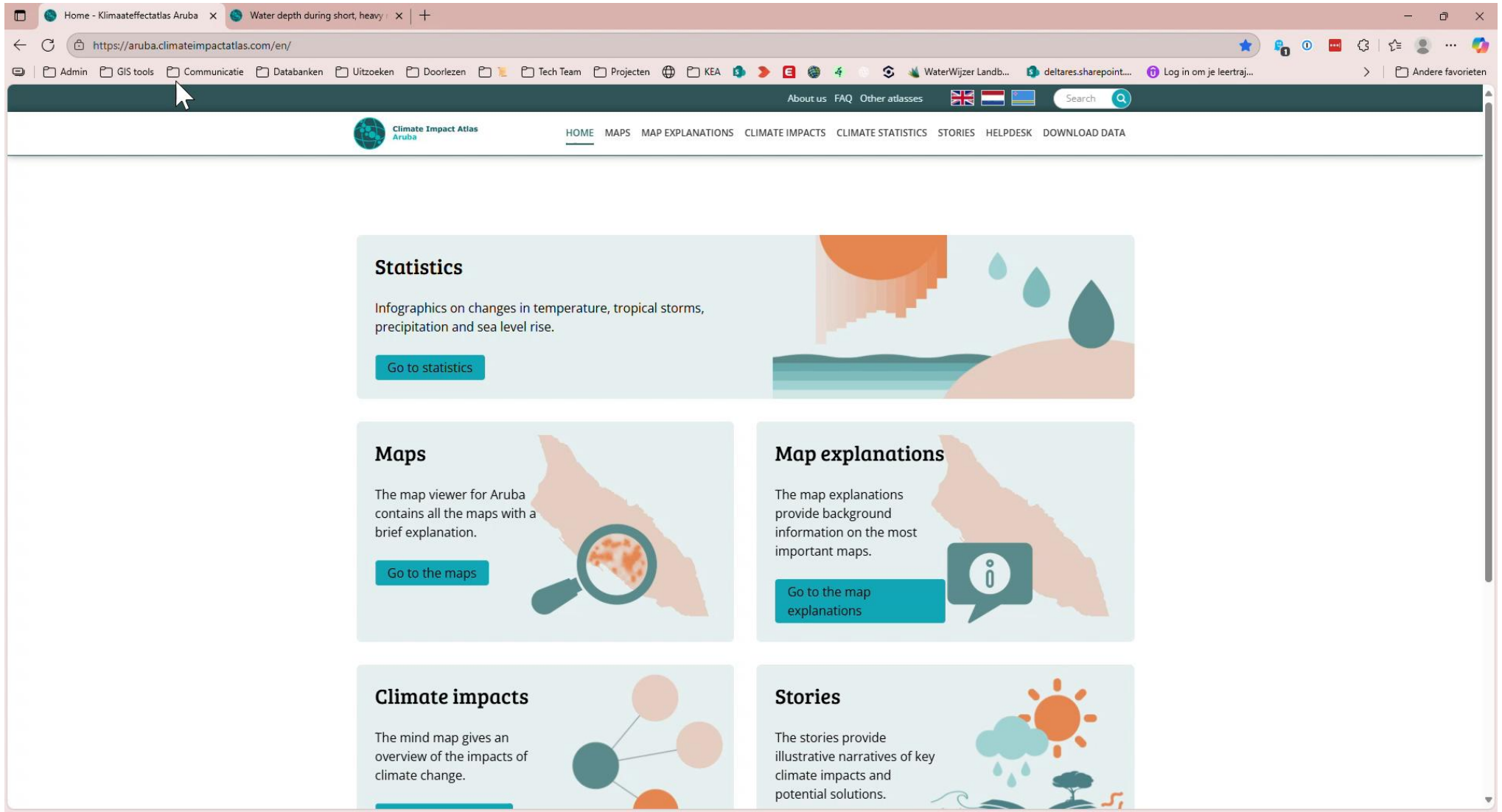
Go to the maps

Knowledge Portal

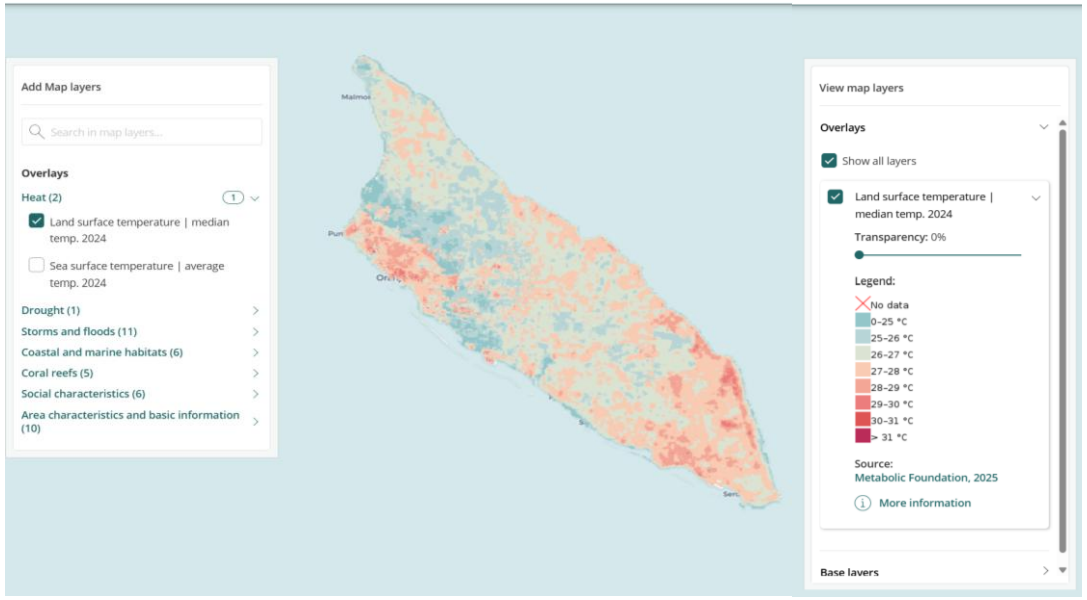
Do you want to know more about climate adaptation in the Caribbean part of the Kingdom of the Netherlands?

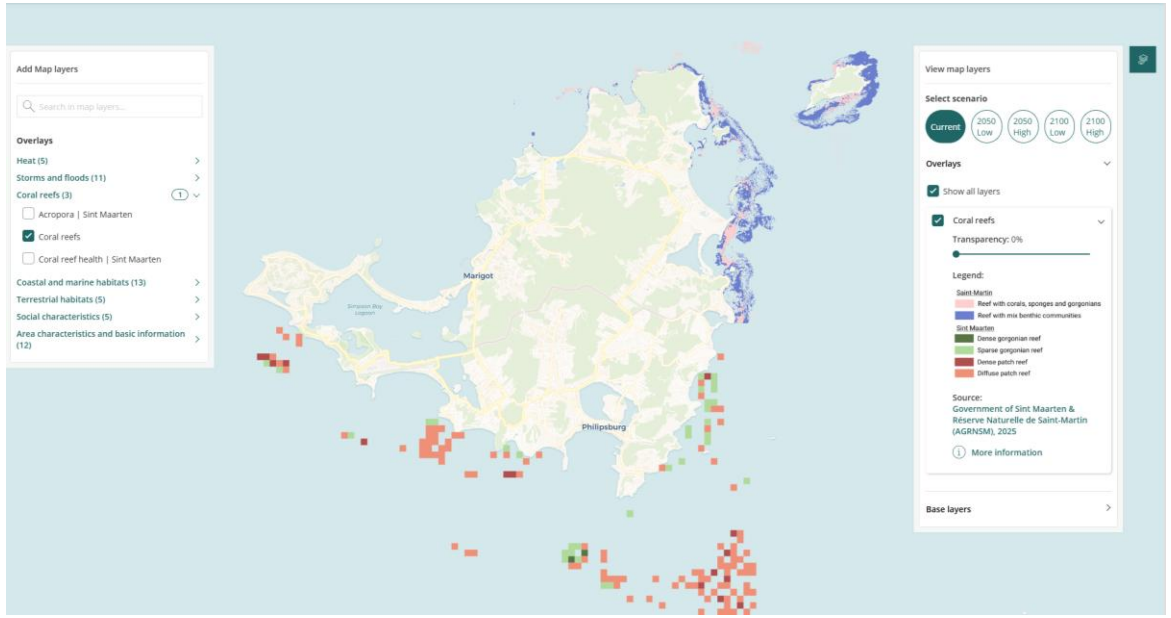
View the Knowledge Portal

A demo of a Climate Impact Atlas



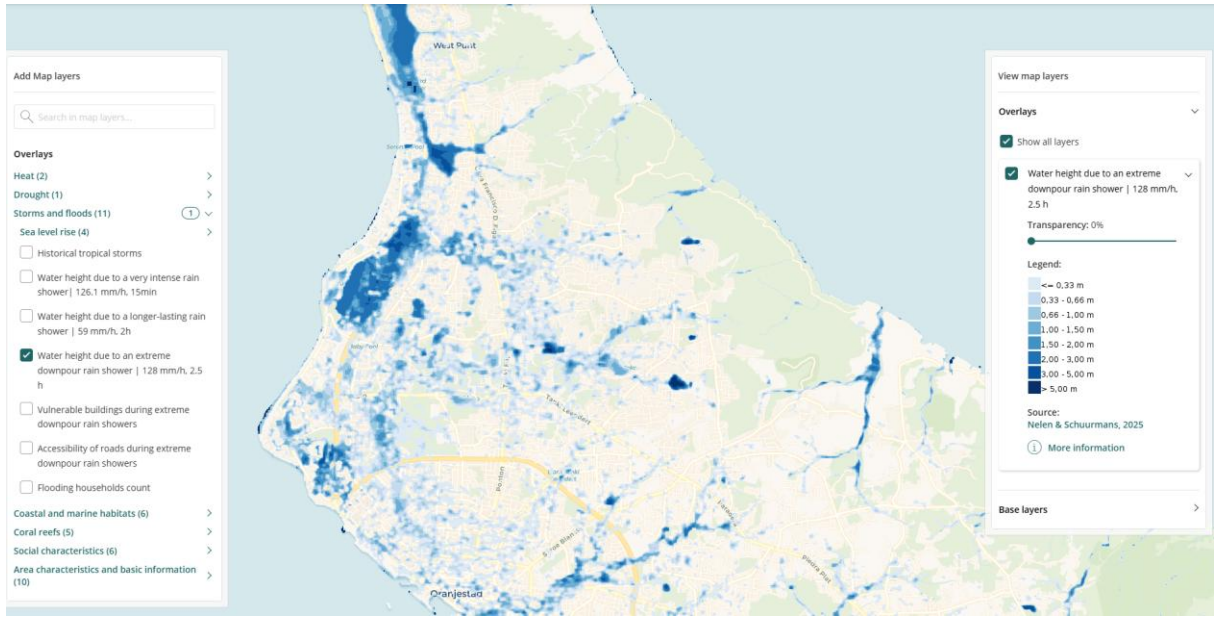
1. The map viewer: Maps presenting the existing knowledge base

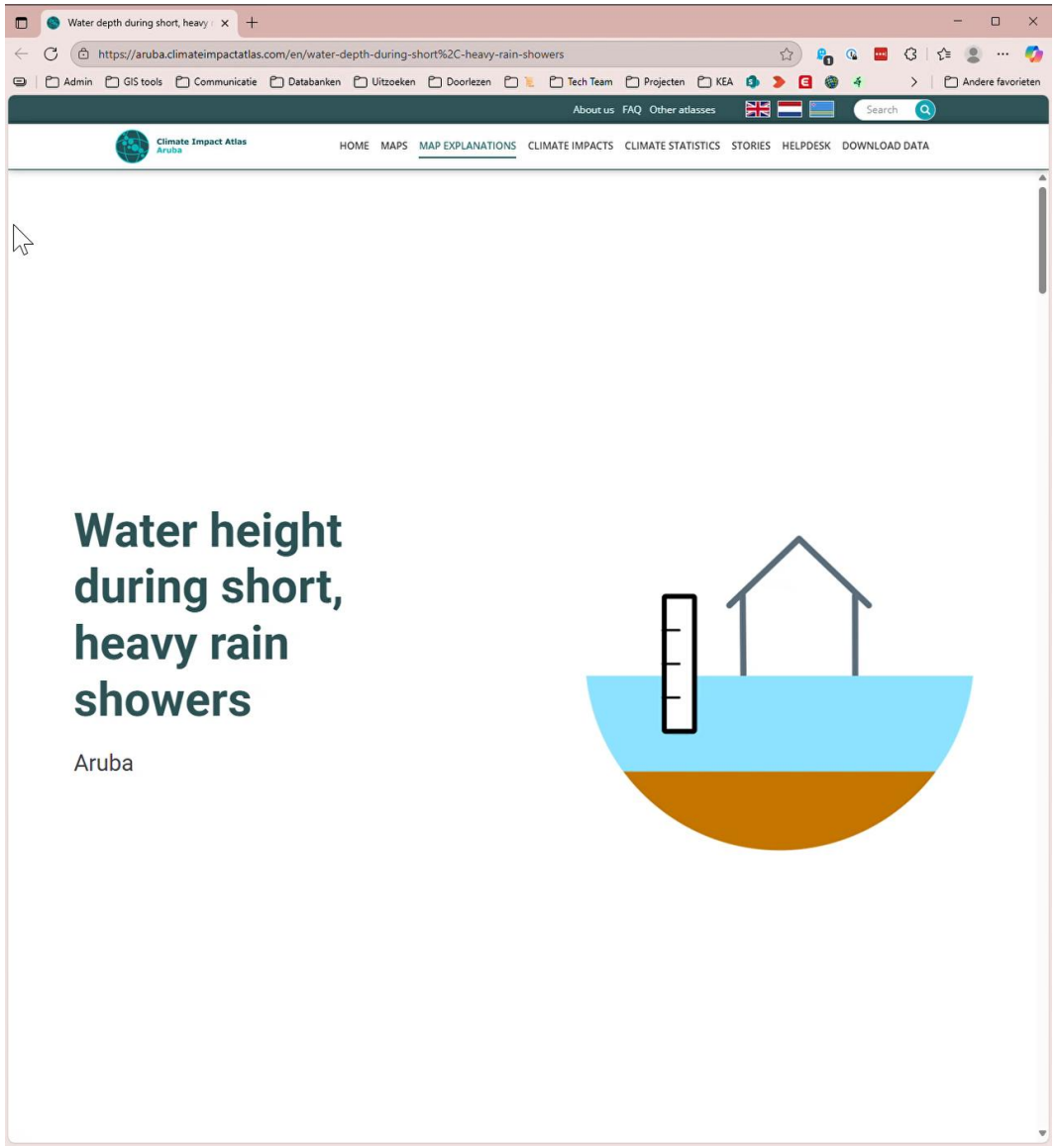




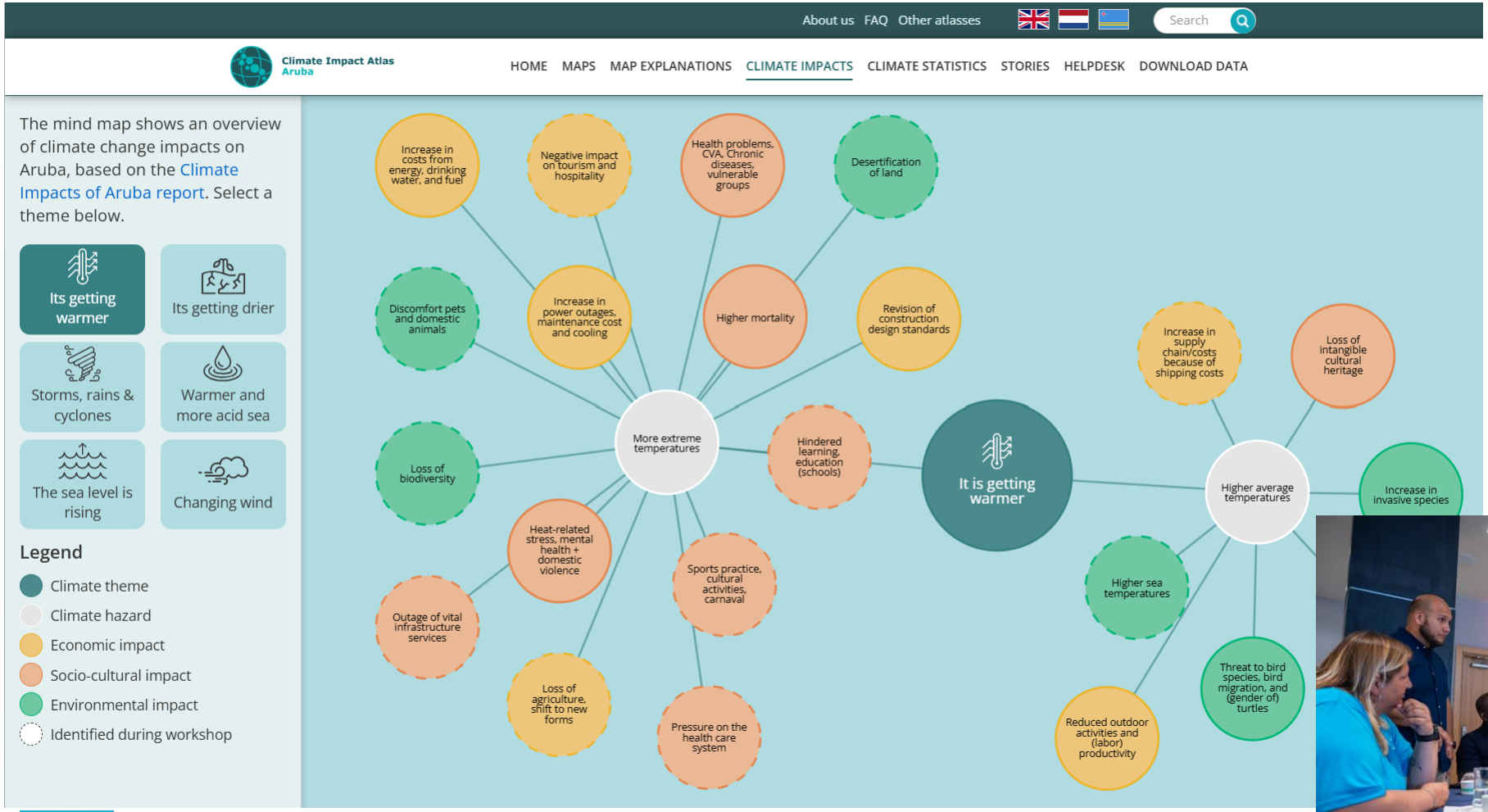
2. Map Explanations give context and tools for adaptation

- A map explanation provides context and background information to a map on the map viewer.
- The map explanation gives insight into how a map can be interpreted and used.
- Guideline to possible measures and solutions.





3. Mindmaps including local knowledge



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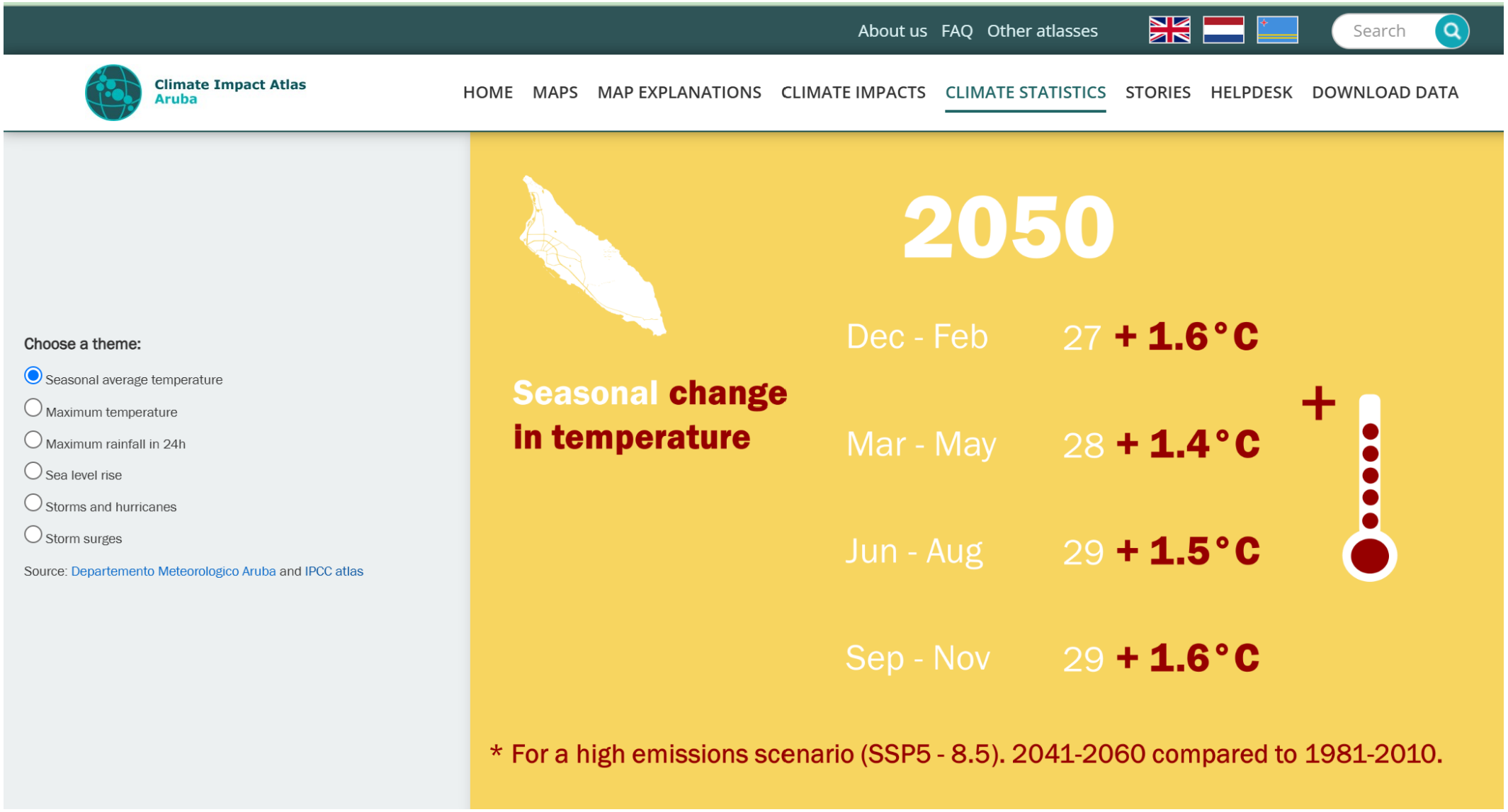
Climate Adaptation Services

4. Climate statistics show future climate trends



5. Stories making climate change tangible, written by local authors

Curaçao

TSEAN AND THE RISING SEAWATER

Tsean and his best friend Luka notice that part of the sandy shore has disappeared and the waves are coming farther than before. They go to Mr. Terry to ask what is going on.

Go to the story ›

LISA AND THE EXTREME HEAT

On a scorching hot day, lottery saleswoman Lisa faints. Fortunately, Ella is there to help her. They talk about the increasing heat in Curaçao. What can you do to protect yourself?

Go to the story ›

THE DRY DAYS OF FARMER OMAR

Due to the drought, Farmer Omar is finding it increasingly difficult to grow his crops properly. His peanut and corn yields are lower than ever. Wildfires are also more frequent.

Go to the story ›

JAY AND THE WARM SEA

Diving instructor Jay tells his group of students that the coral is fading and there are fewer and fewer fish than usual swimming around. Fisherman Buchi notices it too, he has to go further and further out to sea to catch enough.

Go to the story ›

CHRISSY AND THE WIND OF CHANGE

With climate change, the wind changes direction more often. It also blows harder more often. Chrissy and her father Terry notice it when they want to surf in the Sint Jorisbaai. Then it starts to rain...

Go to the story ›

THE STORM

A sunny day suddenly turns into a day of panic. Everyone is bracing for a big storm. But if the residents are well prepared and help each other, they can meet any challenge.

Go to the story ›

Aruba

THE REEF RESET

In a quest to heal Aruba's ocean, Michelle restores reefs and plants mangroves. But as the tide rises, her uncle helps her see that saving paradise takes more than points and perfect timing.

Go to the story ›

THE TURN OF THE TRADEWIND

Eager to train with windsurfing legend Sarah-Quita Offringa, Jonathan wakes to a strange Aruba where winds shift wildly and the ocean is covered in thick, brown seaweed. A surreal lesson on the water leaves him wondering if it's just a dream... or a glimpse of the future.

Go to the story ›

THE SILENCE AFTER THE STORM

After her home floods during an extreme rainstorm, Kimberly presents a 'what if' tale imagining Aruba's future under climate change. But as her classmates listen, they begin to realize her story isn't so fictional after all.

Go to the story ›

THE LAST SCAN

On a futuristic mission, Captain Figaroa explores a scorched, uninhabitable Aruba, where invasive species spread unchecked, beaches lie empty, and towns crumble in the heat. When the film ends, two teens leave the theater wondering: how close are we to this reality?

Go to the story ›

ipdc ipdc Climate Adaptation Services

6. The Knowledge Portal gives insights in adaptation measures and information

- The Caribbean part of the Kingdom of the Netherlands - Climate Adaptation Platform Netherlands

Lessons and conclusion

- The climate impact atlases provide the Dutch Caribbean islands with available data to support **informed decision-making.**
  - Close the gap between what is needed and what is produced may be facilitated with iterative development of the atlas.

- Tailoring to the Caribbean context is possible thanks to the shared effort of local and regional expertise, which is prioritized in the development of the atlases.
  - Capacity is a main challenge; regional knowledge sharing may help parties combine and profit from each other's effort and help capacity building.
- Mind maps of climate impacts are incorporated to include local knowledge.
- The included climate stories make the atlas a **climate awareness** tool, making climate impacts more tangible for the general public.

Visit the atlases at: https://www.klimaateffectatlas.nl/en/caribbean-atlases

Application of Climate Impact Atlases

Sjon van Dijk

Nelen & Schuurmans

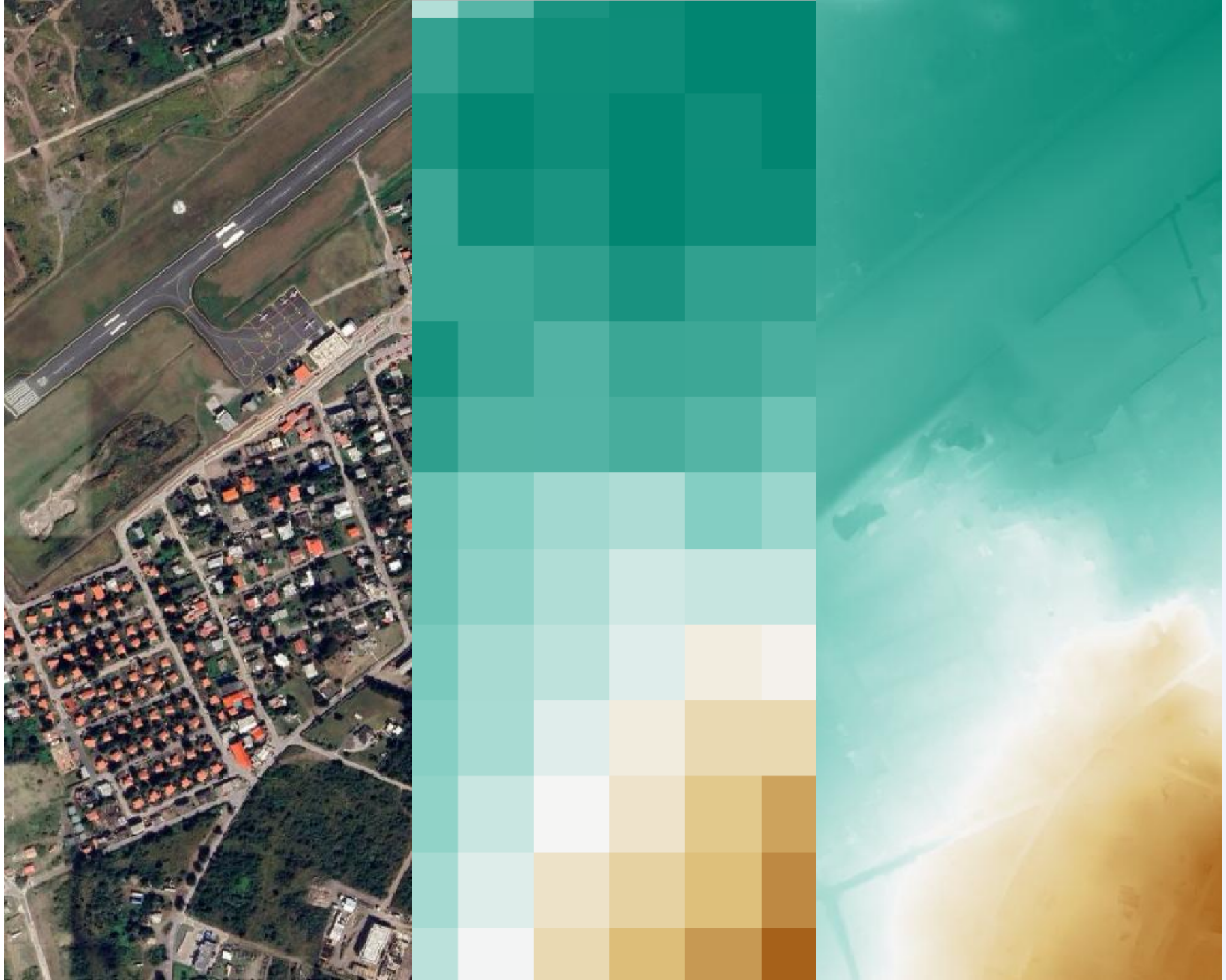
Flood Modeller

Application of Climate Atlases – the Flood map Case

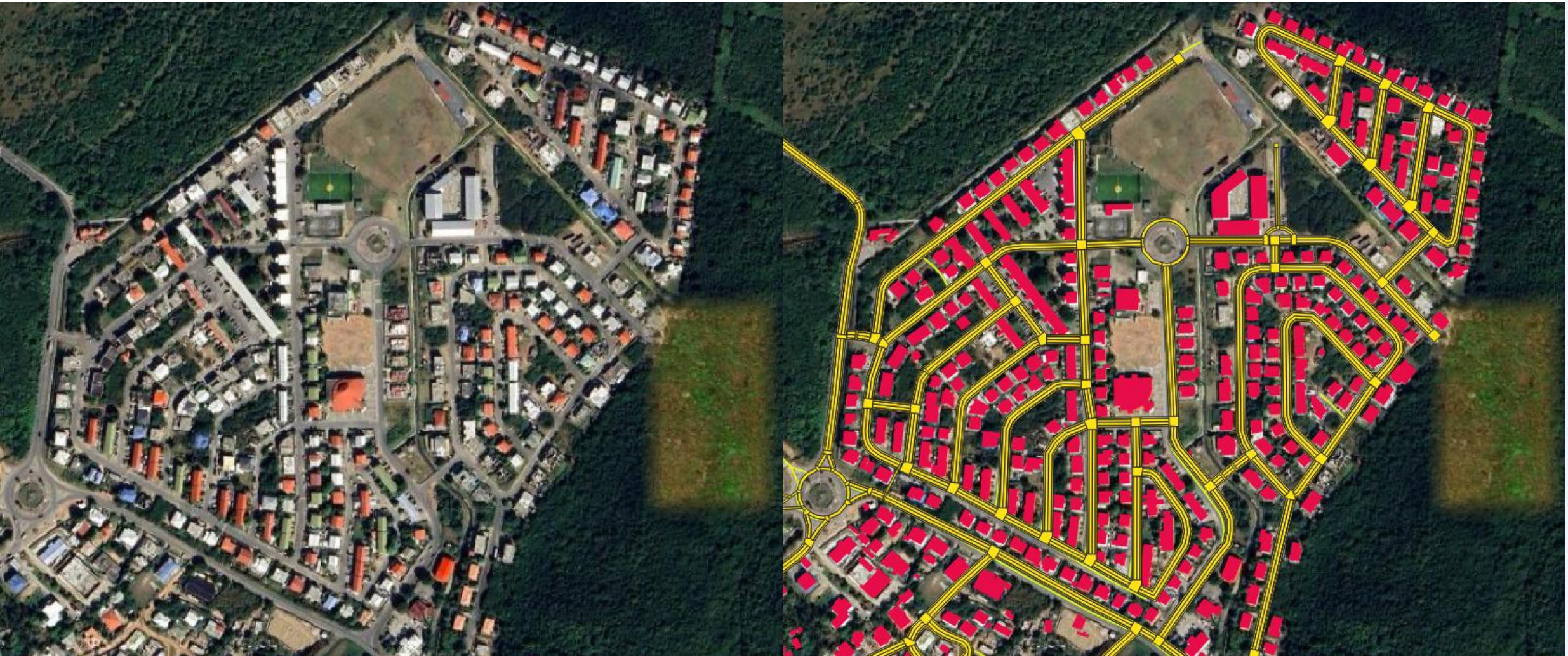
Approach

- We gather flood modelling inputs.
- Our priority is local data, stories and knowledge.
- We fill the gaps with open data.

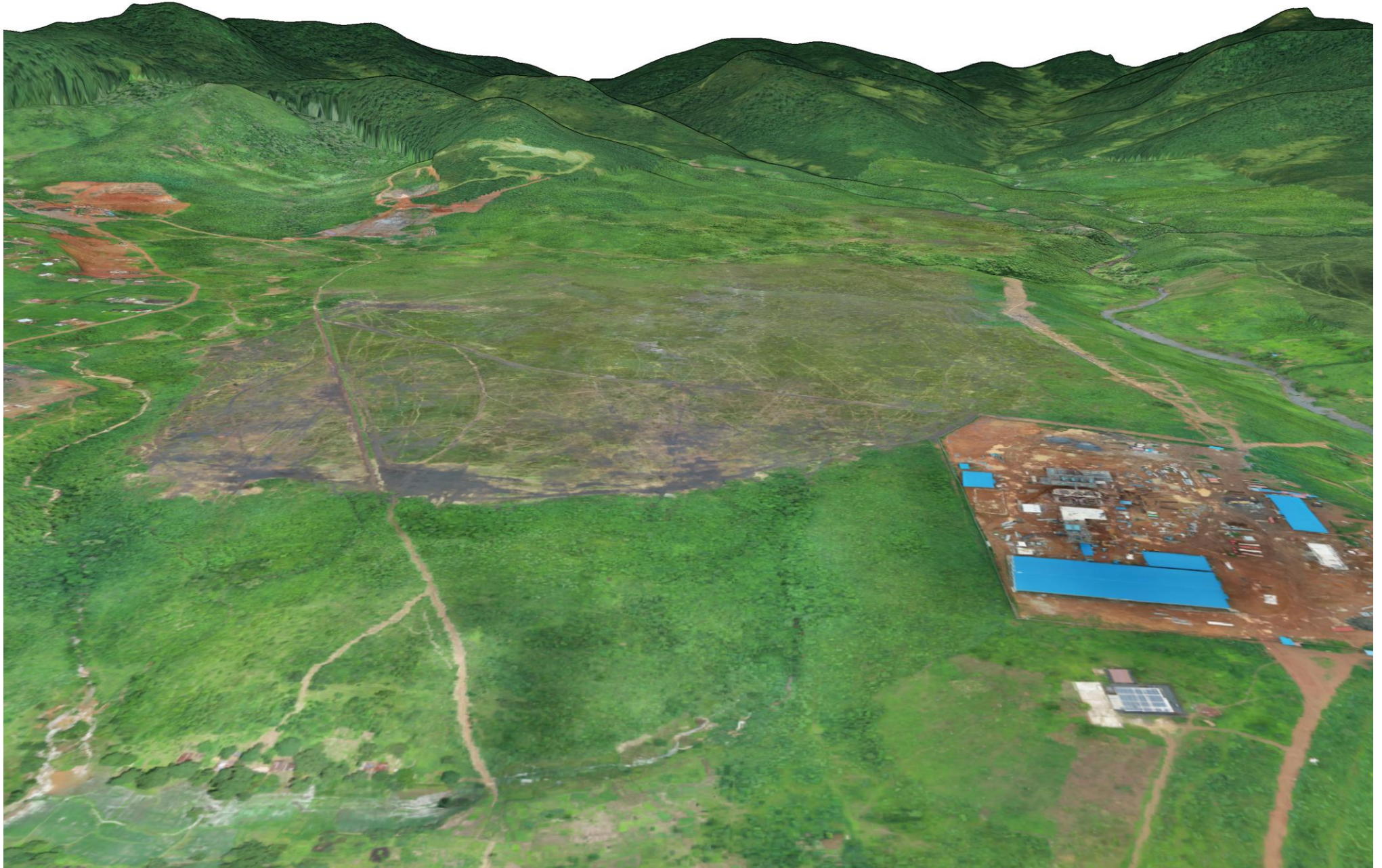
Better inputs lead to improved flood modelling



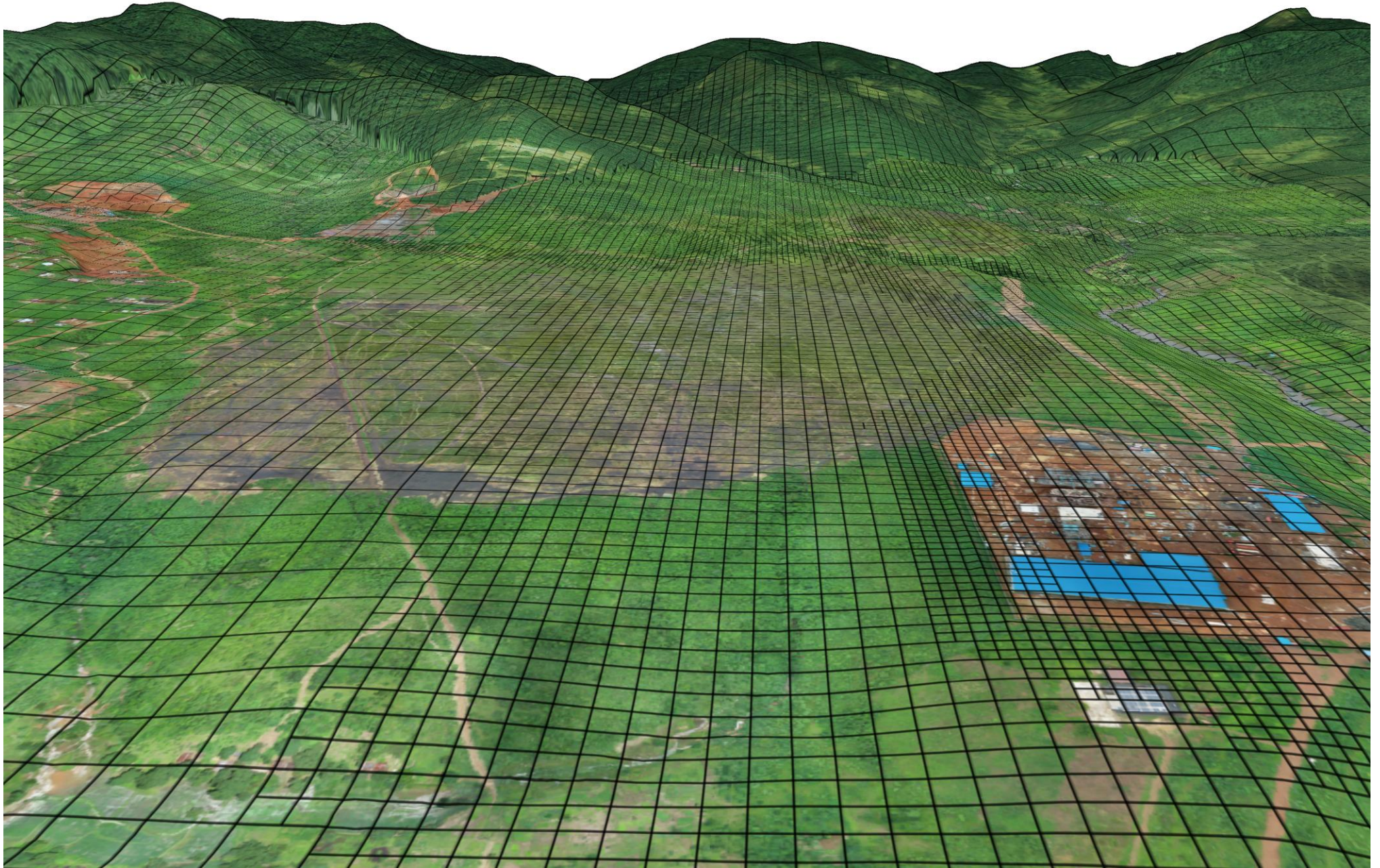
If no local data is available, open data is used.



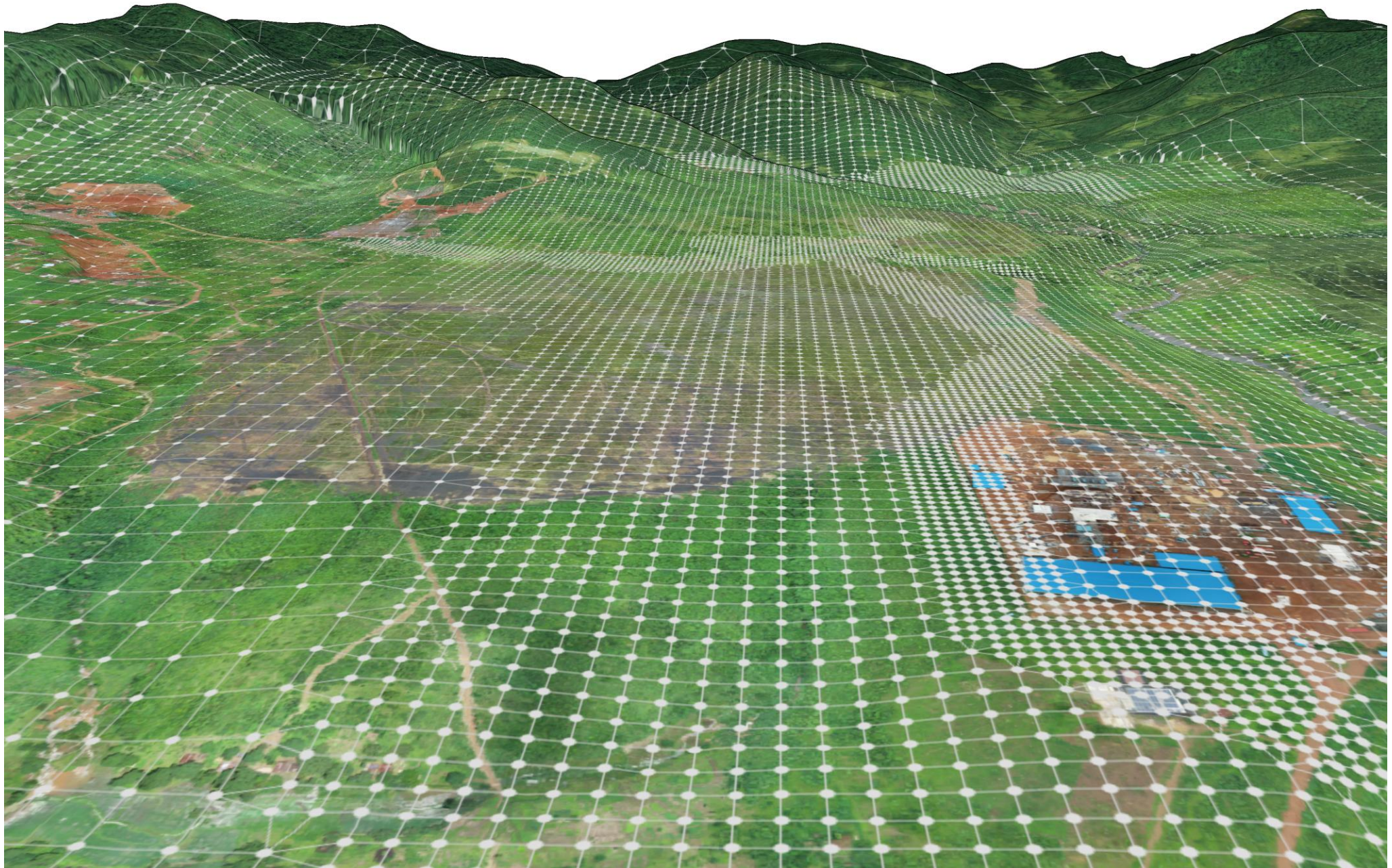
Digital Elevation Model



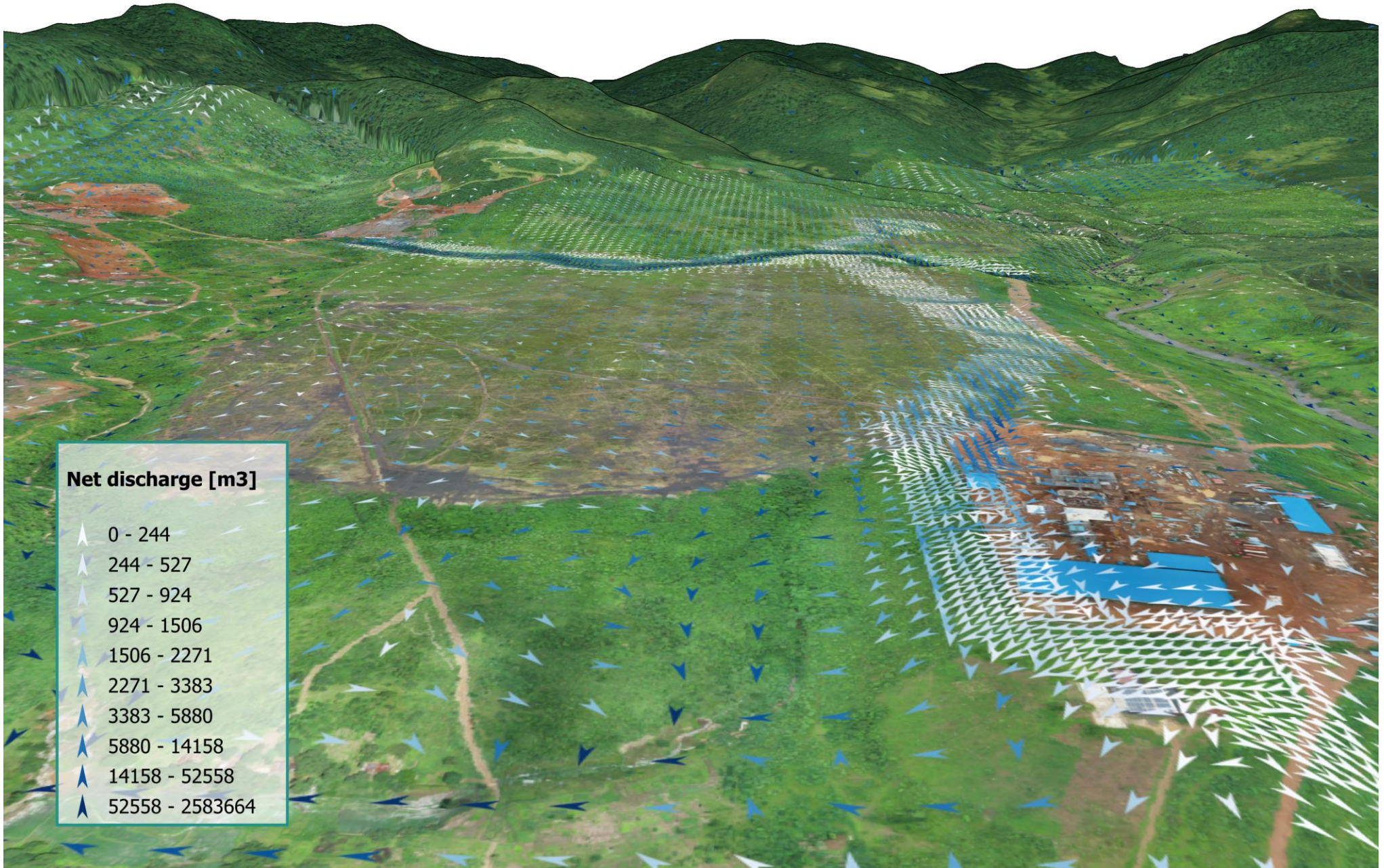
Computational Grid



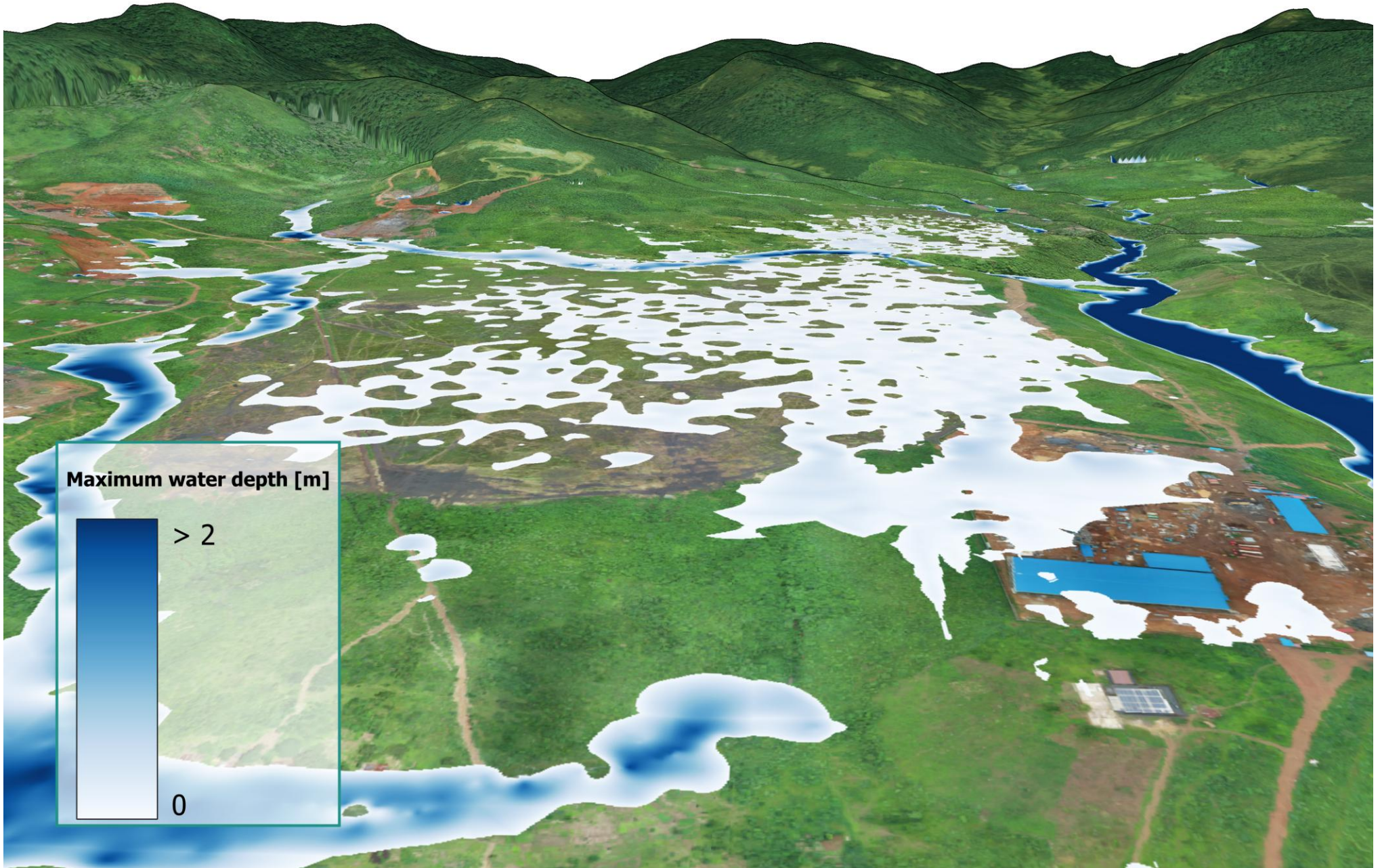
Model Flowlines

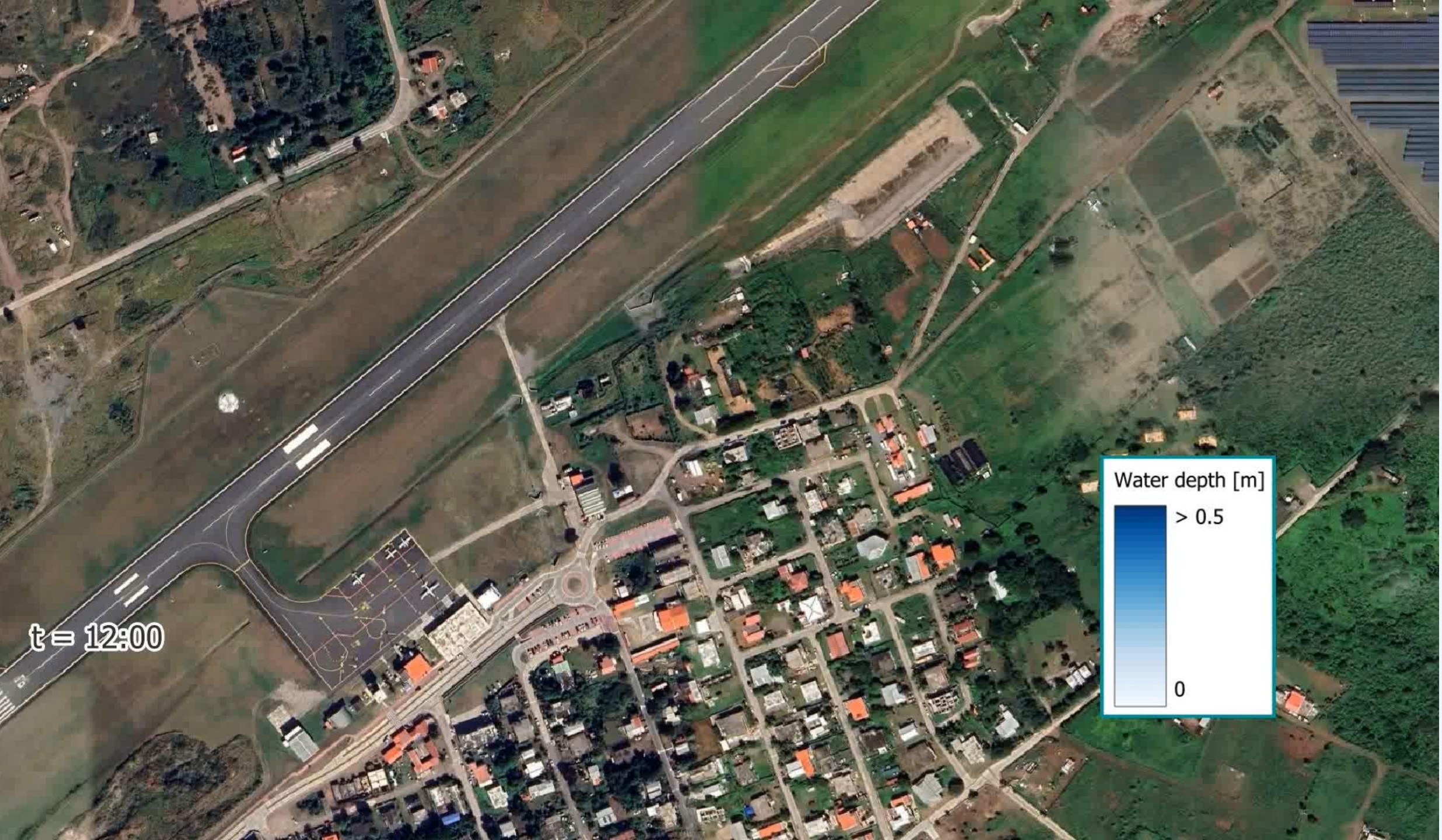


Flow Pattern from Rain Event



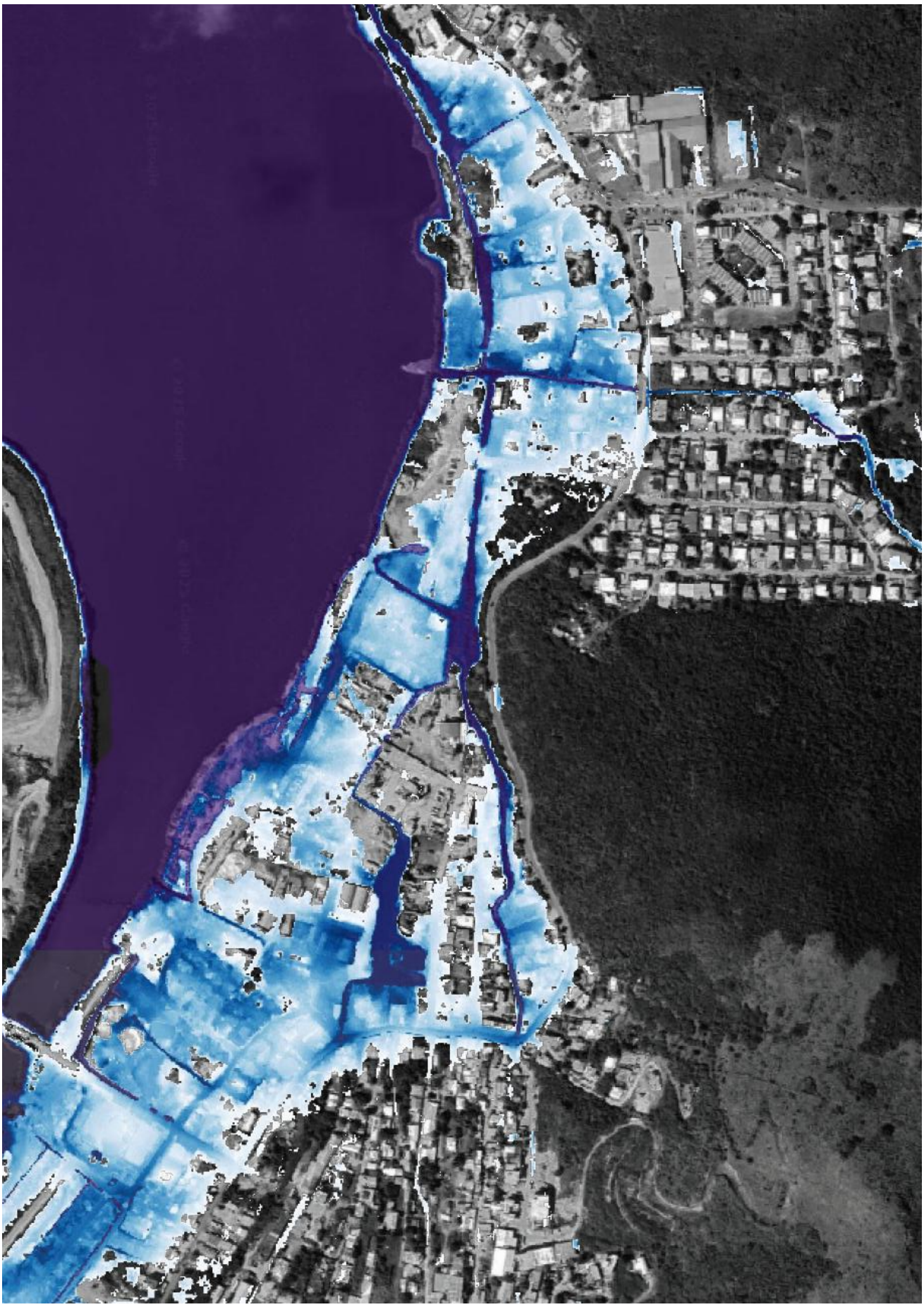
Maximum Water Depth from Rain Event




Water depth [m]
> 0.5
0
t = 12:00

Results

- We made flood maps for Aruba, Bonaire, Curacao, Saba, Statia and St. Martin.
- Bonaire, Statia and Saba have just gotten high-end new digital elevation models. Allowing for the very first high-resolution models for these islands.
- In validation session we discussed the results and looked for nuances on our findings.




Kaya Sofaya
Kaya Magdalena
Kaya Oleander
Kaya Asmit
Kaya Encarnacion B. Sint Jago
Kaya Kayena
Kaya Flamboyan
Blv Miguel A Pourier
Kaya Lelie
Kaya Rosa
Kaya Raymonda (Maritsa) Juan Pedro
Kaya Para Mira
Kaya Komkomber
Kaya Rincon
Kaya Apelsina
Kaya Pampuna

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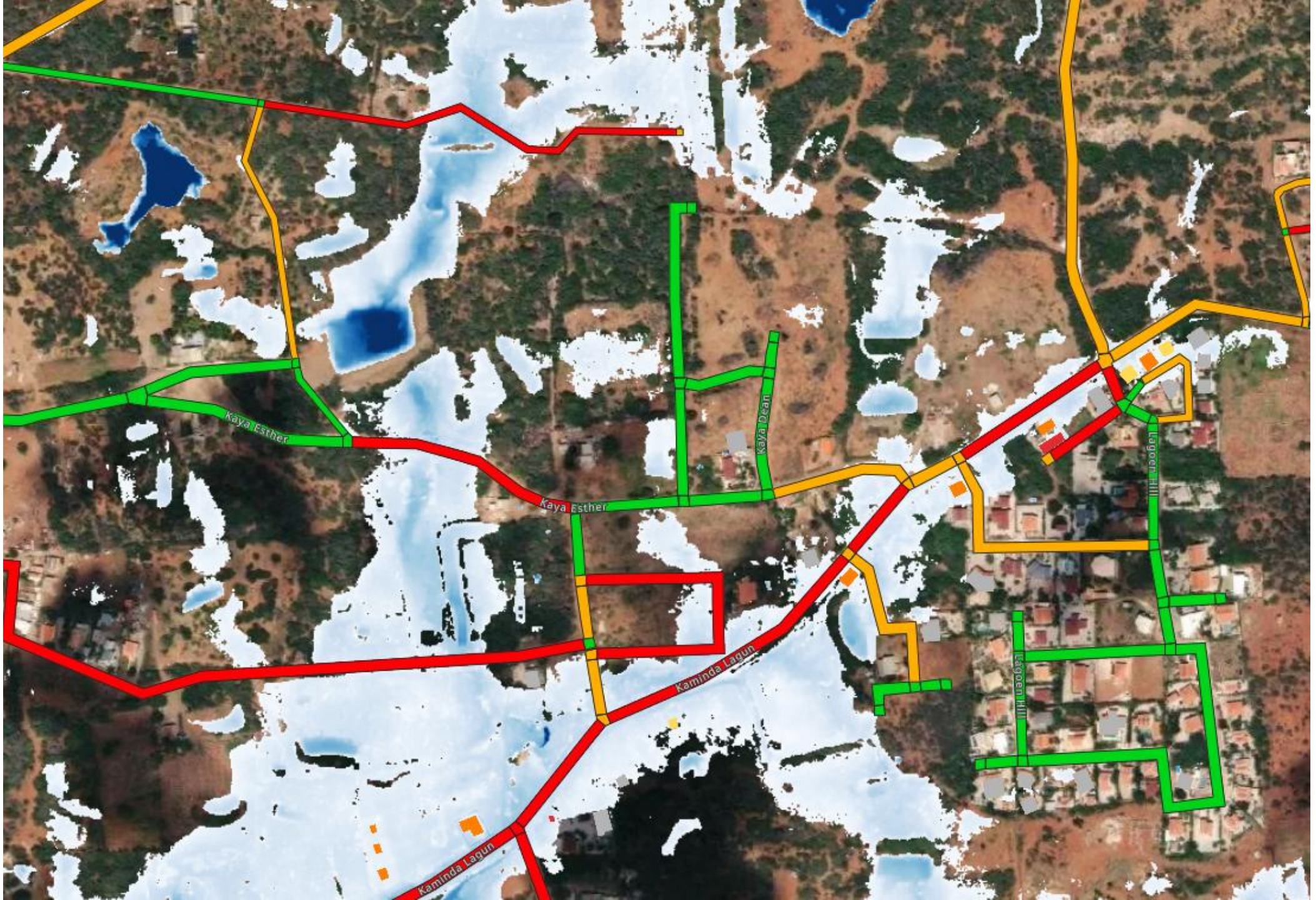
Kaya Esther
Kaya Esther
Kaya Dean
Kaminda Lagun
Kaminda Lagun
Lagoon Hill
Lagoon Hill

How to use this in the future?

- All the islands now have a detailed map of roads and buildings vulnerable to flash floods.
- The atlases also give an indication on what areas are prone to flooding.
- One thing might be to embed this flood information into spatial planning and maintenance plans.
- Another thing is to go from static maps, to dynamic flood maps. To directly see the impact of proposed plans, or heavy rain events.

Interactive Discussion

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