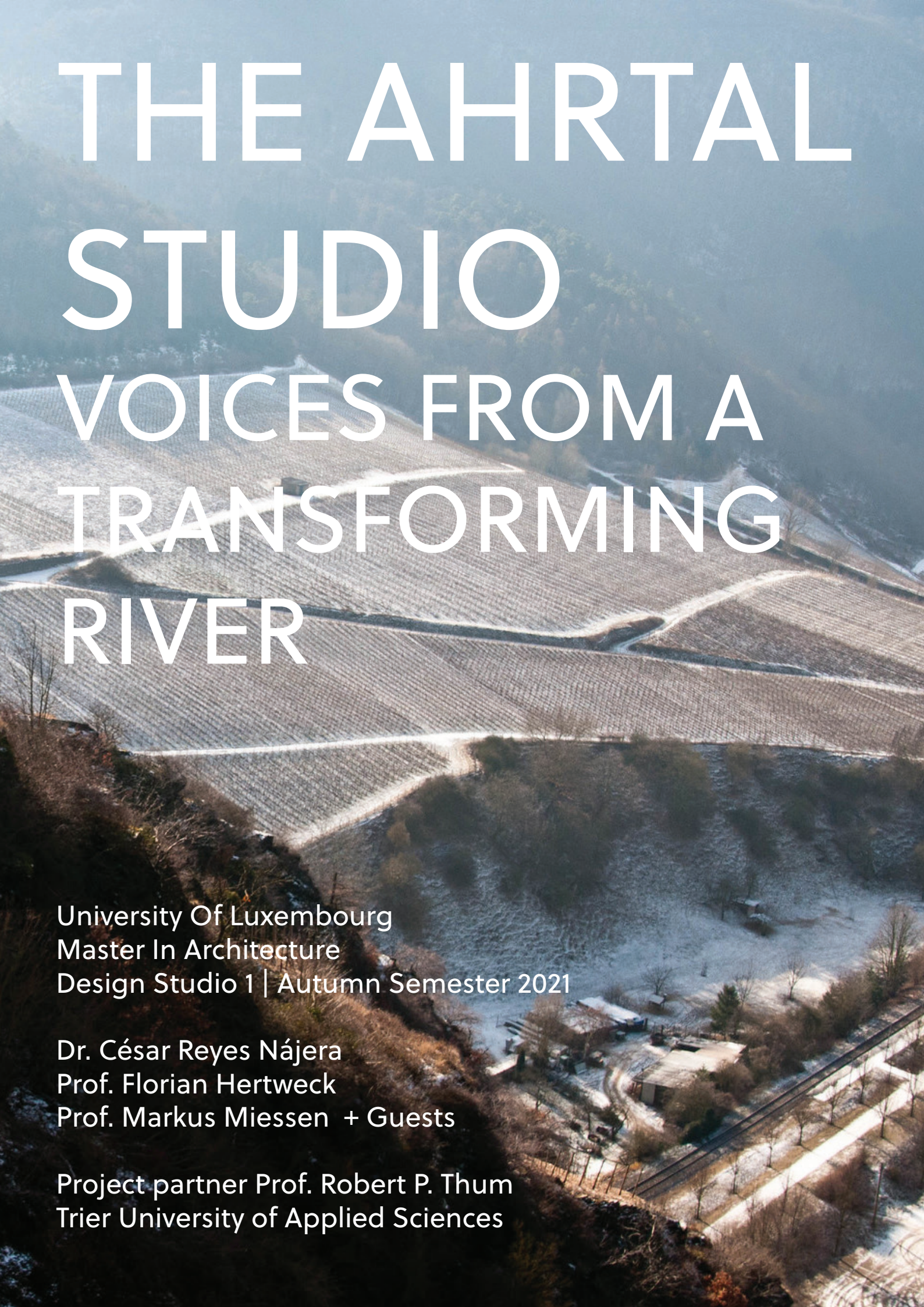
THE AHRTAL STUDIO

VOICES FROM A TRANSFORMING RIVER



University Of Luxembourg
Master In Architecture
Design Studio 1 | Autumn Semester 2021

Dr. César Reyes Nájera
Prof. Florian Hertweck
Prof. Markus Miessen + Guests

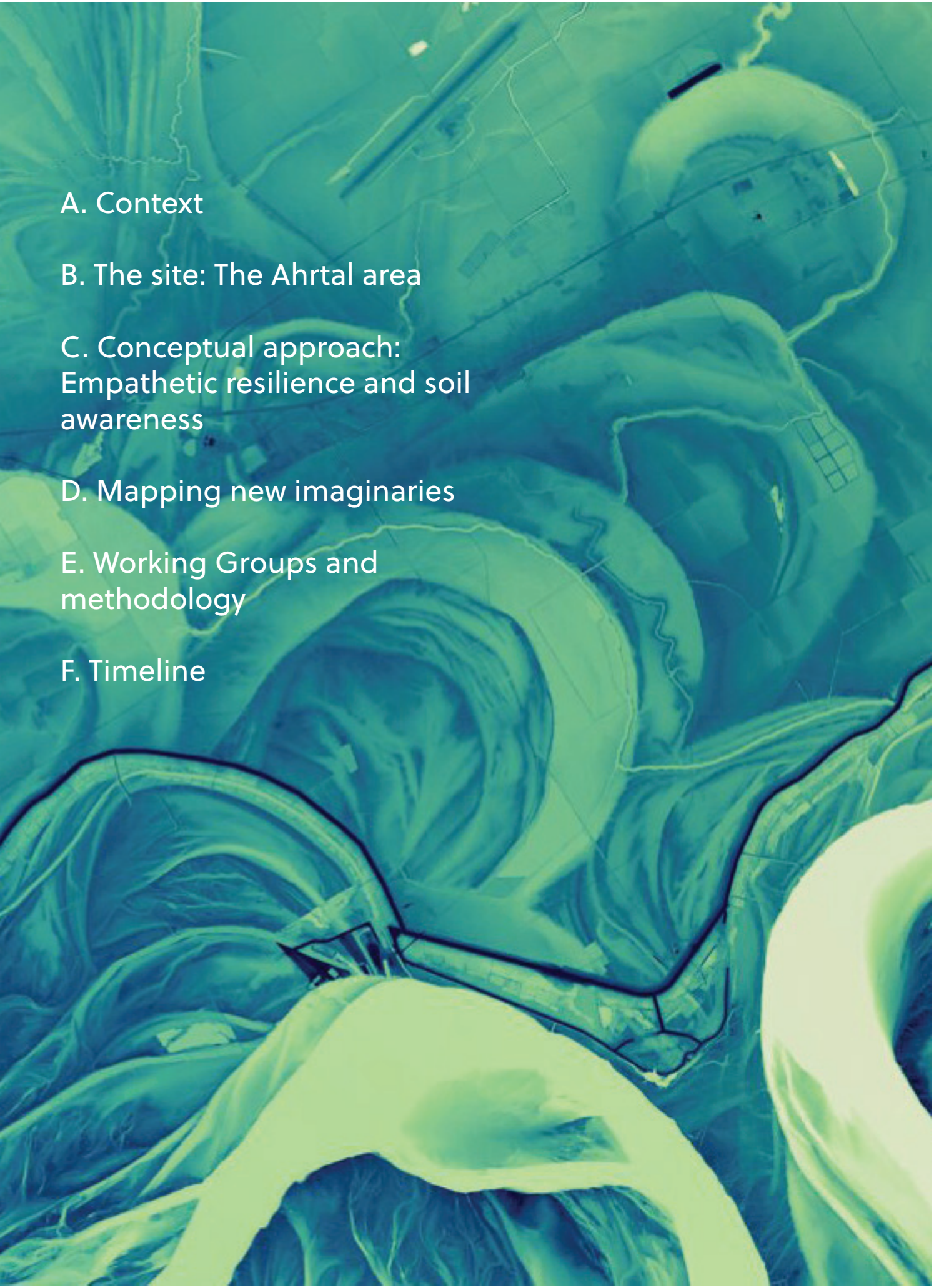
Project partner Prof. Robert P. Thum
Trier University of Applied Sciences

Objective of the DS1

Students of DS1 will be confronted with a challenging exercise of design by research, analytical data interpretation, empathy and environmental awareness.

Dealing with the flooding events that occurred in July 2021 at the Ahr basin in Germany, they will explore ways of approaching the flash flooding that hit the valley, first through an exploration of media communications and all its biases. Then being aware of the politics of the aftermath and the emotional links stressed by a cyclical natural event which might be worsened by a concatenation of unfortunate circumstances, and the result of soil management in the surroundings.

The studio will give the opportunity to test how architecture skills, tools and vocabulary can be put in service to read and understand environmental dynamics and their unexpected consequences. By mapping the aftermath territory and the social infrastructure that is still struggling to recover from the flooding events, the students will build a different narrative of recovery: Flooding stories, solidarity links, historical vineyard activities, and the politics of the aftermath, all helping to shape what could be an entropic-conscious design response that brings care into the notion of resilience.



A. Context

B. The site: The Ahrtal area

C. Conceptual approach: Empathetic resilience and soil awareness

D. Mapping new imaginaries

E. Working Groups and methodology

F. Timeline

Context

The night of July 14th 2021, the Ahr river, a left tributary of the Rhine, swallowed towns and vineyards around, rampaging the towns in the valley and finding in its path surprised inhabitants that despite being used to cyclical floods, had ever faced such an extreme situation in their lives. It's always after the shock that we take the time to think about the decisions we take, on the ways we live and how we adapt to the surrounding conditions. The phenomena and its consequences can be approached from several scale levels.

First, we have the environmental general picture that once more confirms the result of climate change and how it now affects with unusual virulence, geographic spots in Western countries, usually oblivious to the harshness of extreme climatic phenomena. At a regional scale, there is the question of urban planning and its relationship to the environment, including the anticipation of possible risks due to the implantation. In this regard, once again, there are many tragic lessons drawn from the global south. Fortunately, today we have technological tools that allow us to read patterns that help anticipate these events.

Besides the unavoidable consequences driven by natural events, there are arguments questioning the efficiency of emergency systems designed to warn people of reacting timely to the floods. We also have the calls of attention to the consequences of intense cultivation practices, fostered by an economic and tourist activity standing out as a characteristic of the region, and that might be affecting the soil permeability.

Afterward, there is the town planning scale, and the series of human-soil relations. There are some authors, like María Puig de la Bellacasa that postulates the idea of soils as "living organisms consisting of a multispecies community of biota". According to this, we humans are nothing more than part of soil communities. From this approach it can be outlined the possibility of progressive urban configurations for the expected reconstruction tasks, which might consider flexible adaptations to the dynamics of the river and its meanders, the economy of the vineyards on slopes, and the touristic rocky landscape of the gorge in the Ahr Hills.

The next level would be technical response to anticipate and efficiently respond to violent climate consequences. Transversal porous foundations, slop pavements that allow soil infiltration to drain the streams, efficient practicable roofs, and similar strategies to be explored, and tested in simulated environments.

Finally, there is the emotional dimension operating at the scale of human relationships, that were stressed and put to test the night of the flooding and its aftermath. Surviving strategies and networks of care and solidarity that are helping to heal the emotional shock caused by the loss of human lifes, but that also might help to unveil how ideological biases and political activation take advantage and infiltrate popular imaginaries after the shock.

The site:
The Ahrtal area

The Ahr is a small river that has its source in the Eifel, which is one of the least populated regions of western Germany. The river winds through narrow, fairly vertical valleys that are geologically very slate-heavy and terraced with natural stone walls for the rich viticulture.

The closer the Ahr approaches the Rhine, into which it flows, the more densely populated the valley. The most important town is Bad Neuenahr-Ahrweiler, capital of the Ahrweiler district, which is a German hotspot for wealthy pensioners who spend the autumn of their lives here in a comfortable place with numerous wellness and care facilities.

Further south is Bad Bodendorf, also a spa with good water and air quality, and then finally Sinzig on the Rhine. The area between Bad Neuenahr, which is connected to the A61 (Cologne-Koblenz), and Sinzig is a catchment area for Cologne-Bonn and Koblenz.

The Ahr valley is one of the most important wine regions in Germany, especially for red wine. In the last decade, wine tourism has developed more and more. There are also many water springs in the Ahr valley, the most famous being the Apollinaris spring.

In catastrophic floods, high tides brought death to many people in the valley and enormous material losses to everyone in the region. In the flood of 21 July 1804, 64 people died. In the flood of 13 June 1910, 57 people died; afterwards, almost all the Ahr bridges had to be rebuilt. There are marks of the highest water levels in the Ahr road tunnel in Altenahr. On 2 June 2016, the water level of the Ahr in Kreuzberg and Altenahr reached its highest level since measurements began up to that point, although it was well below the level of 1910 (see the water level marks in the Ahr road tunnel).

In the course of 14 July 2021, heavy and persistent rainfall led to the highest water levels since measurements began, i.e. the water levels of the "flood of the century".

Image: Ahrtal. 2012. Robert Brands CC BY-ND 2.0

Conceptual approach: Empathetic resilience and soil awareness

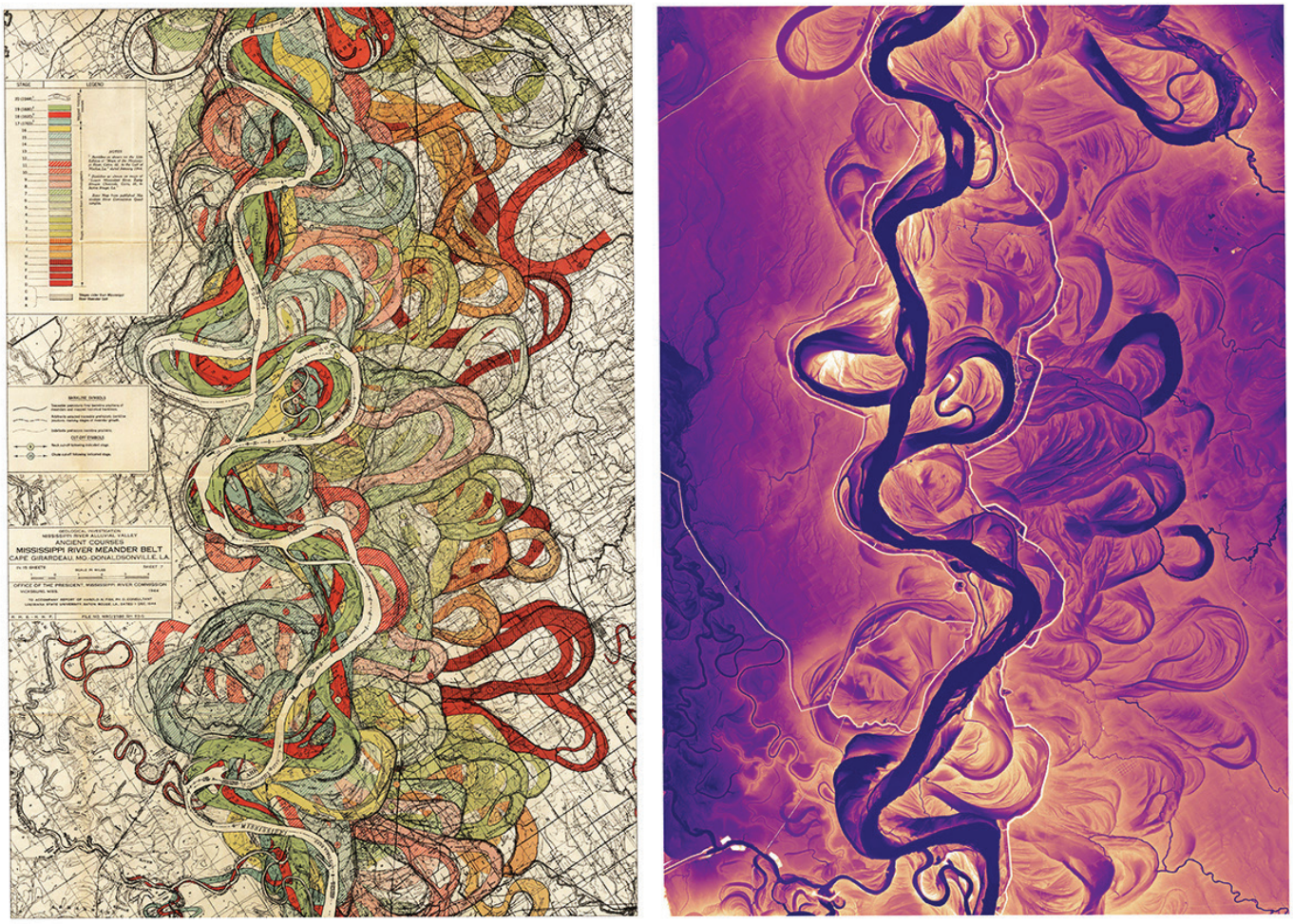
After the shock generated by traumatic events, it comes the idea of recovery and reconstruction. As technicians, engineers, architects and urbanists deal with rational analysis of the phenomena and propose alternatives and future risk prevention measures. This capacity to adapt and recover after the stress is generally known as resilience, but often comes with an implicit will to reinstate previous conditions.

The Ahrtal Studio poses the ideas of empathetic resilience, affective ecologies, interdependence and soil community in its approach to the Ahr floods. Taking care of emotional bonds between the inhabitants, this notion is extended to the whole river basin, the vineyards soils and the biota mutually interacting and affecting each other in the valley.

More than perceiving both the river and the soils as resources to support the economic activity in the region, we will explore the notions of soil communities, from which humans also form part. This would lead to a critical analysis of the potential productivist approach and efficient management of the river and the towns it passes by. Going beyond purely financial value we will try to calculate other sources of value, based on the notion of food-web models and how humans are only one part of the whole trophic relations taking part in the valley as a soil community.

This led us to the notion of care of the system not only from a protectionist perspective towards the maintenance of an economic activity, but as a means to understand how humans manage the soil, affecting its healthiness, roughness and permeability and how this might provoke that the cyclical floods hits with more virulence. The notion of care implies nonreciprocal exchanges, and the restitution of nutrients to the soil, more than passive defensive mechanisms, or the input of agents tending to increase its productiveness.

As part of soil communities, we might consider the economic, political, and ethical value of soils to matters of human and all biota survival. Soil exhaustion demands a different answer and a different pace of activities and development. The flooding events, and coming reconstruction constitute and opportunity to



Comparison of Plate 7 from Harold Fisk's 1944 report "The Alluvial Valley of the Lower Mississippi River" with a modern-day lidar derived image of the same area. Daniel Coe CC BY-NC-ND 2.0

incorporate empathetic resilience logics in the idea of reconstruction. Logically farm activities tend to have a yield-oriented approach, but we might be aware how productivism colonizes all other relations: everyday life, relations with other species, and politics (e.g., farmers' subjection to the industry-agribusiness complex)[1]. Considering soil care under a productionist frame is aimed at increasing soil's efficiency to produce at the expense of all other relations.

The studio will use technical tools that eventually will help us to build new technoscientific imaginaries that introduce affective ecologies considering all organisms interacting in the region, as part of the soil and the river, and how these interactions contribute to its very creation. Exploiting soil and river for production or merely as the basis of human life might be threatening to destroy the living agents of this very productivity. Notions of pause state and reconnection with soil community might clash with productionist practices, but will take in consideration the complex diversity of soil-renewal processes, that can be the foundations of an empathetic resilient cohabitation in the Ahr valley.

Notes:
1. Maria Puig de Bellacasa. Soil times, The Pace of Ecological Care. *Matters of Care: Speculative Ethics in More than Human Worlds.* University of Minnesota Press, 2017

Mapping new imaginaries

The DS1 students will face the challenge of exploring historic floodplain conditions and modifications influencing the cross-section area and the hydraulic roughness of the Valley. Exercises with GIS mapping and model making will be used to communicate readings and results.

Previous works like the one by Roggenkamp, Thomas, and Jürgen Herget estimating peak discharges of historic floods of the River Ahr, might give first interesting clues. "This approach includes a procedure for reconstructing the hydraulic parameters of the river channel and over flooded areas, coupled with an approach for the verification of estimated peak discharge reliability"[2].

Recently some researchers have addressed the challenge to establish dialogues with rivers. Such experiences will be studied as references in order to exchange experiences and results on new imaginaries:

Other rivers other voices: *Sol y Sombra: a Journey up the Orinoco River. Mapping shadow policies to shadow ecologies*. Led by architects and urbanists Alejandro Haiek and Xenia Adjoubei.
Supported by Umeå School of Architecture.

Launched Sept 7h 2021 at the Korean Pavilion in Venice Biennale.

www.solysombra.global + www.facebook.com/LABPROFAB/videos/400222714850974

Drowned in the Neretva River
Letters to a river transformed by war. Led by Jonas Langbein, Armina Pilav and Damir Uglijen, Un-war space lab

Project partners.

DS1 will be supported by the experience and technical knowledge on spatial production and GIS mapping of:

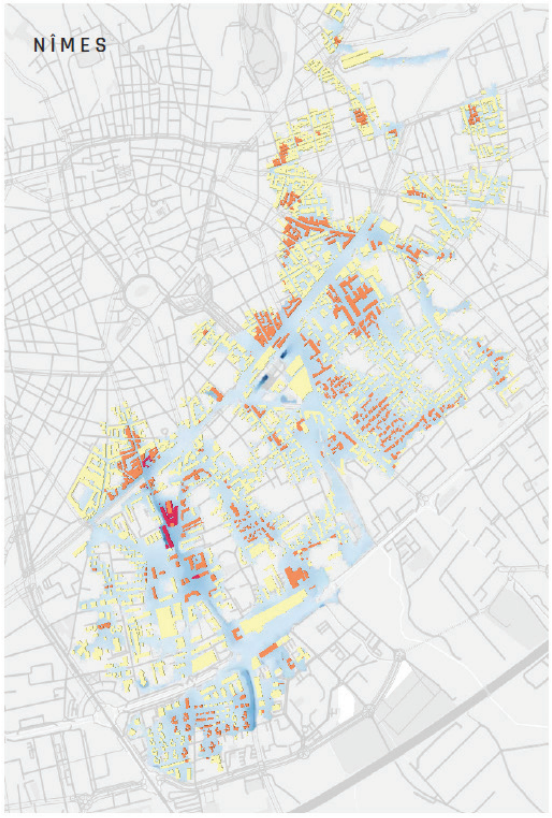
Prof. MSc Dipl.-Ing. Robert P. Thum
Head of Architecture Faculty, Design Department, Trier University of Applied Sciences. Professor for computational design in Architecture as DS1 Project Partner.

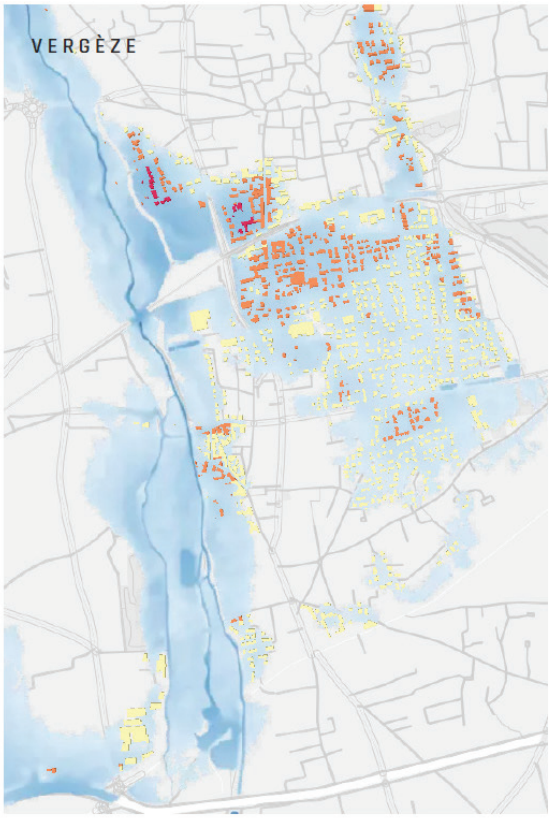
Christos Floros
Architecture, European urbanisation and Globalisation. University of Luxembourg.
Support on technical & logistical information/input; data collection; GIS interface.

Notes:
2. Roggenkamp, Thomas, and Jürgen Herget. "Reconstructing Peak Discharges Of Historic Floods Of The River Ahr, Germany." Erdkunde 68, no. 1 (2014): 49–59.

Images:
Apropos image register and events reproduction. The photo above is supposed to picture the Ahr flood event from June 13th 1910. The water was edited later and the flood level. Source: Roggenkamp, Thomas, and Jürgen Herget

ICEYE.Flooding in the Gard region of France. September 2021





TOTAL NUMBER OF BUILDINGS AFFECTED BY FLOOD WATER DEPTH CATEGORY

TOTAL: 8,962

The building impact numbers are subject to change as ICEYE continues to analyse the flood.

Analysis is focused on data specific to the regions most affected by the floods. Some areas which have been impacted by the flooding may not be represented in the data.

Building footprint credit for BD PARCELLAIRE®

Working groups and methodology

1. The voices in the media
- Dossier of news clippings and items.
- From mass media to specialist reports and literature, and the political biases that might be activated following a trauma moment.

2. Economy of wine and soil community
- Vineyards and tourism.
- Pinot noir and its soil companion.
- Ecological footprint and food-web models.
- The possibility of resilience and repair.

3. The flow of wellness Economy .
- Spa resorts and wealthy temporary migrants.
- The potential of cultural venues to retreive in-between economies.

4. Resilience. From affective ecologies to technoscientific imaginaries
- Towns, soil and river as living units that require care.
- Risk prevention and meander adaptation.

5. Mapping new imaginaries
- GIS mapping
- Sectional development for representation of flood levels. An historical comparison and visualization.
- Patterns based on two or three historical peak floods in 100 years.
- Exploration of ESA database for research.
- Flooding and building techniques, and norms.
- Outline an urban plan through regional mapping of the valley and its inhabitable areas, according to floods.

Methodology
Journalistic and bibliografic research and discussions, Site Visit, Technical skills and Design by Research Workshops.

Evaluation Criteria
Rating:
50% attendance + participation in the studio
50% final project presentation

Image:
Grapes picture in Hologic calendar September 2019
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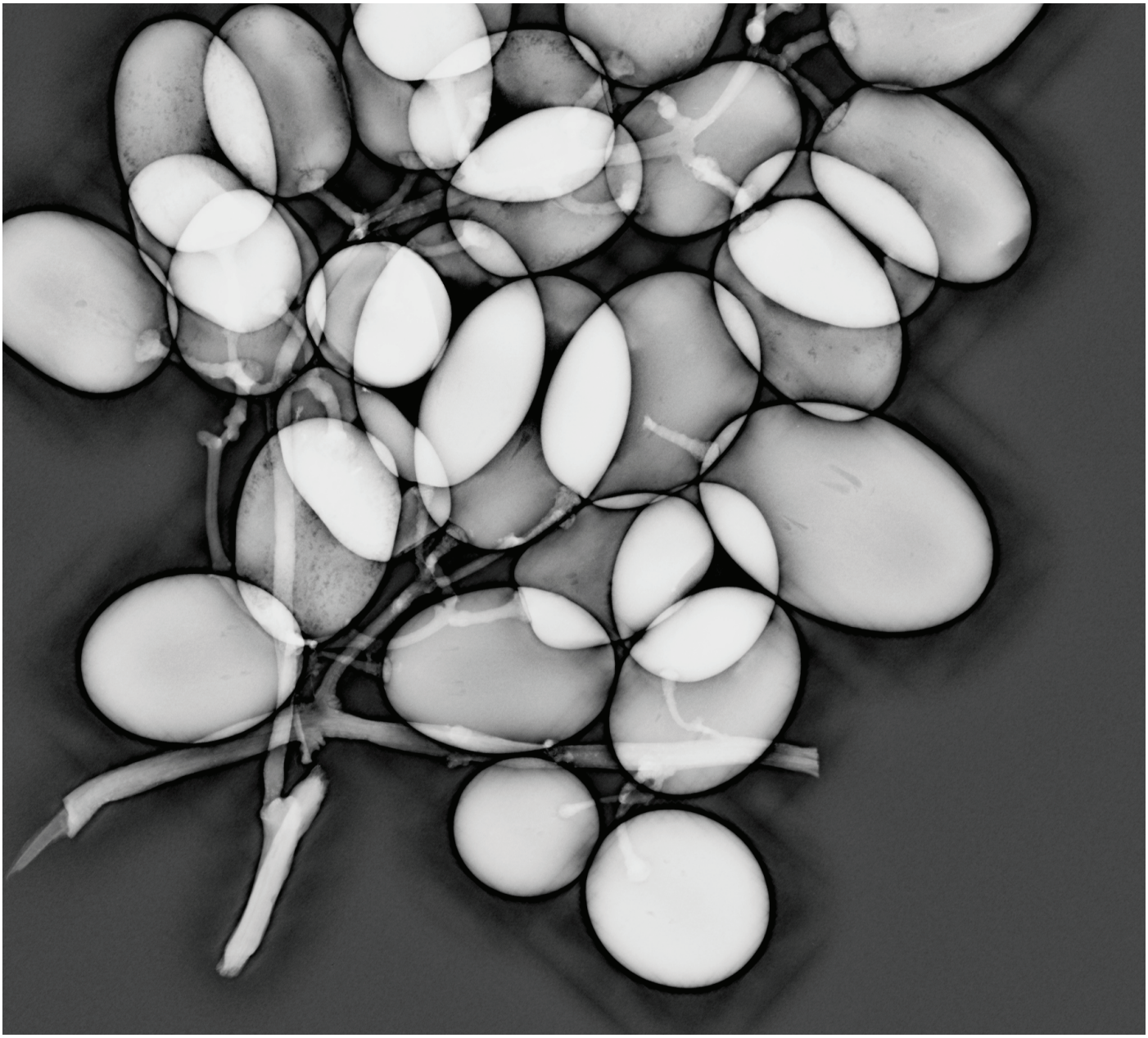

Timeline

September 2021	**Week 01**
28/09	Kick off and introductory session
October 2021	**Weeks 02-05**
05/10	Analyses of topics
12/10	Field Trip to the Ahrtal valley.
19/10	Feedback from trip and analyses of topics
26/10	Internal review
November 2021	**Weeks 06-09**
03/11	Mapping and simulation of intervention
10/11	Mapping and simulation of intervention-Guest Lecturer
17/11	Mid term review with guests
24/11	Feedback from mid term, analyses of intervention– Guest Lecturer
December 2021	**Weeks 10-13**
01/12	Narrative / design
08/12	Narrative / design- Guest Lecturer
15/12	Internal review
22/12	Feedback from internal review, turncoats debate
January 2022	**Weeks 14-16**
12/01	Narrative / design
19/01	Work on representation
28/01	Final review
12/03	Exhibition
03/04	

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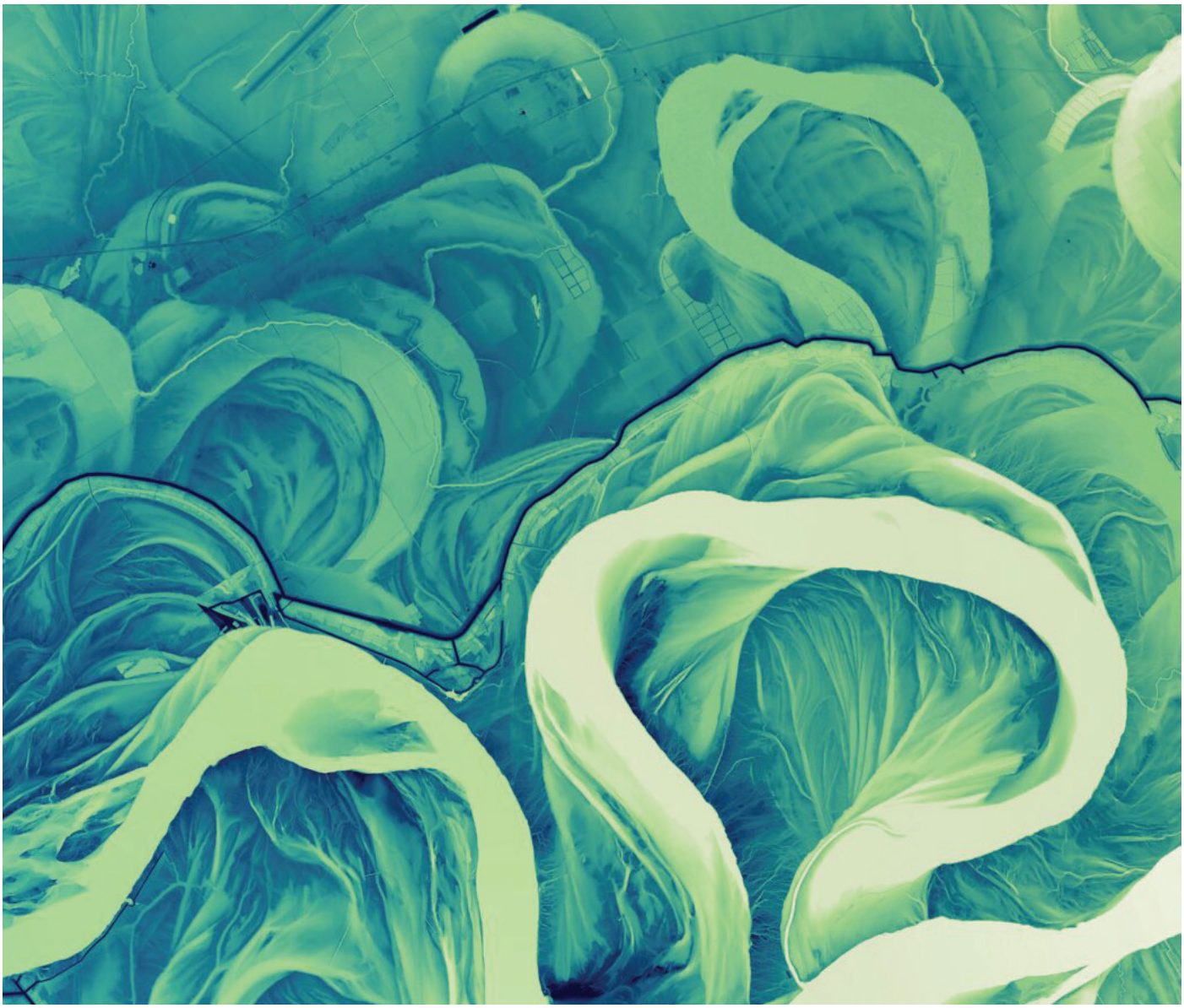

Cover Image:
Image: Ahrtal. 2012. Robert Brands CC BY-ND 2.0

End image:
Daniel Coe_Mississippi River lidar greens. CC BY-NC-ND 2.0