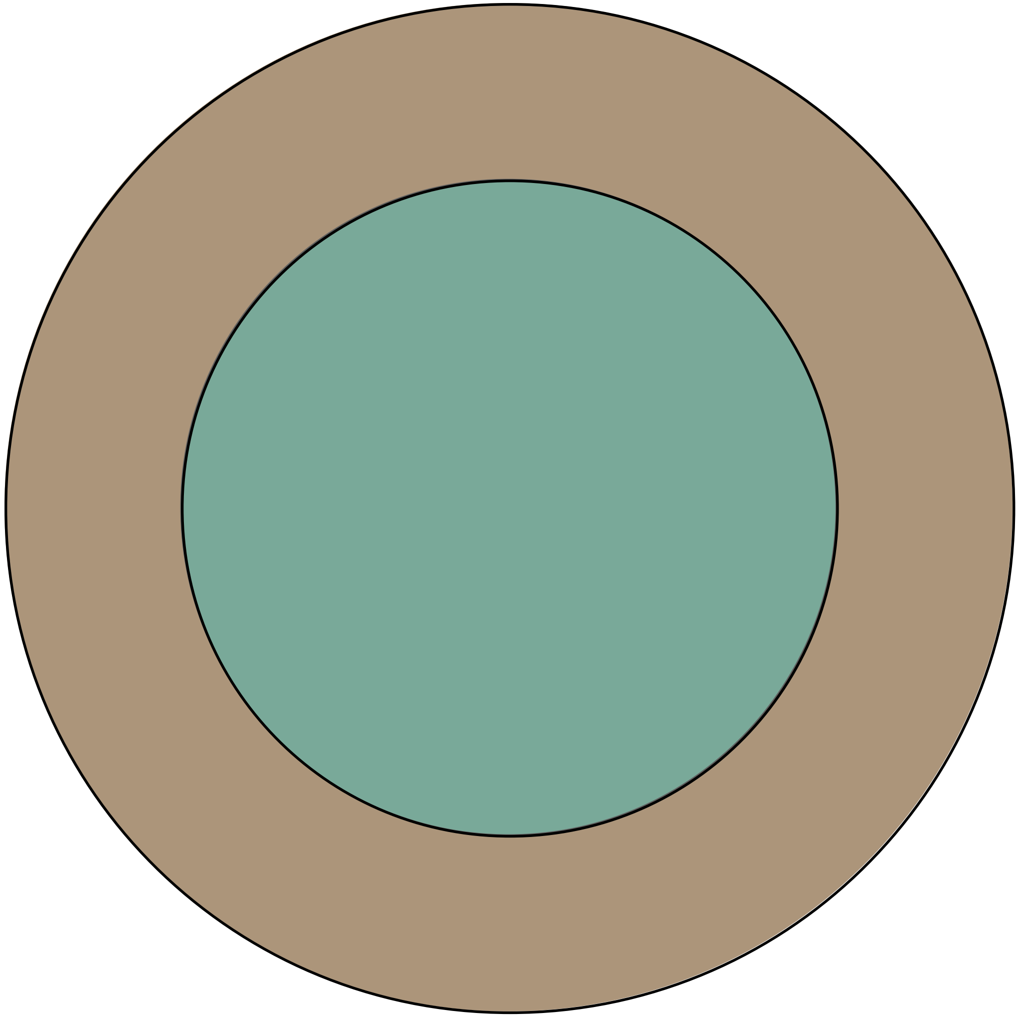


# DATA_
# VISUALISATION_

| | |
|---|---|
| lecturer: | Jürgen Späth |
| teaching assistance: | Marcial Koch |
| research associate: | Paulina Zybinska |
| collaboration partner: | ETH Zürich / Crowther Lab |



sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# about_

The Data Visualization Module is based on a collaboration between the Interaction Design Departement of Zurich University of Arts and the Crowther-Lab fom ETH Zurich. The Crowther-Lab specializes in gathering data of the environment and making them accessible on subpages like restor. This allows the user to get detailed information on a selected area. Our goal is to bring the data into a interactive Visualization that gives the viewer a clustered scheme on a chosen dataset.
We chose to focus on the climate factor of $CO_2$-emissions of an area that is relatable to the user. Therefor our aim was to narrow the analysed space down to a scale that the user can find himself in a familar surrounding. Since the project is presented in Zurich, we chose a $4m^2$ area around the Toni as the reference and displayed environmental properties which are then compared to an additional space and put in relation to eachother.


sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# research_

We started our research by understanding the projects presented by the Crowther-Lab. By roaming through restor and gathering a lot of information and insights on a notion-page. As the page started to get loaded with interesting papers, links, images and project ideas we went on and continuously discussed our interpretation with eachother. Soon enough we found a topic that caught our common interests - biodiversity in relation to carbondioxide-emission. At this point we researched information and data on a local scale. We noticed that biodiversity is too big and complex topic to really cluster down to a simple and understandable level. Mostly because both chosen topics are quite complicated fields to simplify. For that reason we decided to focus on carbondioxide-emission since there was more definite data available and is less volatile than biodiversity where the numbres and factors are all related to eachother and depend on many unpredictable components.


sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# inspiring project_

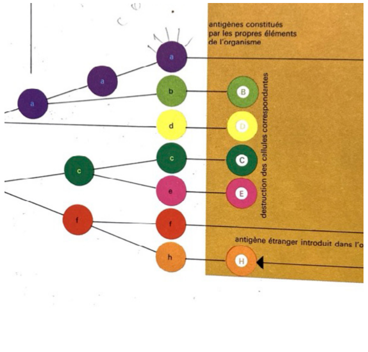
To give the user a relatable point of view we refer to the project displayed below. It gives the viewer an idea on how large of an area would've passed away due to Covid-19. This tool analyses the surrounding of a selected location and calculates a circle with the number of deceased cases.

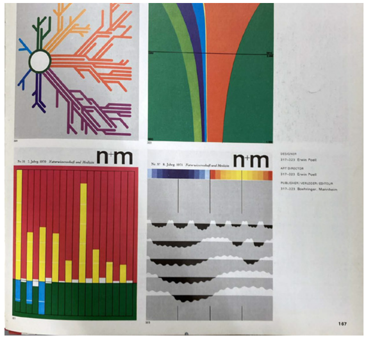


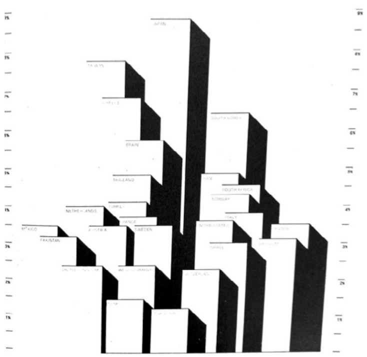
sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

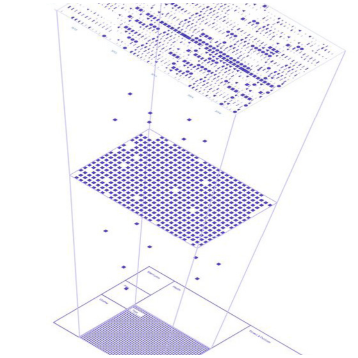
# inspiring design_

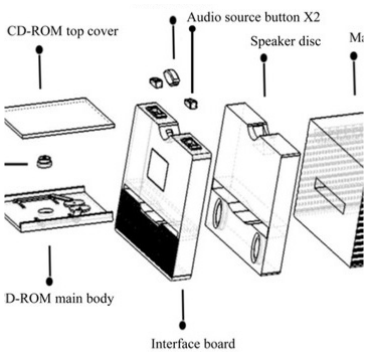
Below we gathered some of the design inspirations for our project. We really liked the hard drop shadows which we used to show the importance of certain objects. Initially we really liked bright and saturated colors but then decided to use lighter one's to support vusuality.

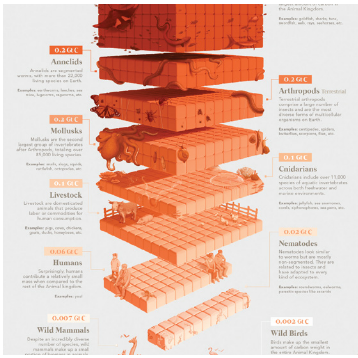



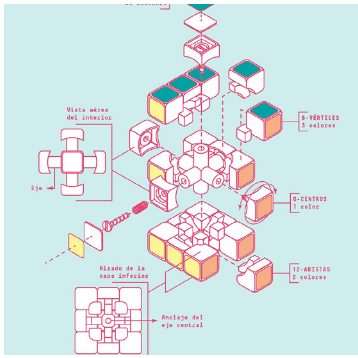









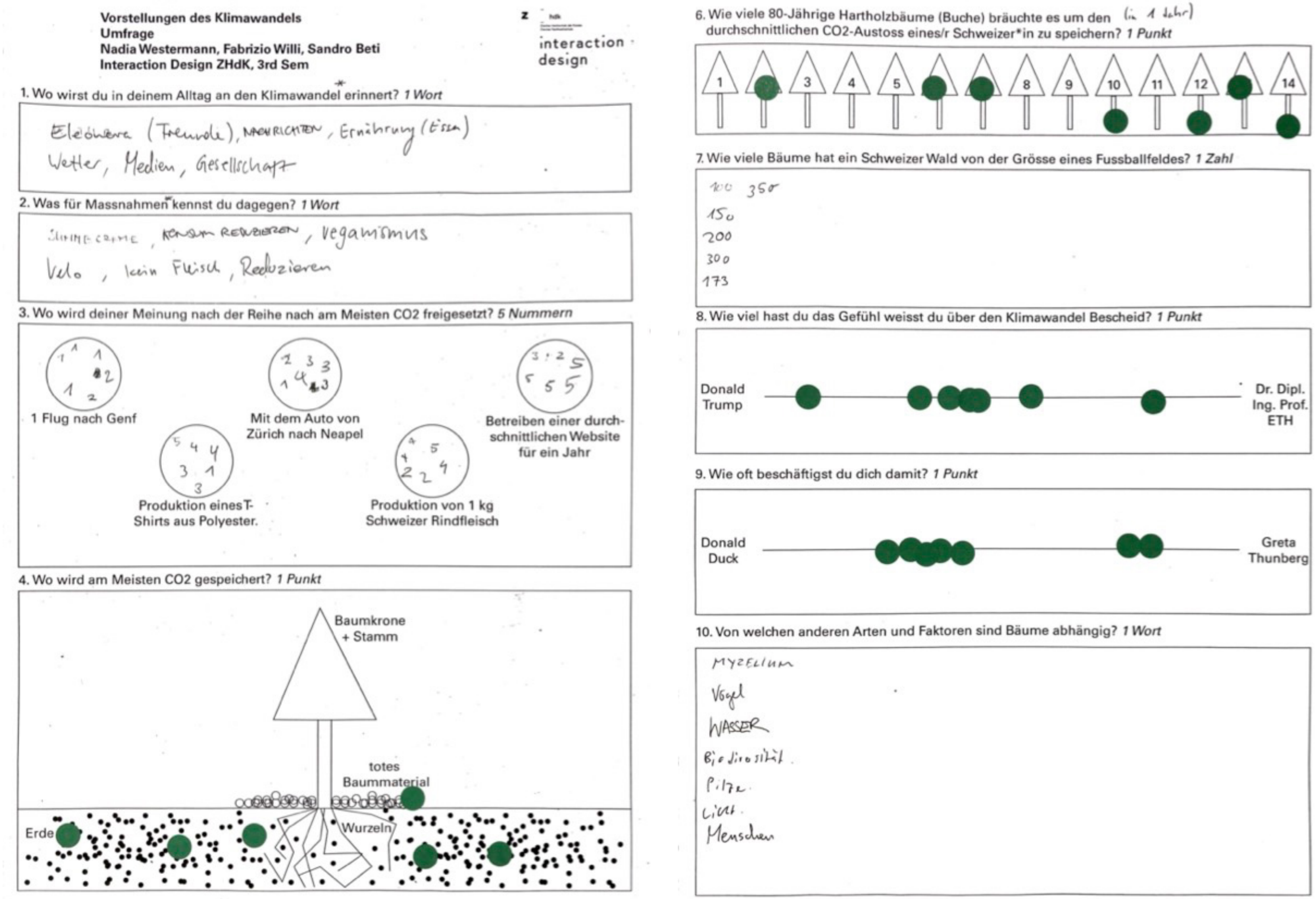




sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# survey_

The survey we created and distributed to a variety of people was ought to display the understanding of the climate crisis. Not to our surprise the answers were indefinite and it showed us that people have different understanding depending on their source.



**Vorstellungen des Klimawandels**
**Umfrage**
**Nadia Westermann, Fabrizio Willi, Sandro Beti**
**Interaction Design ZHdK, 3rd Sem**

interaction design

1. Wo wirst du in deinem Alltag an den Klimawandel erinnert? *1 Wort*

Eleönere (Freunde), NACHRICHTEN, Ernährung (Essen)
Wetter, Medien, Gesellschaft

2. Was für Massnahmen kennst du dagegen? *1 Wort*

KONSUM REDUZIEREN, vegamismus
Velo, kein Fleisch, Reduzieren

3. Wo wird deiner Meinung nach der Reihe nach am Meisten CO2 freigesetzt? *5 Nummern*

1 Flug nach Genf
Mit dem Auto von Zürich nach Neapel
Betreiben einer durchschnittlichen Website für ein Jahr
Produktion eines T-Shirts aus Polyester.
Produktion von 1 kg Schweizer Rindfleisch

4. Wo wird am Meisten CO2 gespeichert? *1 Punkt*

Baumkrone + Stamm
totes Baummaterial
Erde
Wurzeln

6. Wie viele 80-Jährige Hartholzbäume (Buche) bräuchte es um den durchschnittlichen CO2-Austoss eines/r Schweizer*in zu speichern? *1 Punkt* (in 1 Jahr)

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

7. Wie viele Bäume hat ein Schweizer Wald von der Grösse eines Fussballfeldes? *1 Zahl*

100 350
150
200
300
173

8. Wie viel hast du das Gefühl weisst du über den Klimawandel Bescheid? *1 Punkt*

Donald Trump — Dr. Dipl. Ing. Prof. ETH

9. Wie oft beschäftigst du dich damit? *1 Punkt*

Donald Duck — Greta Thunberg

10. Von welchen anderen Arten und Faktoren sind Bäume abhängig? *1 Wort*

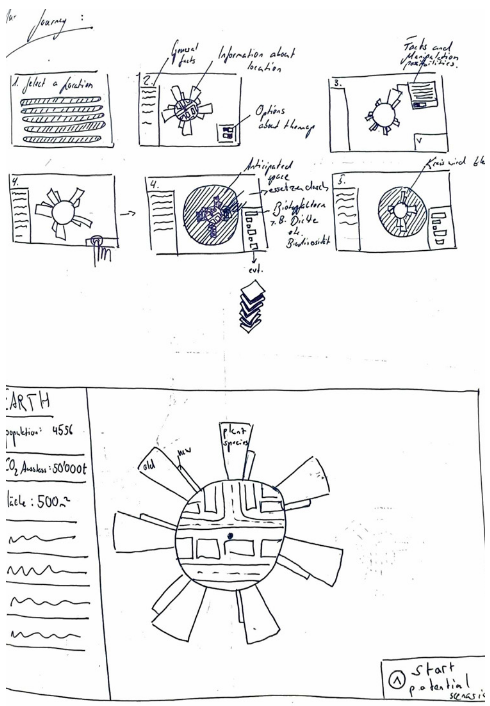
MYZELIUM
Vögel
WASSER
Biodiversität
Pilze
Licht
Menschen



sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# first ideas_

As the spectrum became clearer and first project ideas started to evolve we kept hold of it by sketching them on paper. Some elements such as the map in a circle remained until the final version of the project.

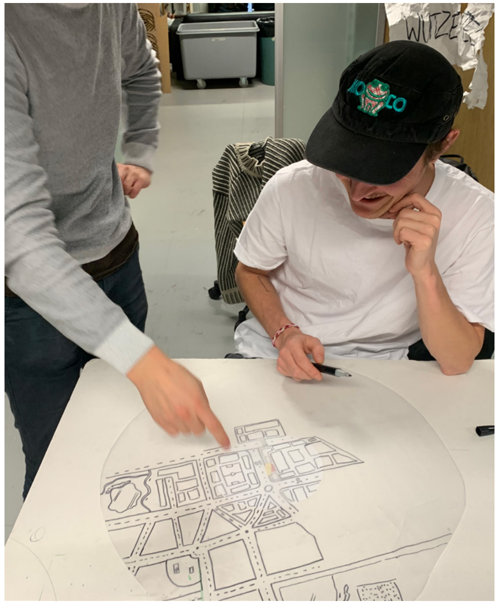



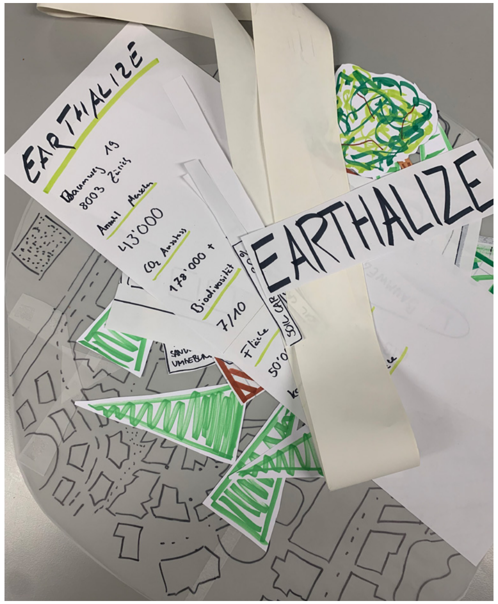



sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# paper prototype_

To get a first hands on experience we used a paper prototype of the initial ideas to see how it looks on the interactive table which also gave us an idea on the size of each object in relation to the screen size. More importantly we figured out which interactions made sense and what was missing in the experience.

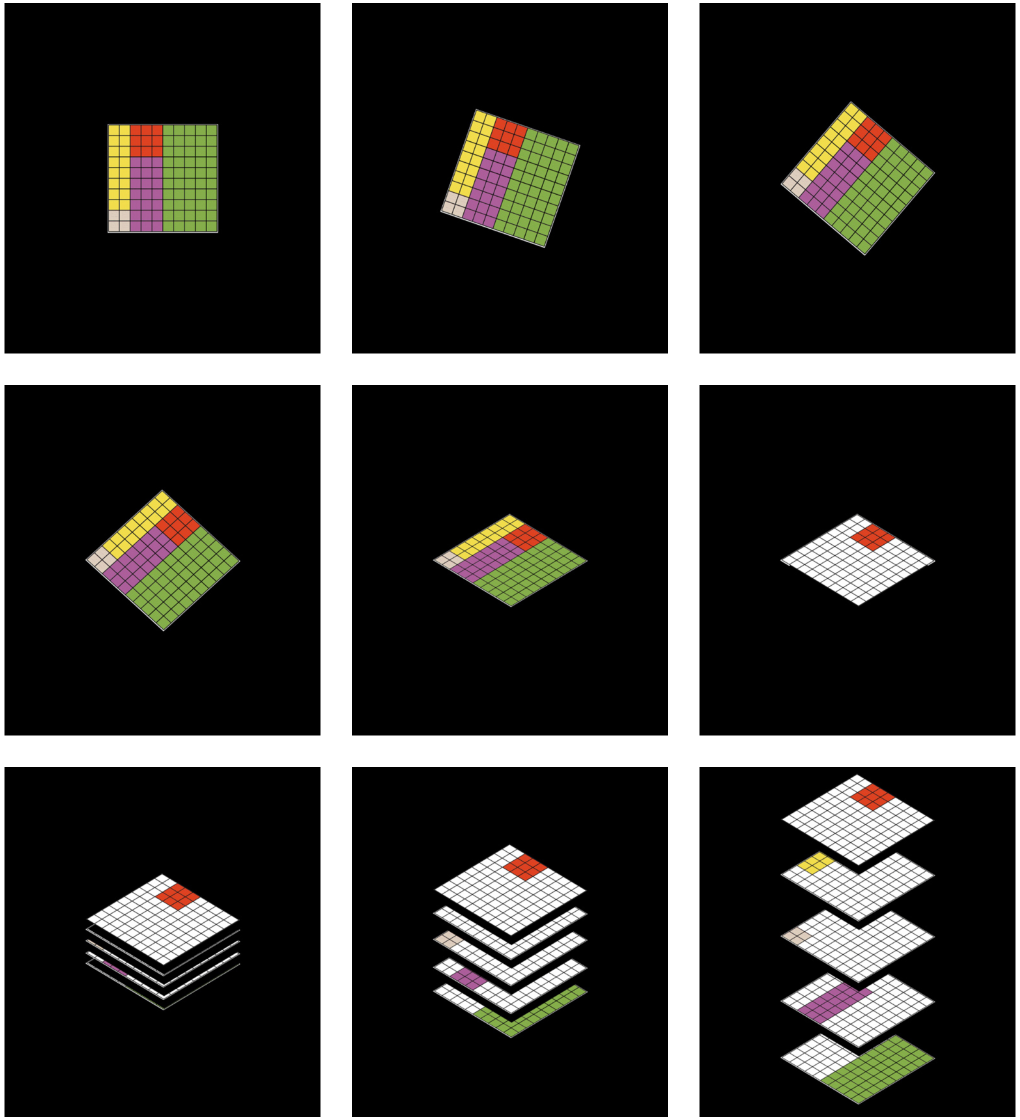







sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# exploded drawing_

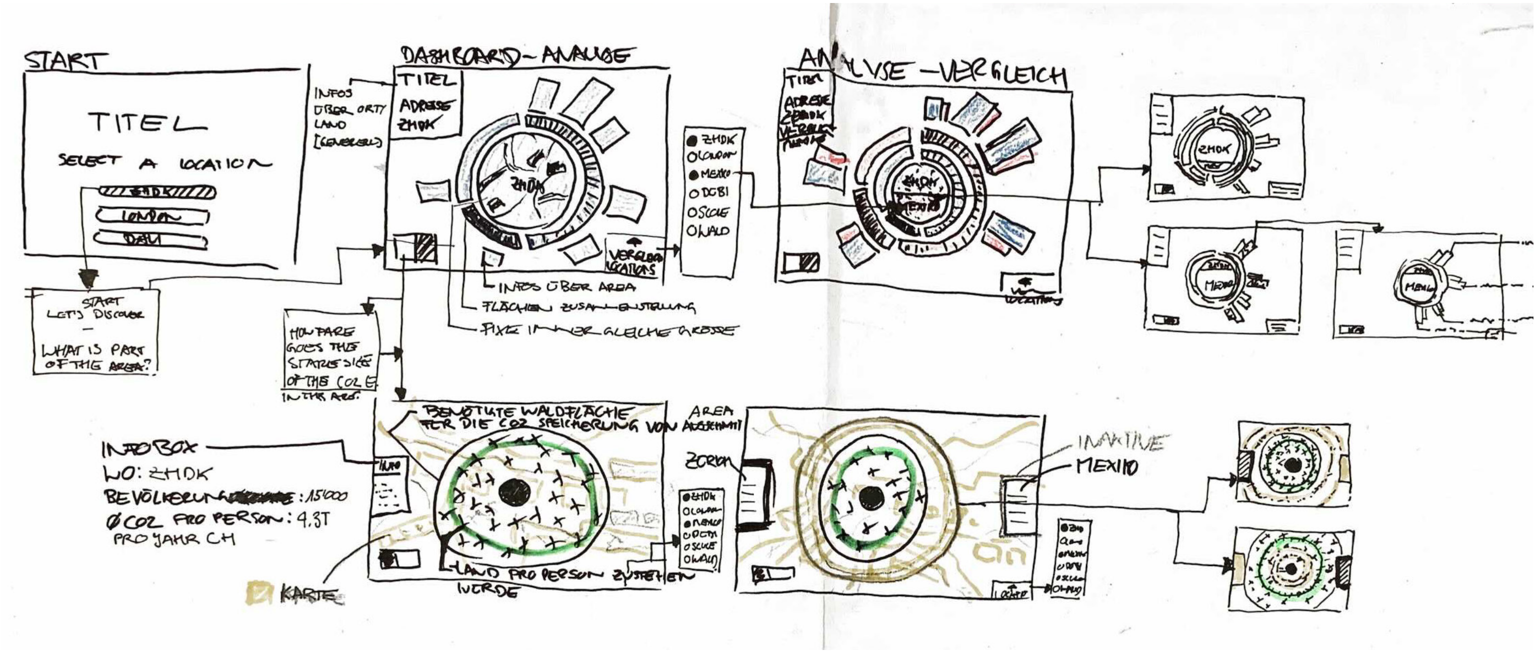




sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# concept idea_

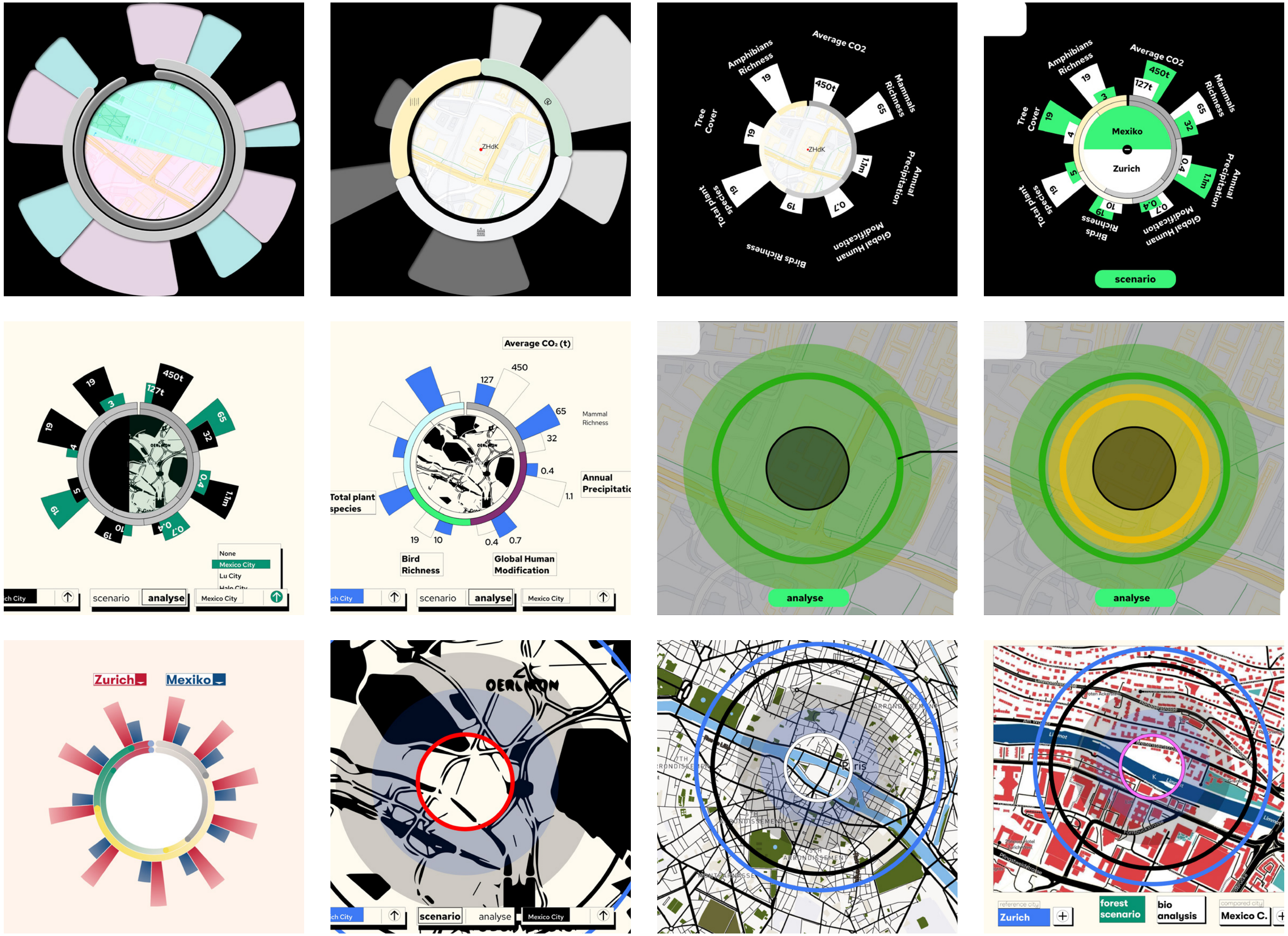
Before sketching the prototype in figma we made a detailed display of the concept. As can be seen below we built it on two head-layers. The sketch on top shows the analyse-screen where properties of the selected area are shown. It gives the user detailed information about the environmental components and puts them into relation to the compared location. The sketch on the bottom, the speculation-screen, calculates the an area around the selected location to show how big a green field needs to be to compensate the carbondioxide-emission of the analysed areas.





sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

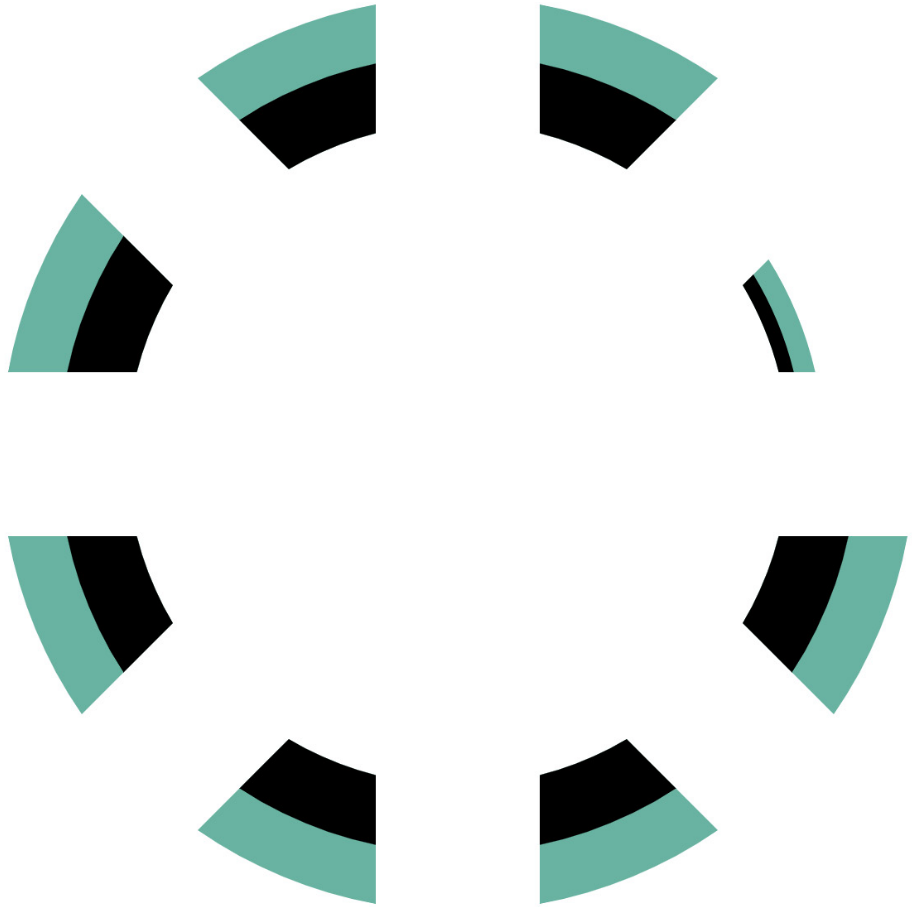
# construction process_




 sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# d3.js_

By trying to translate the concept in d3.js we checked the possibilites to realize our ideas. d3.js turned out to be very complicated and therefor we didn't further persue to work with d3.js.





sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

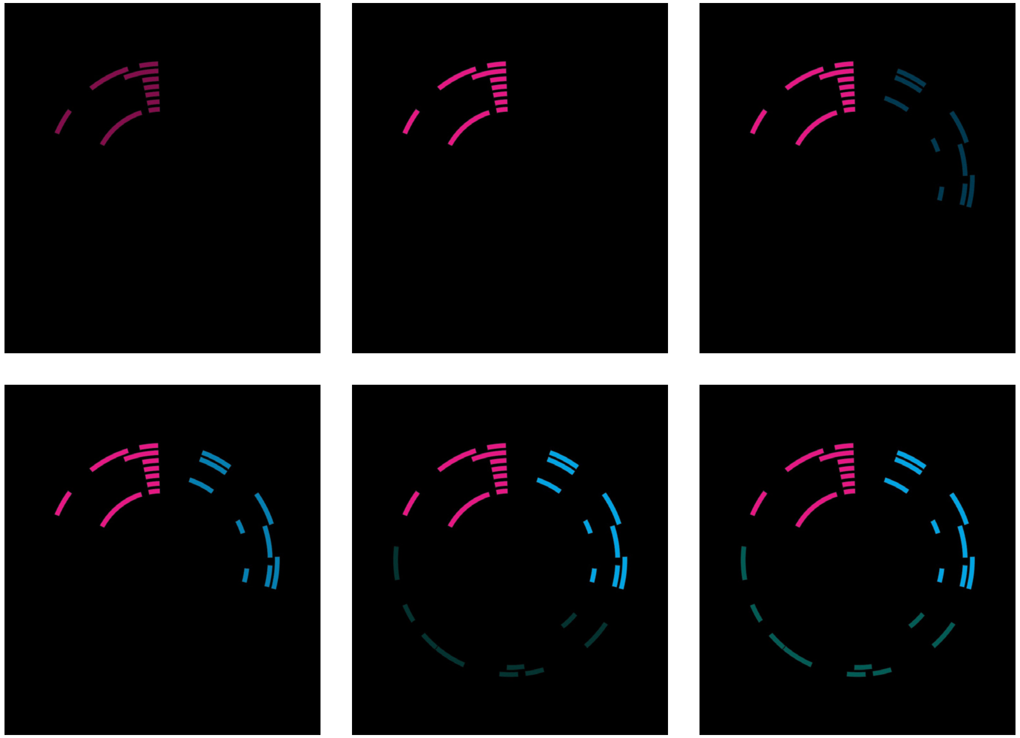
# code d3.js_

```
// set the dimensions and margins of the graph
const margin = {top: 10, right: 10, bottom: 10, left:
10},
   width = 960 - margin.left - margin.right,
   height = 960 - margin.top - margin.bottom,
   innerRadius = 200,
   scaling_factor = 0.1,
   outerRadius = Math.min(width, height) / 2;   //
the outerRadius goes from the middle of the SVG
area to the border

// append the svg object to the body of the page
const svg = d3.select(„#d3")
  .append(„svg")
   .attr(„width", width + margin.left + margin.
right)
   .attr(„height", height + margin.top + margin.
bottom)
  .append(„g")
   .attr(„transform", `transla-
te(${width/2},${height/2})`) // Add 100 on Y trans-
lation, cause upper bars are longer


d3.json(„test.json").then( function(data) {

   let simplifiedData = data.map((d) => {
      let tempData = {
         city: d[„city"],
         daten: d[„data"],
         type: d[„datatype"],
       };
       return tempData;
    });
  // X scale
  const x = d3.scaleBand()
     .range([0, 2 * Math.PI])    // X axis goes from
0 to 2pi = all around the circle. If I stop at 1Pi, it
will be around a half circle
     .align(0)                 // This does nothing ?
     .domain( data.map(d => d.datatype)); // The
domain of the X axis is the list of states.

  // Y scale
  const y = d3.scaleRadial()
     .range([innerRadius, outerRadius])   // Do-
main will be define later.
     .domain([0, 1000]); // Domain of Y is from 0 to
the max seen in the data


  // Add bars

  svg.append(„g")
    .selectAll(„path")
    .data(simplifiedData)
    .join(„path")
      .attr(„fill", „#69b3a2")
      .attr(„d", d3.arc()     // imagine your doing a
part of a donut plot
          .innerRadius(innerRadius)
          .outerRadius(d => y(d.daten.test_data1 *
scaling_factor))
          .startAngle(d => x(d.type))
          .endAngle(d => x(d.type) + x.bandwidth())
          .padAngle(0.5)
          .padRadius(innerRadius))


svg.append(„g")
    .attr(„class","test2")
    .selectAll(„path")
    .data(simplifiedData)
    .join(„path")
      .attr(„fill", „#000000")
      .attr(„d", d3.arc()     // imagine your doing a
part of a donut plot
    //   .attr(„transform", function(d){
    //       return „rotate(20)";})
          .innerRadius(innerRadius)
          .outerRadius(d => y(d.daten.test_data2 *
scaling_factor))
          .startAngle(d => x(d.type))
          .endAngle(d => x(d.type) + x.bandwidth())
          .padAngle(0.5)
          .padRadius(innerRadius))
});
```


sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# lottie.js_

Due to a spinning animation in our sketch we checked out lottie.js since that method is fitting to control animation thorugh code. But since it functions in relation to d3.js we didn't pursue to work with lottie.js either.





sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# json file lottie.js _


{„v“:“5.7.4“,“fr“:60,“ip“:0,“op“:253,“w“:1000,“h“:1000,“nm“:“MAIN“,“ddd“:0,“assets“:[{„id“:“comp_0“,“layers“:[{„ddd“:0,“ind“:1,“ty“:4,“nm“:“Strasse Konturen“,“sr“:1,“ks“:{„o“:{„a“:1,“k“:[{„i“:{„x“:[0.833],“y“:[0.833]},“o“:{„x“:[0.167],“y“:[0.167]},“t“:1,“s“:[0]},{„t“:18,“s“:[100]}],“
ix“:11},“r“:{„a“:0,“k“:0,“ix“:10},“p“:{„a“:0,“k“:[342.565,286.938,0],“ix“:2,“l“:2},“a“:{„a“:0,“k“:[152.779,123.506,0],“ix“:1,“l“:2},“s“:{„a“:0,“k“:[100,100,100],“ix“:6,“l“:2}},“ao“:0,“shapes“:[{„ty“:“gr“,“it“:[{„ind“:0,“ty“:“sh“,“ix“:1,“ks“:{„a“:0,“k“:{„i“:[[-4.292,5.839],[0,0],[8.196,-16.133],[0,0]-
,[2.939,-6.91],[0,0],[-9.458,14.885],[0,0]],“o“:[[0,0],[-10.893,14.822],[0,0],[-3.442,6.762],[0,0],[6.785,-15.953],[0,0],[3.879,-6.091]],“v“:[[24.771,-28.075],[13.544,-36.325],[-15.223,10.326],[-15.175,10.352],[-24.771,30.872],[-11.95,36.325],[12.529,-10.151],[12.518,-10.157]],“c“:tru
e},“ix“:2},“nm“:“Pfad 1“,“mn“:“ADBE Vector Shape - Group“,“hd“:false},{„ty“:“st“,“c“:{„a“:0,“k“:[0.211781221278,0.211387125651,0.207956037334,1],“ix“:3},“o“:{„a“:0,“k“:100,“ix“:4},“w“:{„a“:0,“k“:1,“ix“:5},“lc“:1,“lj“:1,“ml“:10,“bm“:0,“nm“:“Kontur 1“,“mn“:“ADBE Vector
Graphic - Stroke“,“hd“:false},{„ty“:“fl“,“c“:{„a“:0,“k“:[0.906526692708,0.097573126999,0.528736368815,1],“ix“:4},“o“:{„a“:0,“k“:100,“ix“:5},“r“:1,“bm“:0,“nm“:“Fläche 1“,“mn“:“ADBE Vector Graphic - Fill“,“hd“:false},{„ty“:“tr“,“p“:{„a“:0,“k“:[27.271,175.032],“ix“:2},“a“:{„a“:0,“k“:[
0,0],“ix“:1},“s“:{„a“:0,“k“:[100,100],“ix“:3},“r“:{„a“:0,“k“:0,“ix“:6},“o“:{„a“:0,“k“:100,“ix“:7},“sk“:{„a“:0,“k“:0,“ix“:4},“sa“:{„a“:0,“k“:0,“ix“:5},“nm“:“Transformieren“}],“nm“:“Gruppe 1“,“np“:3,“cix“:2,“bm“:0,“ix“:1,“mn“:“ADBE Vector Group“,“hd“:false},{„ty“:“gr“,“it“:[{„ind“:0,“ty“:“sh“,
“ix“:1,“ks“:{„a“:0,“k“:{„i“:[[0,0],[-15.673,4.918],[0,0],[16.151,-8.161],[0,0],[13.725,-9.818],[0,0],[4.41,-3.505],[0,0],[-15.41,8.577],[0,0],[-4.869,2.395]],“o“:[[14.526,-7.132],[0,0],[-17.55,5.507],[0,0],[-15.306,7.738],[0,0],[-4.623,3.301],[0,0],[13.57,-10.79],[0,0],[4.734,-
2.63],[0,0]],“v“:[[10.624,-2.67],[56.096,-20.833],[51.924,-34.126],[1.135,-13.527],[1.179,-13.441],[-42.554,12.984],[-42.528,13.02],[-56.096,23.22],[-47.424,34.126],[-3.751,4.94],[-3.751,4.939],[10.65,-2.615]],“c“:true},“ix“:2},“nm“:“Pfad 1“,“mn“:“ADBE Vector Shape -
Group“,“hd“:false},{„ty“:“st“,“c“:{„a“:0,“k“:[0.211781221278,0.211387125651,0.207956037334,1],“ix“:3},“o“:{„a“:0,“k“:100,“ix“:4},“w“:{„a“:0,“k“:1,“ix“:5},“lc“:1,“lj“:1,“ml“:10,“bm“:0,“nm“:“Kontur 1“,“mn“:“ADBE Vector Graphic - Stroke“,“hd“:false},{„ty“:“fl“,“c“:{„a“:0,“k“:[0.
906526692708,0.097573126999,0.528736368815,1],“ix“:4},“o“:{„a“:0,“k“:100,“ix“:5},“r“:1,“bm“:0,“nm“:“Fläche 1“,“mn“:“ADBE Vector Graphic - Fill“,“hd“:false},{„ty“:“tr“,“p“:{„a“:0,“k“:[158.03,51.782],“ix“:2},“a“:{„a“:0,“k“:[0,0],“
ix“:1},“s“:{„a“:0,“k“:[100,100],“ix“:3},“r“:{„a“:0,“k“:0,“ix“:6},“o“:{„a“:0,“k“:100,“ix“:7},“sk“:{„a“:0,“k“:0,“ix“:4},“sa“:{„a“:0,“k“:0,“ix“:5},“nm“:“Transformieren“}],“nm“:“Gruppe 2“,“np“:3,“cix“:2,“bm“:0,“ix“:2,“mn“:“ADBE Vector Group“,“hd“:false},{„ty“:“gr“,“it“:[{„ind“:0,“ty“:“sh“,“ix“:1
,“ks“:{„a“:0,“k“:{„i“:[[-0.119,0.078],[-2.098,1.267],[-0.178,0.106],[-2.033,1.122],[-4.276,1.961],[0,0],[-7.457,2.365],[0,0],[9.824,-4.994],[0,0],[1.88,-1.029],[0,0],[0.131,-0.072],[2.062,-1.232],[0.266,-0.16],[2.124,-1.395],[0.191,-0.126],[0.481,-0.324],[0,0],[3.837,-3.014],[0,0],[7.279,-
7.877],[0,0],[3.221,-4.064],[0,0],[0.028,-0.036],[2.796,-4.131],[0,0],[2.92,-5.274],[0,0],[-6.471,8.183],[0,0],[-3.896,4.112],[0,0],[-7.584,5.903],[0,0],[-4.067,2.686]],“o“:[[2.041,-1.342],[0.176,-0.106],[1.988,-1.193],[4.106,-2.26],[0,0],[7.048,-3.222],[0,0],[-10.666,3.381],[0,0],[-
1.914,0.973],[0,0],[-0.131,0.072],[-2.111,1.163],[-0.267,0.16],[-2.187,1.321],[-0.192,0.126],[-0.485,0.321],[0,0],[-4.089,2.754],[0,0],[-8.561,6.726],[0,0],[-3.534,3.826],[0,0],[-0.029,0.036],[-3.129,3.952],[0,0],[-3.423,5.05],[0,0],[4.972,-8.979],[0,0],[3.502,-4.416],[0,0],[6.523,-
6.875],[0,0],[3.805,-2.96],[0.119,-0.079]],“v“:[[13.37,-15.463],[19.576,-19.38],[20.111,-19.693],[26.143,-23.167],[38.714,-29.526],[38.699,-29.56],[60.514,-37.963],[56.303,-51.242],[25.424,-38.62],[25.443,-38.583],[19.767,-35.555],[19.762,-35.566],[19.374,-35.344],[13.12,-
31.742],[12.318,-31.271],[5.857,-27.193],[5.279,-26.82],[3.809,-25.872],[3.839,-25.828],[-8.083,-17.193],[-8.044,-17.143],[-31.919,4.846],[-31.859,4.901],[-42.008,16.737],[-42.009,16.737],[-42.091,16.846],[-51.01,28.969],[-50.964,29],[-60.514,44.494],[-48.327,51.242],[-





sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# p5.js_

p5.js seemed to be a much more suitable tool to realize our visions. Below the first tries of calculating the circles.



sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

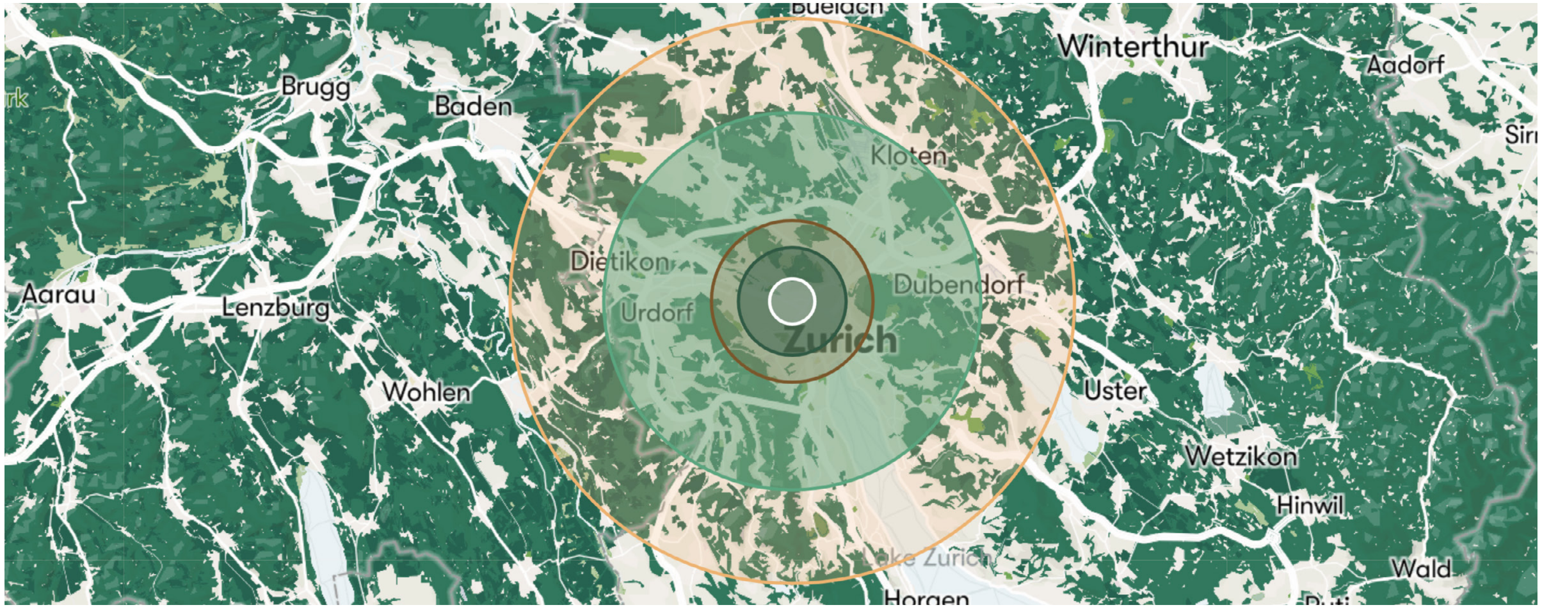
# code p5.js_

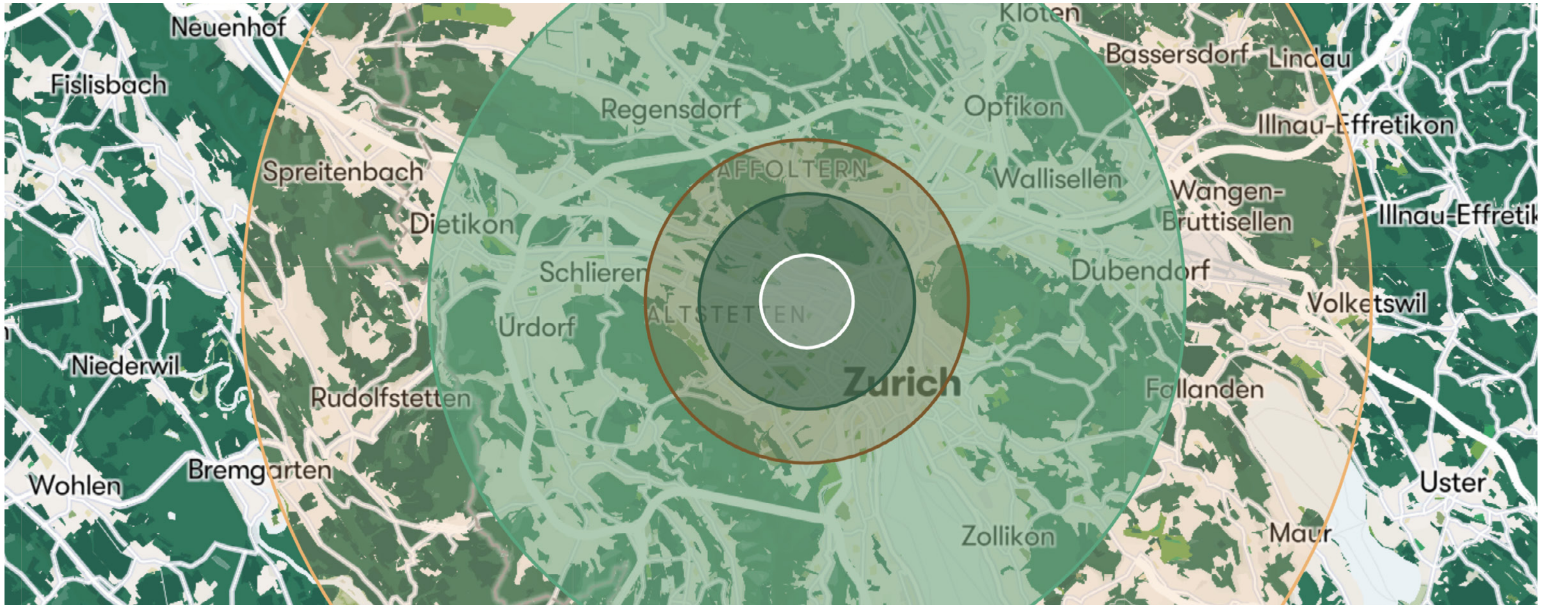
```
let radius_1;
let radius_2;
let radius_3;
let difference;


function setup()
{
            createCanvas(1000, 800);
   background(15,76,129);
   textAlign(CENTER);
   textSize(20);
}

function draw()
{
   translate(width/2, height/2);

   let pop_1 = 15000;
   let co2_1 = 4.3;
   let scale = 50;
   radius_1 = forest_circling(pop_1,co2_1) *
scale;

   console.log(radius_1);

   fill(0,148,115);
   circle(0,0,radius_1);

   fill(255,255,255);
   text(‚Waldfläche', 0, radius_1/2 - 20);

   radius_2 = 1.4 * scale;
   fill(255,255,255);
   circle(0,0,radius_2);

   difference = radius_1/radius_2;
   difference = difference * difference;

   fill(255,255,255);

   text(‚difference: ‚ + difference, 0, 70);
   noLoop();
}

function forest_circling(population,co2_ave-
rage){

   let forest_ha = 6;

   value = co2_average*population;
   value = value / forest_ha;
   value = value / 100;
   x = value / PI;
   radius = sqrt(x);
   radius = radius *2;
   console.log(radius);
   return radius;
}
```



sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# mapbox_



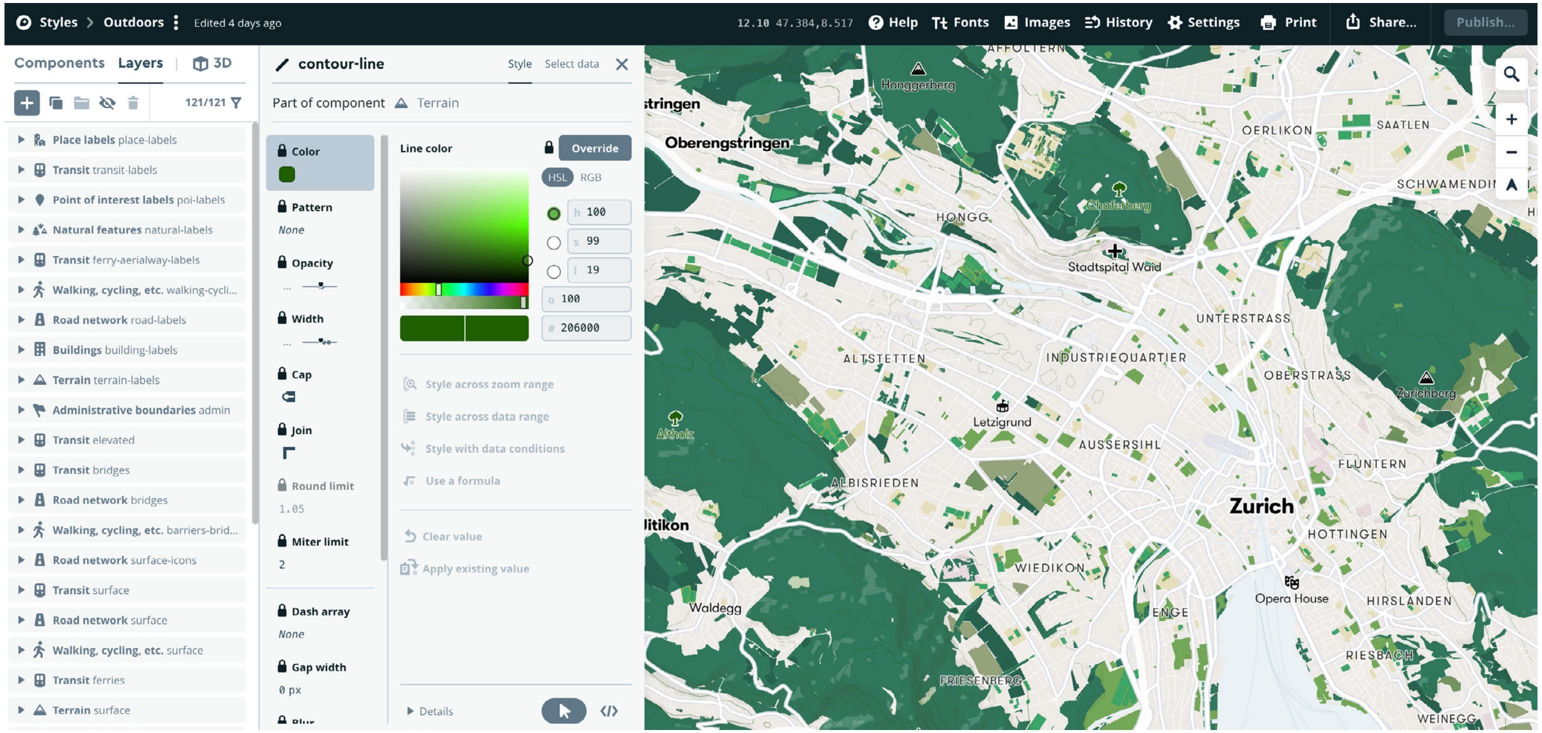





sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# settings mapbox_

To get an individualized map we worked with mapbox. This online tool allowed us to set individual colors and therefor highlight and hide elements to our needs.






sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# code mapbox_

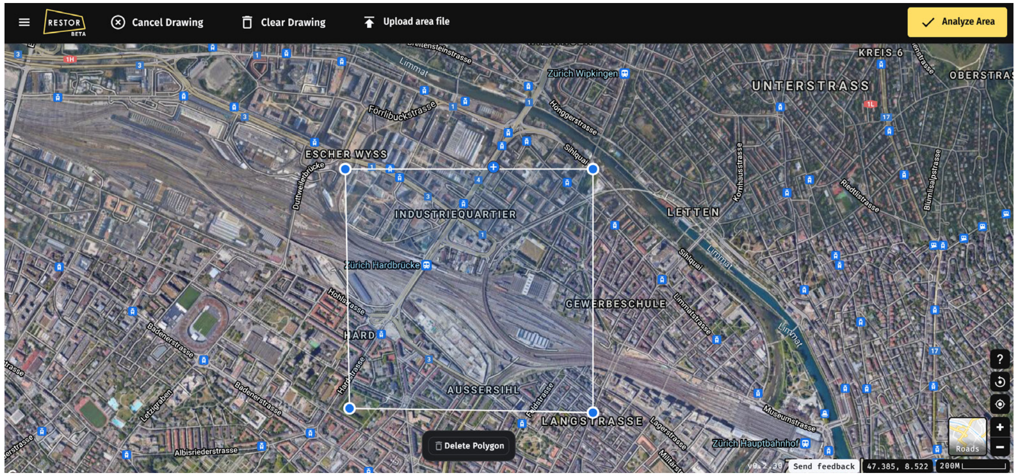
```
var mymap = L.map(‚map‘).setView([47.390927, 8.512065 ], 15);
//47.390927 8.512065

L.tileLayer(‚https://api.mapbox.com/styles/v1/nwfwsb/ckwoztury4ms-
b14o58yb5up61/tiles/256/{z}/{x}/{y}@2x?access_token=pk.eyJ1Ijoibndmd-
3NiliwiYSI6ImNrd2V3ZDlhMzA4dTUydnBtcnR3ejltMGoifQ.0Djoc1vvkfjJ8
WVL487Tdg‘,
{
   maxZoom: 18,
   attribution: ‚Map data &copy; <a href=“https://www.openstreetmap.
org/copyright“>OpenStreetMap</a> contributors, , +
   ‚Imagery © <a href=“https://www.mapbox.com/map-feedback“>Map-
box</a>‘,
   id: ‚mapbox/streets-v11‘,
   tileSize: 512,
   zoomOffset: -1
}).addTo(mymap);


let radius_zuerich_city;
let radius_mexico_city;

// let radius_2;
// let radius_3;
let raduis_zuerich_city_biocapacity;
let raduis_mexico_city_biocapacity;


// radius_mexico_city =  forest_circling(21000,3.58);

radius_zuerich_city = forest_circling(36000,4.3);
radius_mexico_city = forest_circling(2938,4.3);

raduis_zuerich_city_biocapacity = global_hektar_area(36000,1.6);
raduis_mexico_city_biocapacity = global_hektar_area(2938,1.6);


// radius_zuerich_city= 1000;
console.log(‚zürichCO2: , + radius_zuerich_city);
console.log(‚scoleCO2: ,  + radius_mexico_city);


console.log(‚zürichGHA: , + raduis_zuerich_city_biocapacity);
console.log(‚scoleGHA: , + raduis_mexico_city_biocapacity);


function forest_circling(population,co2_average){

   let forest_ha = 6;
   let value;
   let x;
   let radius;

    value = co2_average*population;
   value = value / forest_ha;
   value = value / 100; // km2
    x = value /  Math.PI;
   radius = Math.sqrt(x)
   radius = radius * 1000; //m2
   return radius;
}

function global_hektar_area(population,biocapacity){

  let radius;
  let value;
  let x;

  value = population*biocapacity;
  value = value/100;
  x = value /  Math.PI;
  radius = Math.sqrt(x);
  radius = radius * 1000;
   return radius;
}

//ZUERICH
L.circle([47.390927, 8.512065], radius_zuerich_city, {
   color: ‚#24A184‘,
   fillColor: ‚#24A184‘,
   fillOpacity: 0.5
}).addTo(mymap);

//ZUERICH - biocapacity
L.circle([47.390927, 8.512065], raduis_zuerich_city_biocapacity, {
   color: ‚#EEB471‘,
   // fillColor: ‚red‘,
   // fillOpacity: 0.5
}).addTo(mymap);

//MEXICO CITY
L.circle([47.390927, 8.512065], radius_mexico_city, {
   color: ‚#155B4B‘,
   fillColor: ‚#155B4B‘,
   fillOpacity: 0.5
}).addTo(mymap).bindPopup(„I am a circle.“);

//ZUERICH - biocapacity
L.circle([47.390927, 8.512065], raduis_mexico_city_biocapacity, {
   color: ‚#7C572C‘,
   // fillColor: ‚red‘,
   // fillOpacity: 0.5
}).addTo(mymap);


//AREA BASE
L.circle([47.390927, 8.512065], 1100, {
   color: ‚white‘,
   fillColor: ‚white‘,
   fillOpacity: 0.2
}).addTo(mymap).bindPopup(„I am a circle.“);
// var popup = L.popup();

// function onMapClick(e) {
//     popup
//        .setLatLng(e.latlng)
//        .setContent(„You clicked the map at „ + e.latlng.toString())
//        .openOn(mymap);
// }

// mymap.on(‚click‘, onMapClick);
```


sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# data collection_

The code below helped us to draw the same sized square on restor map according to the given coordinates. Once implemented we could easily analyse the area to get restor data that we used to implement in our visualisation.

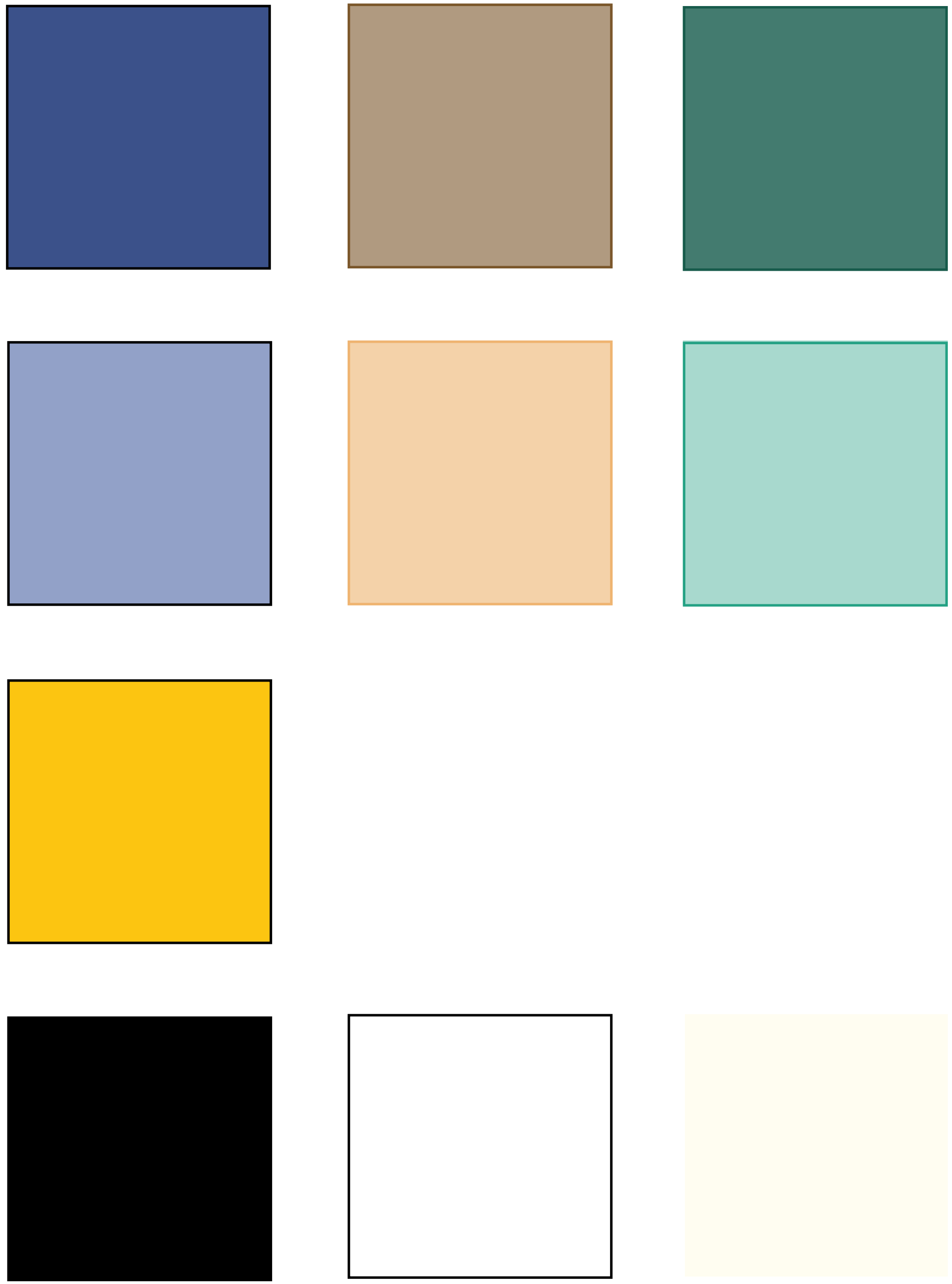

```
{
 „type“: „FeatureCollection“,
 „features“: [
  {
   „type“: „Feature“,
   „properties“: {},
   „geometry“: {
    „type“: „Polygon“,
    „coordinates“: [
     [
      [
       8.525,
       47.375
      ],
      [
       8.535,
       47.375
      ],
      [
       8.535,
       47.385
      ],
      [
       8.525,
       47.385
      ],
      [
       8.525,
       47.375
      ]
     ]
    ]
   }
  }
 ]
}
```


DATA_VISUALISATION IAD_FS_2021


sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# colours_





sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# font_

TITEL | GT Walsheim Pro Trial | Bold | 72 Pt

**abcdefghijklmnopqrstuvwxy-
zABCDEFGHIJKLMNOPQRSTUV-
WXYZ1234567890**

UNTERTITEL | GT Walsheim Pro Trial | Regular | 48 Pt

abcdefghijklmnopqrstuvwxy-
zABCDEFGHIJKLMNOPQRSTUV-
WXYZ1234567890

TEXT | GT Walsheim Pro Trial | Ultra Light | 48 Pt

abcdefghijklmnopqrstuvwxyzAB-
CDEFGHIJKLMNOPQRSTUV-
WXYZ1234567890


sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# font_

TITEL_SONDERZEICHEN | GT Walsheim Pro Trial | Bold | 72 Pt

**.,:;-?!äöüÄÖÜ**

UNTERTITEL_SONDERZEICHEN | GT Walsheim Pro Trial | Roman | 48 Pt

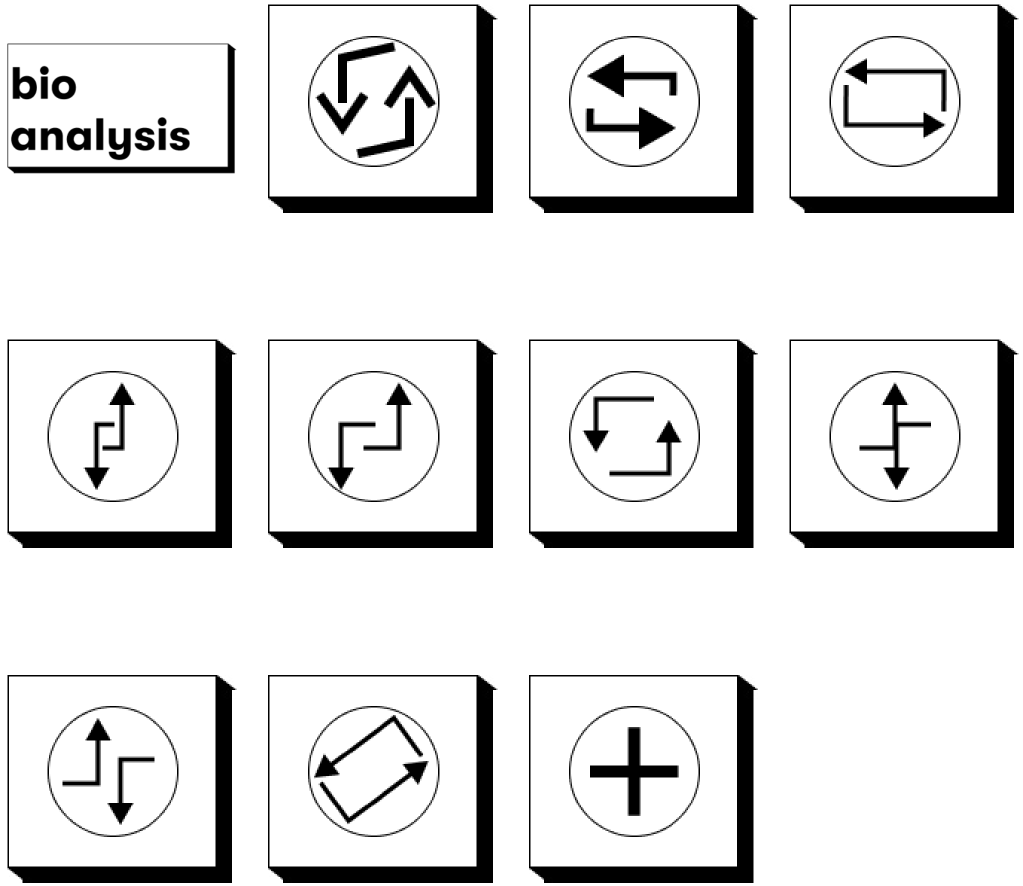
.,:;-?!äöüÄÖÜ

TEXT_SONDERZEICHEN | GT Walsheim Pro Trial | Light | 48 Pt

.,:;-?!äöüÄÖÜ


sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

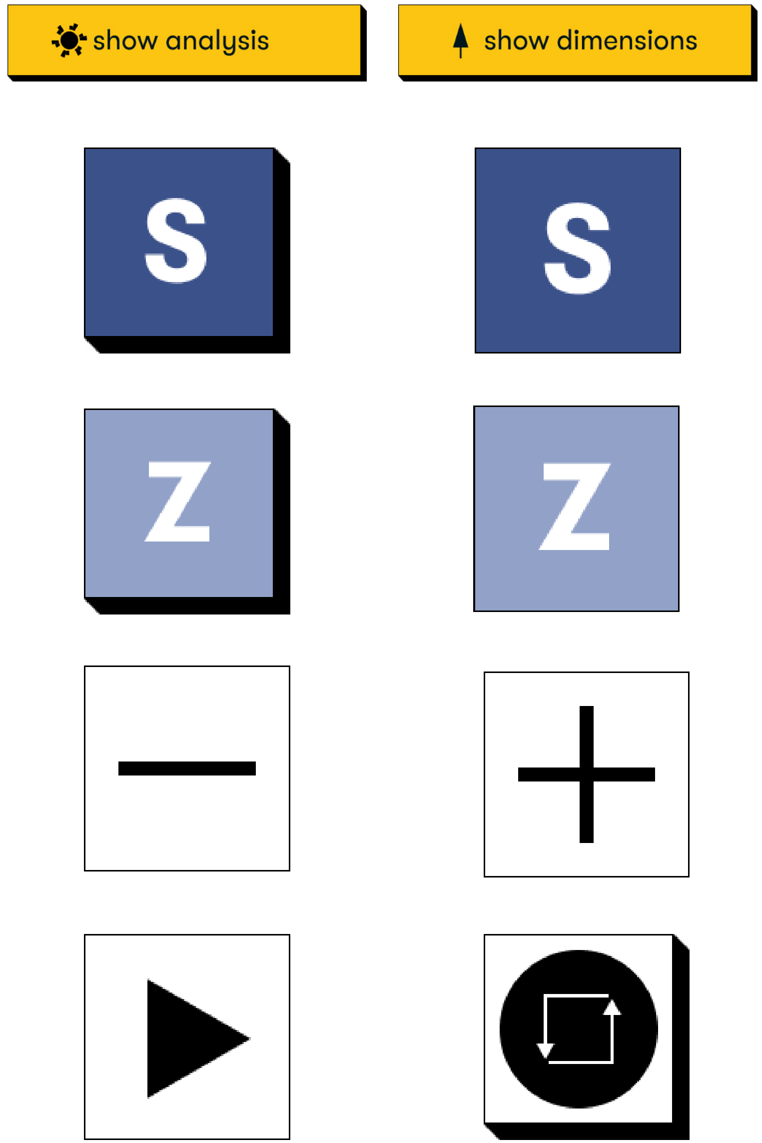
# button process_






sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

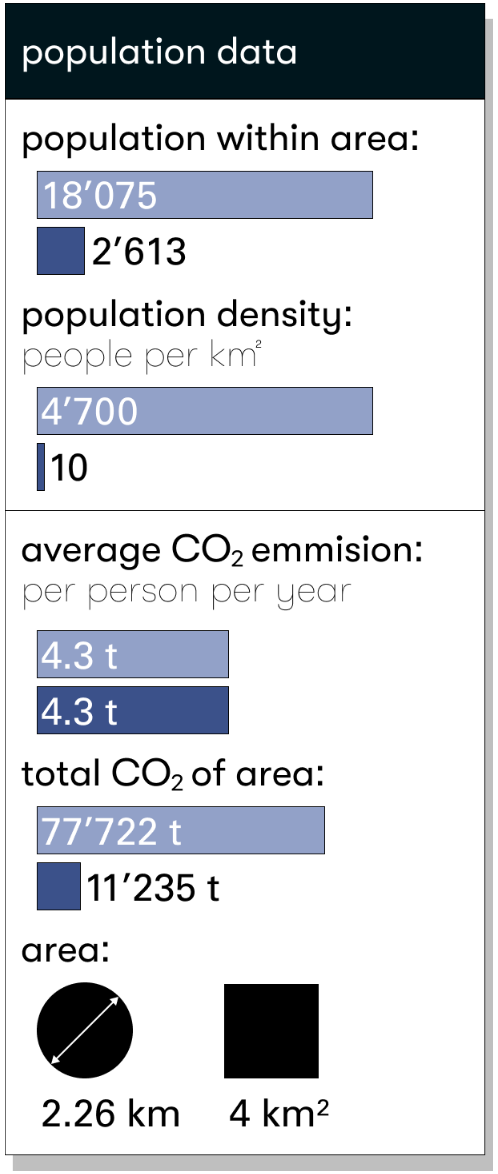
# button final_

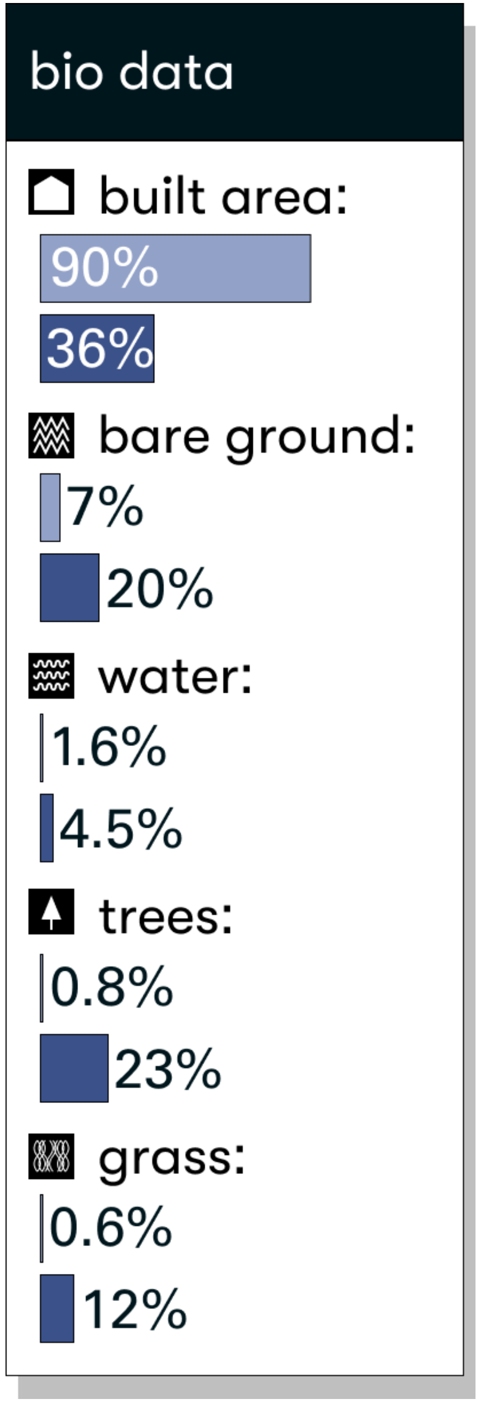




sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# components_

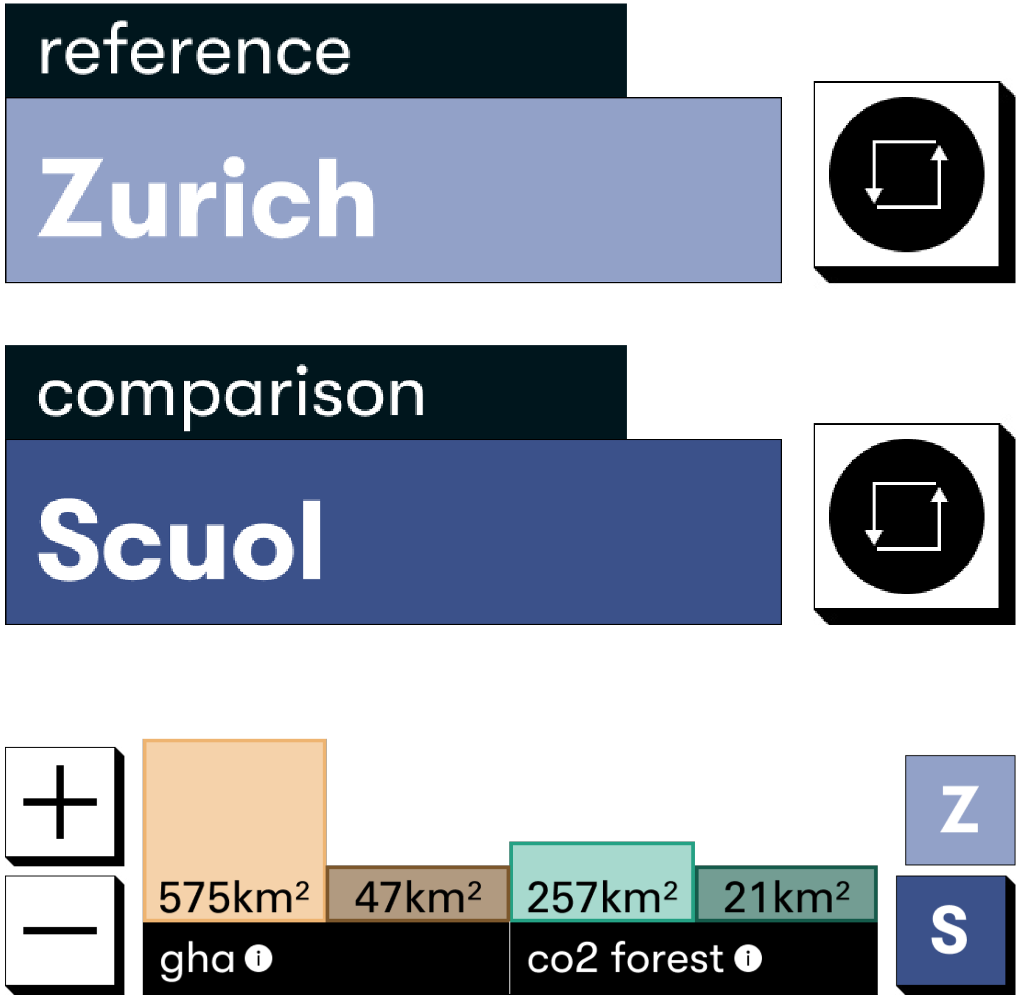





sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# components_

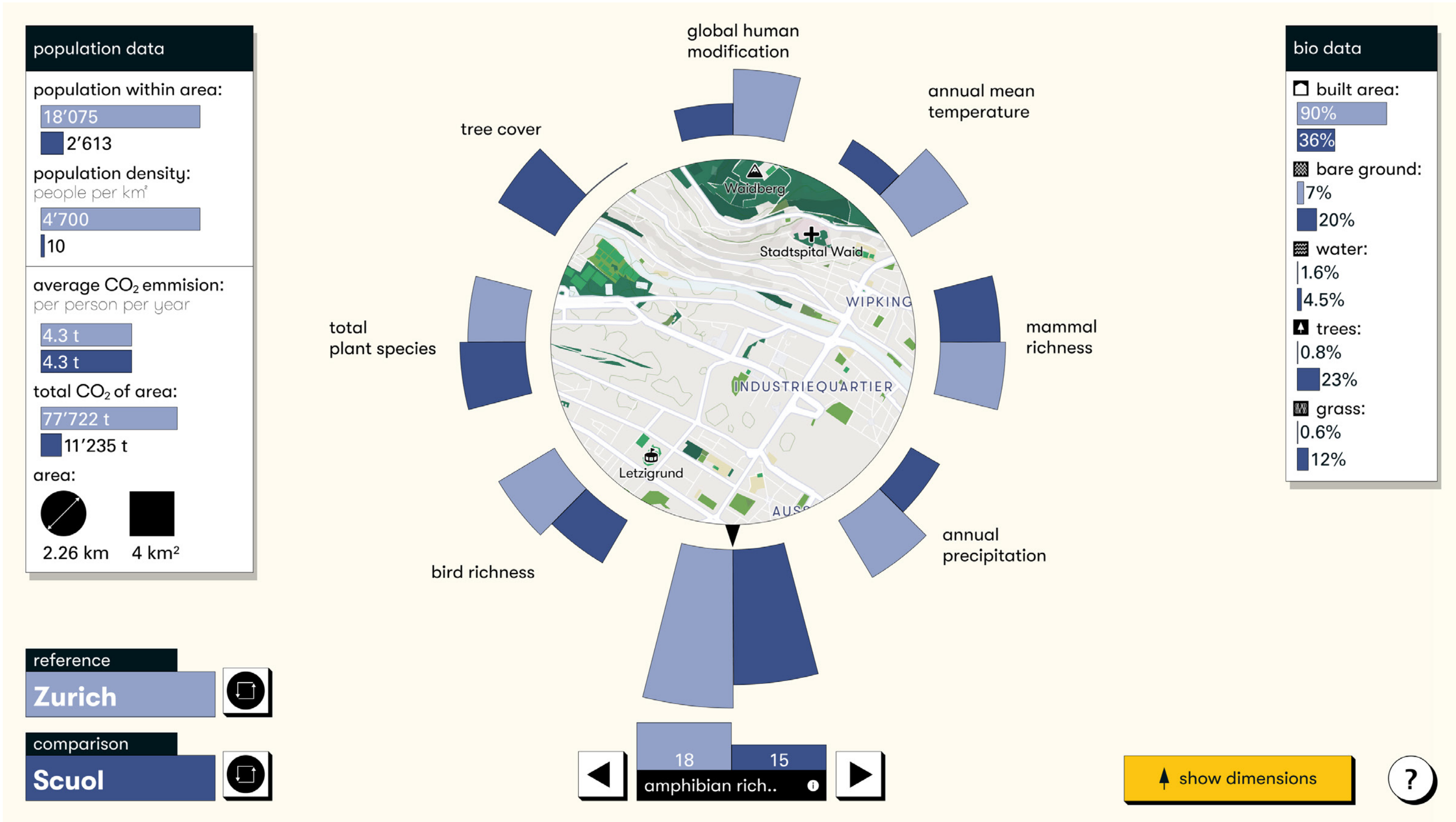




sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# final screens_

This screen is divided into three information sections. On the left we get the data on the population within the drawn circle and a direct comparison to the compared city. The barchart in the middle shows data on biodiversity. These charts are spinnable, inspired by a lucky wheel. On the position standing out the viewer gets more details below. the infobox on the right breaks down the ground properties of the circled area.

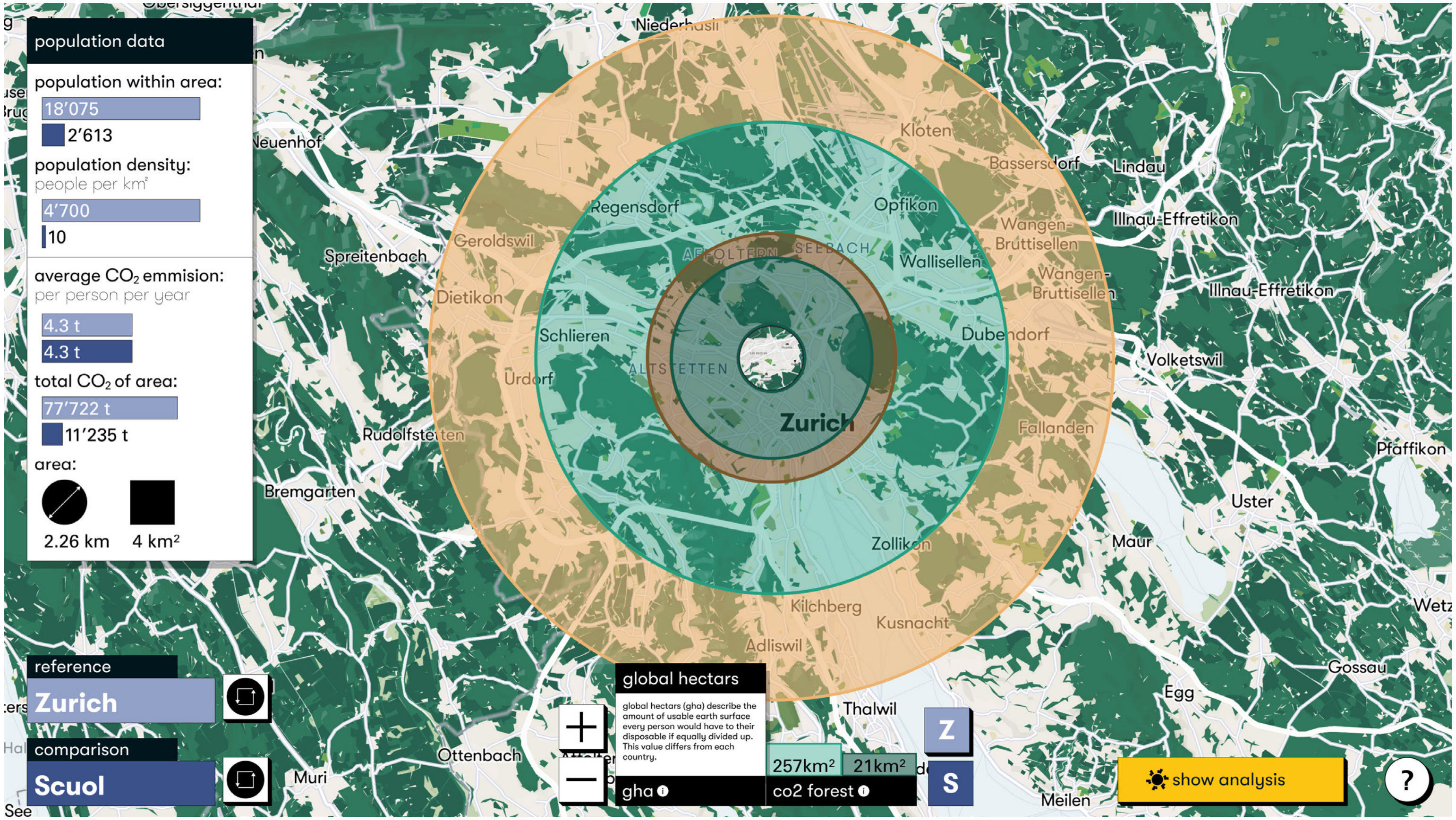




sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# final screens_

The dimension screen is based on speculations about the area that would be used to compensate the carbondioxide emissions. The amount of people within the area are crucial to the calculation and therefor are displayed as on the analysis-screen. The bars on the bottom give detailed information about each circle on the map.

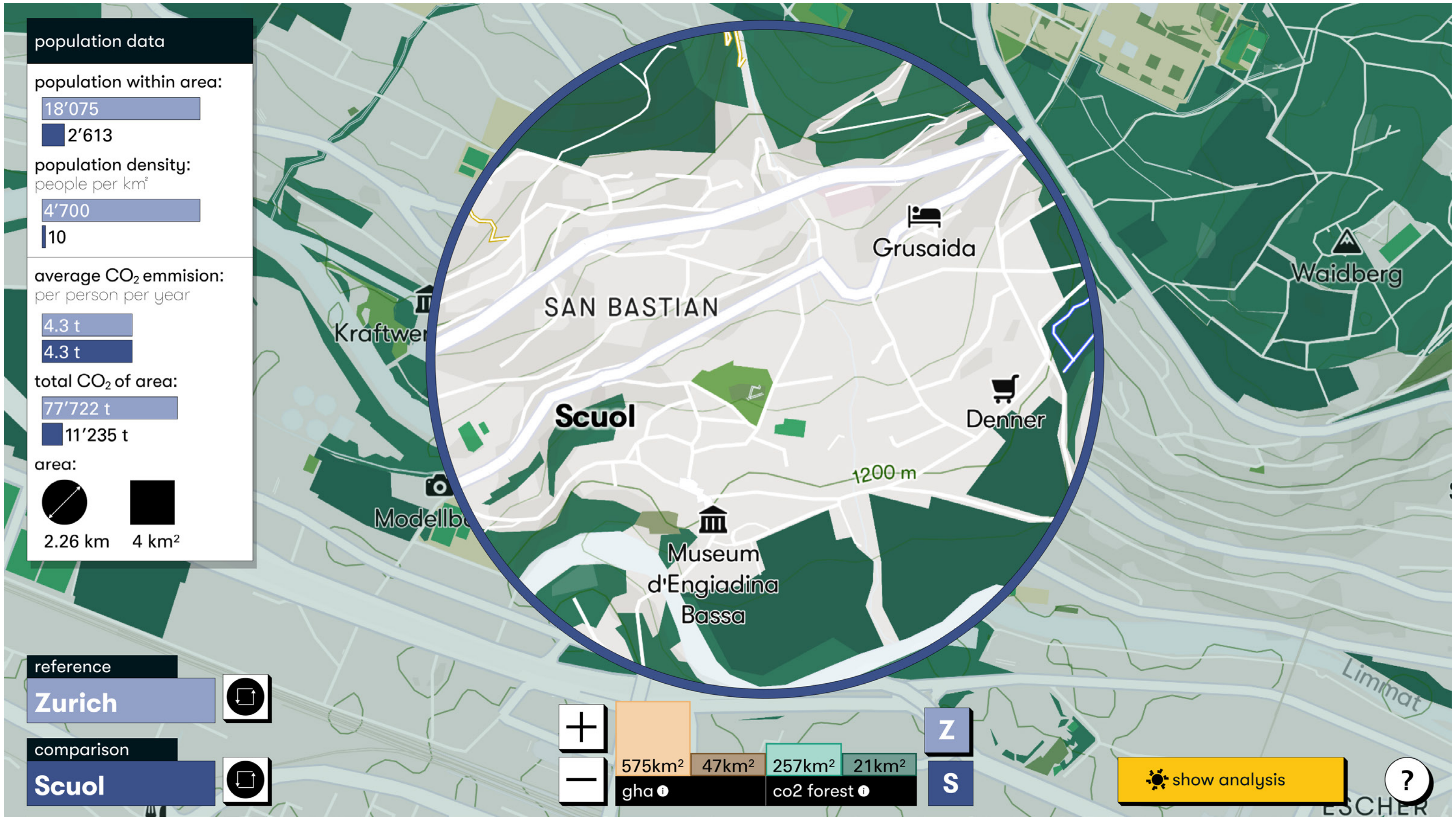




sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# final screens_

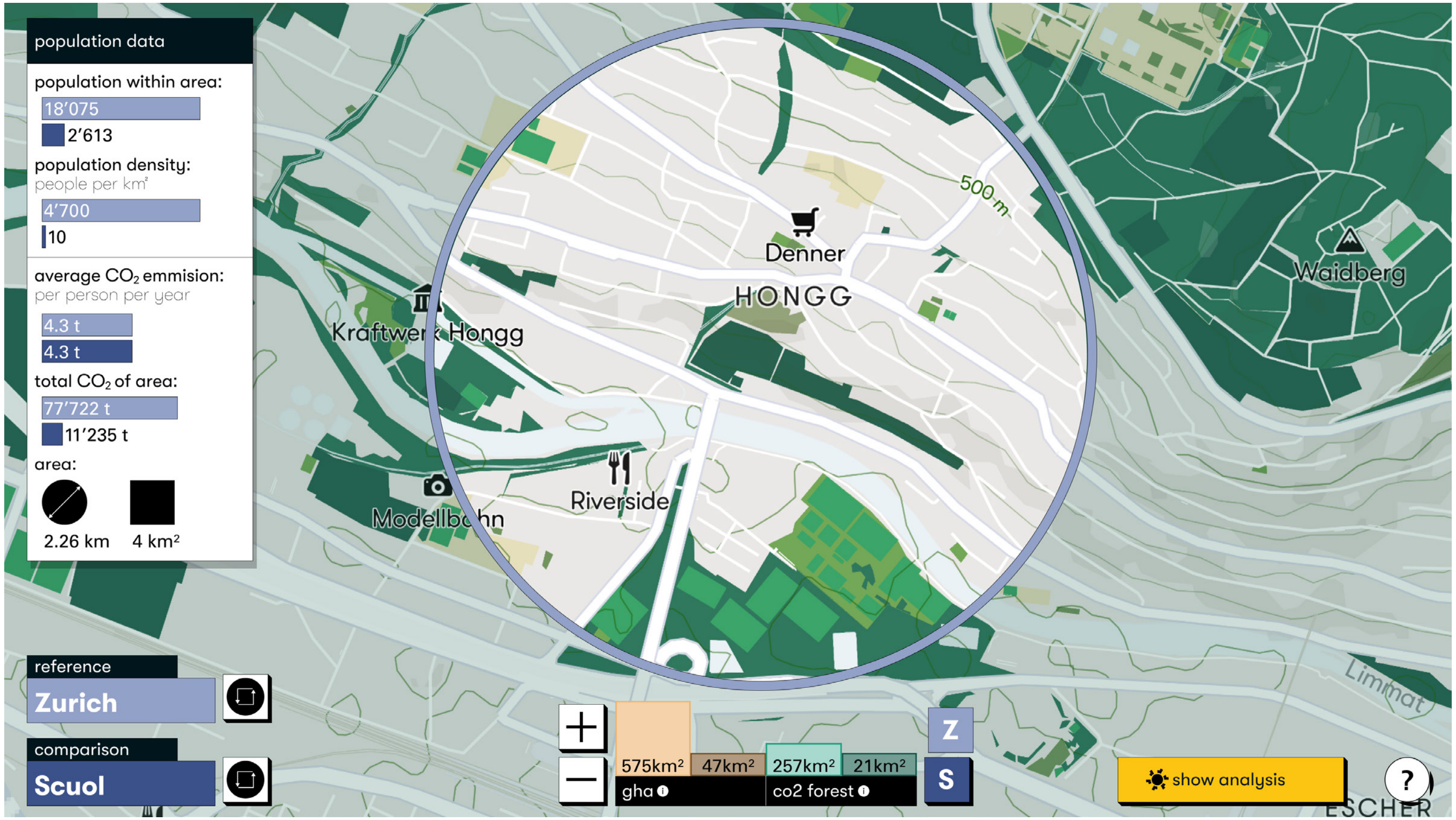
To put the two locations in relation to eachother we decided to give the possibility to implement the compared city inside the map of the first location. It should give the user an idea on the size of the town that is put into comparison.





sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# final screens_






sandro.betti@zhdk.ch fabrizio.willi@zhdk.ch nadia.westermann@zhdk.ch

# final product_



sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch

# fazit_

In the beginning of the module we had some troubles to keep an overview on this very complex topic. Whatever we discussed, thousands of further ideas came into our mind that we had to value. It was very hard to keep our focus on a certain area of the topic which would be fitting to visualize. The more we discussed about it the more we managed to narrow it down. We learned how to deal with issues when i came to organising necessary information but also how to keep focus on the main objective. We're happy with the result despite struggelling a lot getting there.
Since the final output is in form of a figma prototype, we'd have to go through a make over in case we would realize the project if it should function the way we imagine it. The design works well for the comparison of two cities as displayed but if we would want to compare three or more cities to eachother we would have to rethink the structure of the screen. Also if we got a suitable API to implement we'd want to make the map scalable to get more individual comparisons. We think that there's still a lot of potential to the project. Once it would be fully functional the user would have a very detailed view on carbondioxide-emission on a local scale. Even though the numbers on emissions are very rough and could only be accurate narrowed down on a personal level, we think that with our interactive visualization the viewer gets a quite accurate representation of the current situation thus making it tangible. We believe that on this level the willingness to change is more reasonable.


sandro.betti@zhdk.ch fabrizio.willi@zdhk.ch nadia.westermann@zhdk.ch