

## WELCOME TO THE SOUNDSCAPE TUB REPORT ✕

The SOUNDSCAPE TUB course (Projektwerkstatt) proudly presents the results from the winter semester 2021/2022.

In the first semester, we researched how the TU Berlin sounds and what methods and tools we need for studying the sound ecologies and environments we usually don't pay attention to.

This is an interactive document – use the menubar and buttons to navigate!



Projektwerkstätten



# MEDIA

(WORK IN PROGRESS)

In the future, it will be possible to browse through a selection of audios and videos made by the course participants, as well as interesting materials regarding the course’s topics. This collection will be updated and expanded continously throughout the following semesters.

MEDIA  
PREVIEW →

VIDEOS

PAPERS

AUDIOS

LINKS



VIDEO

Cello-Aufnahmen im Lichthof  
der TU Berlin

- Johann Bicher



## HOW DOES THE TU BERLIN SOUND?



Projektwerkstätten



In this project course, interested students explore the concept of acoustic ecology, the relationship between people and their environment mediated by sound. The interaction environment of the TUB campus can be used as a social and sonic commons model; as a space where many people share an acoustic environment and can hear the effects of each other's activities.

This way, we aim to explore the connection between our acoustic environment, scientific data, technology, society and artistic thinking in practice, as well as to exploit the potential of sound as a socio-political and science communication tool.

In addition to theoretical and practical overviews of soundscape approaches, sound ecology and sound studies, this module focuses on auditory perception, communication, and self-organization, as well as an ethical and perceptual understanding of technology and the environment.

The project aims to combine theory with practical implementation projects and interventions by students. Through insights into different recording technologies, possible outcomes could be the successive construction of a soundscape map, sound installations and interventions, audio papers, podcasts, a website.

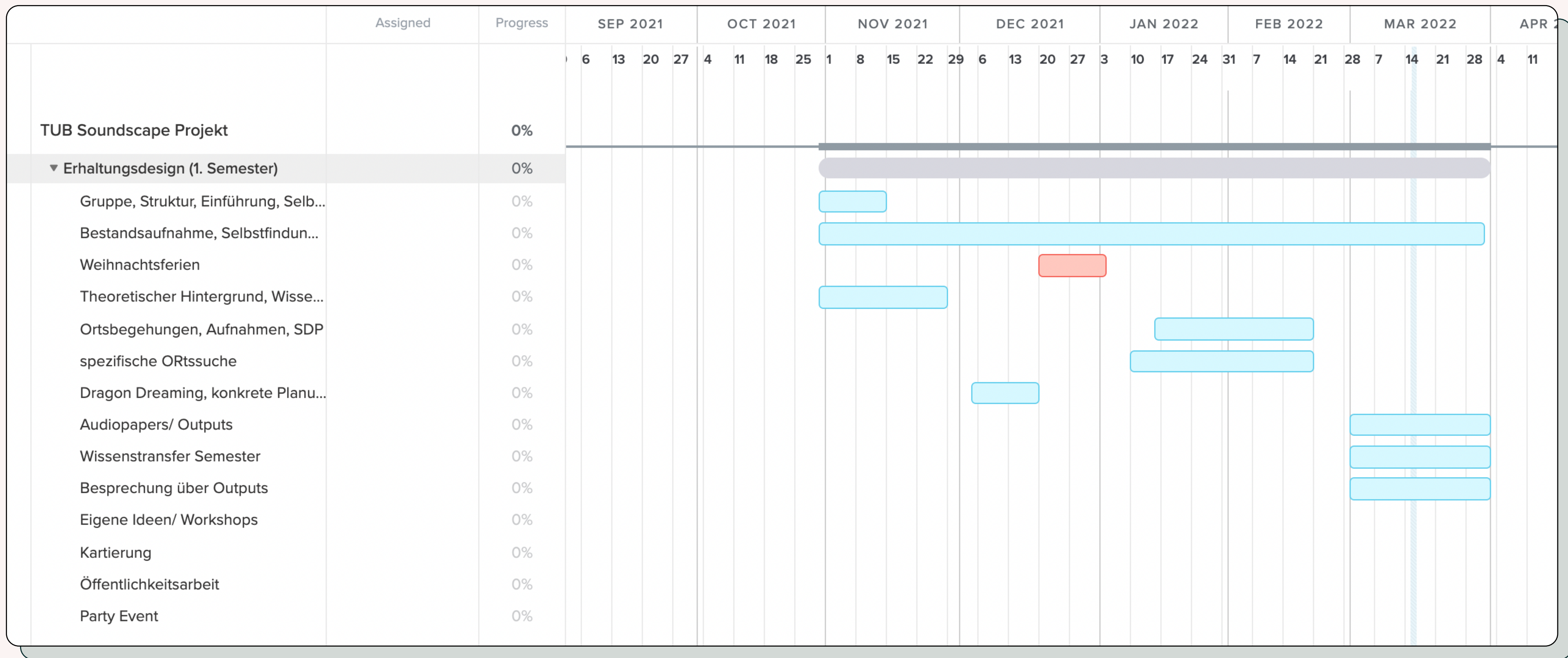
It is desired to create a diverse and inclusive learning atmosphere and to apply aspects of social ecology with the help of a reasonably equal gender quota between men, women and gender-diverse people as well as a certain proportion of students of non-German origin.

The projektwerkstatt is supported and supervised by Prof. Dr. André Fiebig from the Department of Technical Acoustics, focus on Psychoacoustics.

DOCUMENTATION

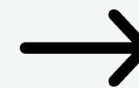


## DOCUMENTATION • COURSE STRUCTURE



COURSE  
INFO

COURSE  
TIMELINE





# COURSE TIMELINE

- 1 | KW 43 (29.10.21) Introductory Meeting  
Getting to know each other, motivation, organizational issues. A brief history of cartography, uploading slides, methods (ES, 5D), scripts.
- 2 | KW44 (5.11.21) No meeting/ second introductory meeting for absentees.  
Promise mails. Links (Isis, Drive, Handbook)  
Commons: TUB Cloud impressions and possible new input Handbook for Acoustic Ecology Install  
Radical Listening or Sonic Commons: podcast or text for next date
- 3. KW45 (12.11.21) Meeting  
Aural Diversity & Sonic Commons (who listens and how?)  
Modes of Listening (game, Schäfer's keynote etc.)  
Own suggestions  
Knowledge pool (drive/web sites/possible collaborations) and literature, Discuss.  
For next week: read a text (Edx quiz, Handbook, Introduction to Ac. Ecology, other)/ podcast, and/ or bring own sound experiments/projects
- 4. KW 46 (19.11.21) Meeting  
(Deep) Listening practice.  
World cafe about (the) texts/podcasts/own projects: Paying attention to lofi hifi and collecting terms. Replay drift text, psychogeography/podcast

- 5. KW47 (26.11.21) Meeting Soundwalk 1, DRIFT  
Introduction/motivation input (Replay Drift/Udo Noll/Sam Auinger).  
Reflection: thoughts for TUB investigation sites/ group breakdown for investigation.  
Audiopaper (Manifesto)
- 6. KW48 ( 3.12.21) Meeting  
Define common goal(s). Method: Dragon dreaming
- 7. KW 49 (10.12.21) Dragon Dreaming ANECHOIC CHAMBER  
Clustering and group division/ Reflection free space TUB excursion
- 8. KW 50 (17.12.21) Dragon Dreaming  
Clustering and group division/ next steps, feedback
- WINTER BREAK
- 9. KW 1 (7.1.22) possibly online updates, status, reflection, next steps, own workshops  
read Soundwalk DIN during the week
- 10. KW 2 (14.1.22) presence/online lecture/ exercise: Prof. Dr. Fiebig  
Soundwalk according to DIN ISO, SDP measurement, time signal

- 11. KW 3 (21.1.22) presence/online lecture/ exercise: (Prof. Dr. Fiebig) psychoacoustics-listening-exemplars/ other input
- 12. KW 4 (28.1.22) Field Recording Introduction & Practice  
(Barry, practice, videos, practice). Soundwalks, data collection (SDP & Soundscape) Possible study sites , small groups.
- 13. KW 5 (4.2.22) Small groups Soundwalks, recording, data collection, questions/reflection in zwille.  
Send Audiopaper examples
- 14. KW 6 (11.2.22) Small groups soundwalks, recordings, data collection, questions/reflection in Zwille  
Send Audipaper examples
- 15. KW 7 (18.2.22) ABLETON WORKSHOP by Noah  
In-house workshops: Introduction sound editing/"aesthetics", soundscape compositions, (Possibly in small groups) Audiopaper brainstorming, preparation, publishing thoughts.

DETAILED DOCUMENTATION

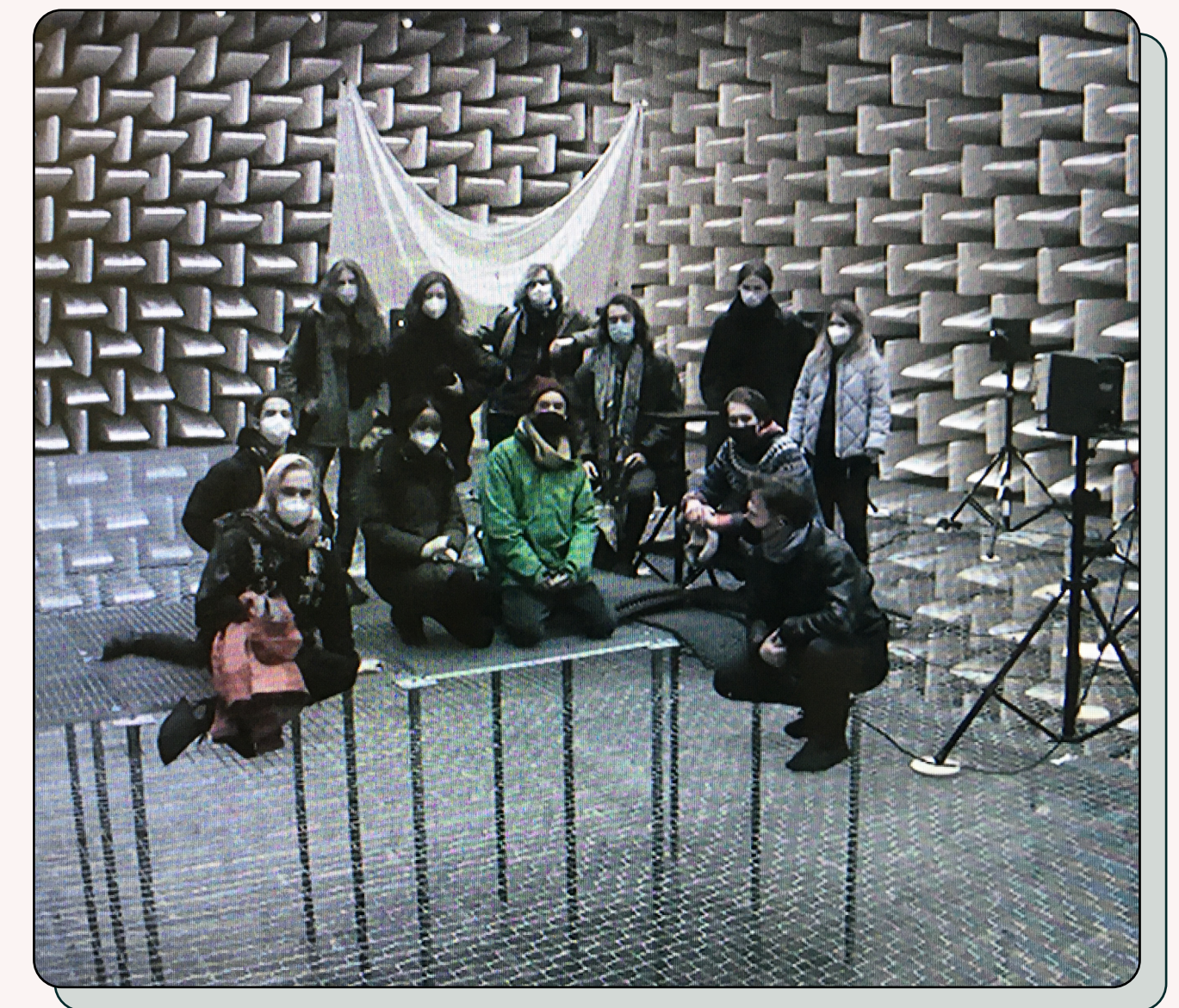




## THE WS 21/22 TEAM

✌ Mariana Carvalho  
 ✌ Noah Frick  
 ✌ Daniel Dilger  
 ✌ Elmar Conzen  
 ✌ Maren Berg  
 ✌ Ludwig Meckel  
 ✌ Ilias Mavromatis (Tutor)

✌ Helen Henze  
 ✌ Franz- Xaver Schönhammer  
 ✌ Johan Bicher  
 ✌ Lynn Habermann  
 ✌ Martina Lustina  
 ✌ Raphael Kleeman-Sánchez



COURSE  
TIMELINE

METHODS  
& TOOLS





## METHODS & TOOLS — WS 21/22

### Platforms & Tools

- Radio Aporee
- Hush City
- Radio Earth (Live Streams)
- Geo-Cast
- Noise-Planet

### Methods

#### QUANTITATIVE

- Schalldruckpegelmessungen

#### QUALITATIVE

- Zoning
- Drift
- Interviews lokaler ExpertInnen (CampusnutzerInnen)
- "Hörprotokoll" - Auditory Architecture Research Unit (Klangumwelt Ernst Reuter Platz)
- Kritische Reflektion: Kunst vs Wissenschaft
- Field Recordings (Einzelne, Langzeitaufnahmen)
- Soundwalk nach ISO/TS 12913-2 v
- Spectrogramme
- Listen n Project

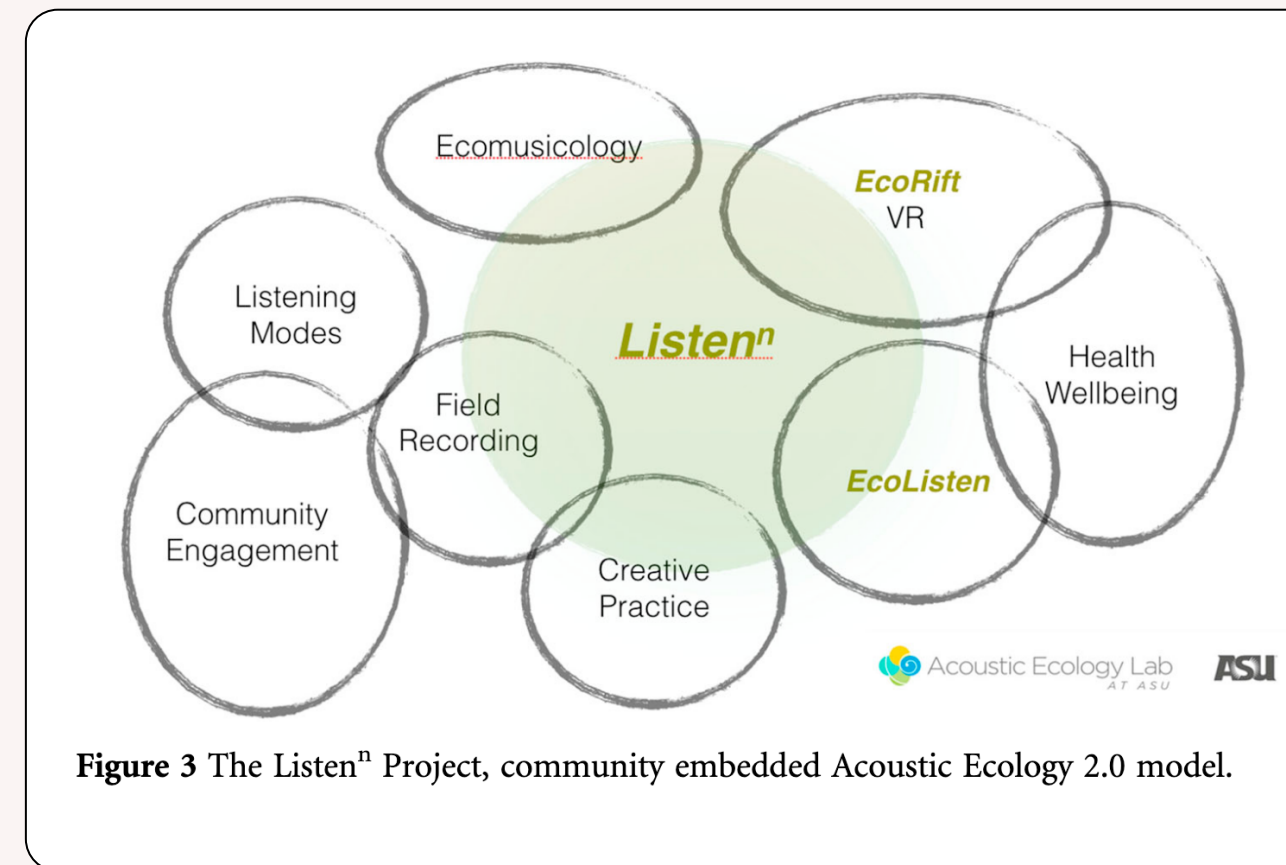


Figure 3 The Listen<sup>n</sup> Project, community embedded Acoustic Ecology 2.0 model.

## AB SOSE 22

### Methods

- Citizen Science
- Soundscape Design (+/-) / Intervention
- Kritische Reflektion: Kunst vs Wissenschaft
- Interviews lokaler ExpertInnen (CampusnutzerInnen)
- "Hörprotokoll" - Auditory Architecture Research Unit (Klangumwelt Ernst-Reuter-Platz)
- Field Recordings (Einzelne, Langzeitaufnahmen)
- Soundwalk nach ISO/TS 12913-2 v
- Spectrogramme
- Listen n Project

ALLGEMEIN: VERTIEFUNG  
VORHANDENER PROJEKTE



COURSE  
TIMELINE

SEMESTER  
HIGHLIGHTS





KW46 (19.11.21)

(Deep) Listening practice  
World cafe about (the) texts/  
podcasts/own projects: Paying  
attention to lofi hifi and collecting  
terms. Replay drift text,  
psychogeography/podcasts

Technischen Akustik", „Technische Akustik für Fortgeschrittene", „Theoretische Akustik" behandelt.

**1.2 Schall, Grundbegriffe der Akustik**

Physikalisch gesehen handelt es sich beim Schall um kleine, zeitliche Schwankungen der Dichte in einem elastischen Medium. Alle Fluide, also Gase und Flüssigkeiten, und auch alle Festkörper können als solche elastischen Medien angesehen werden. We besondern Bedeutung für die Wahrnehmung durch den Menschen wollen wir uns in diesem Abschnitt auf den Schall in Fluiden (Fluidschall) und insbesondere den Luftschall beschränken.

Eine Veränderung der Dichte der Luft hat stets auch eine Veränderung des Drucks zur Folge. Deshalb geht Schall auch immer mit zeitlichen Druckschwankungen einher. Bei diesen Druckschwankungen auftretende Differenz zwischen dem momentanen Luftdruck  $p_{ges}(t)$  und dem statischen Luftdruck  $p_0$  ist der Schalldruck  $p(t)$ , die wichtigste Größe zur Beschreibung des Schalls (Bild 1.1).

Die zeitlichen Druck- und Dichteschwankungen breiten sich als Schallwelle in der Luft aus und führen so auch zu örtlichen Unterschieden in Druck und Dichte, sozusagen zur Verdichtung benachbarter Bereiche der Luft (Bild 1.2). Infolge dessen bewegen sich die Teilchen der Luft zwischen diesen Bereichen entsprechend der zeitlichen Änderung hin und her. Neben dem Schalldruck ist diese (Wechsel-)Bewegungsgeschwindigkeit der Teilchen eine weitere wichtige Größe zur Beschreibung von Schallwellen und wird Schallgeschwindigkeit genannt.

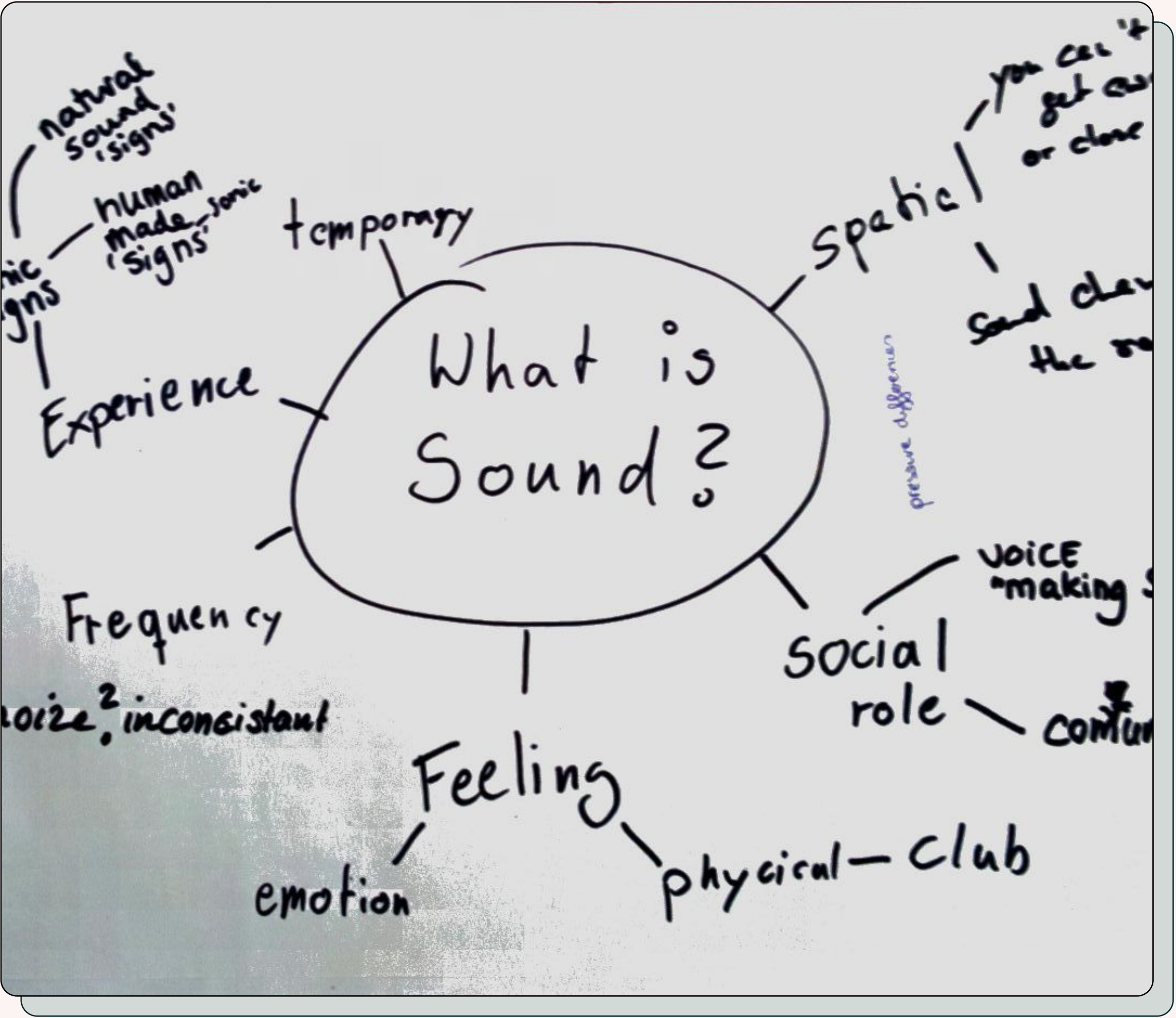
Schalldruck ①

②

③

$p(t) = p_0 + p(t)$

Luftdruck  $\approx 10^5 \text{ Pa}$



Pierre Schaeffer  
Geräusch // Klang

subjektiv

objektiv

Kontext  
Intention  
(der Hörer:innen)  
Erzeuger:innen

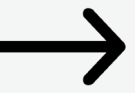
Oberton-  
spektrum

Zuordnbarkeit  
von Pitch



METHODS  
& TOOLS

NEXT  
HIGHLIGHT





KW 47 (26.11.21)



MeetingSoundwalk 1, DRIFT  
Introduction/motivation input (Replay  
Drift/Udo Noll/Sam Auinger).  
Reflection: thoughts for TUB  
investigation sites/group breakdown for  
investigation.  
Audiopaper (Manifesto)



PREVIOUS  
HIGHLIGHT

NEXT  
HIGHLIGHT





KW 49 (10.12.21)

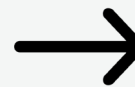


Dragon Dreaming & ANECHOIC CHAMBER  
Clustering and group division  
Reflection free space TUB excursion



PREVIOUS  
HIGHLIGHT

NEXT  
HIGHLIGHT

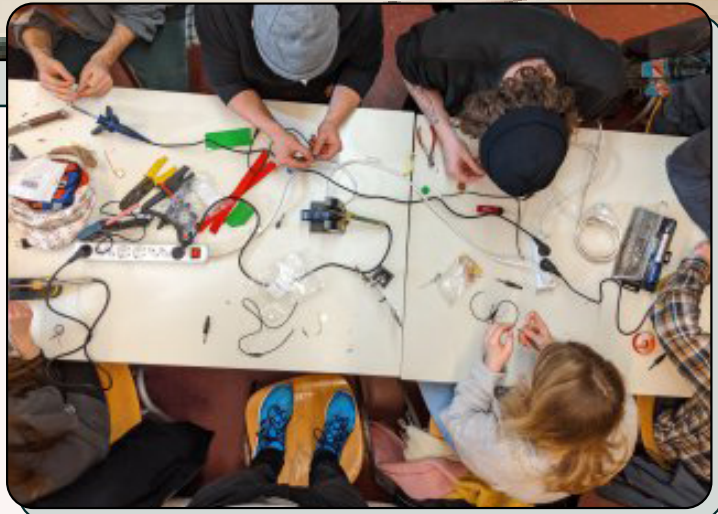
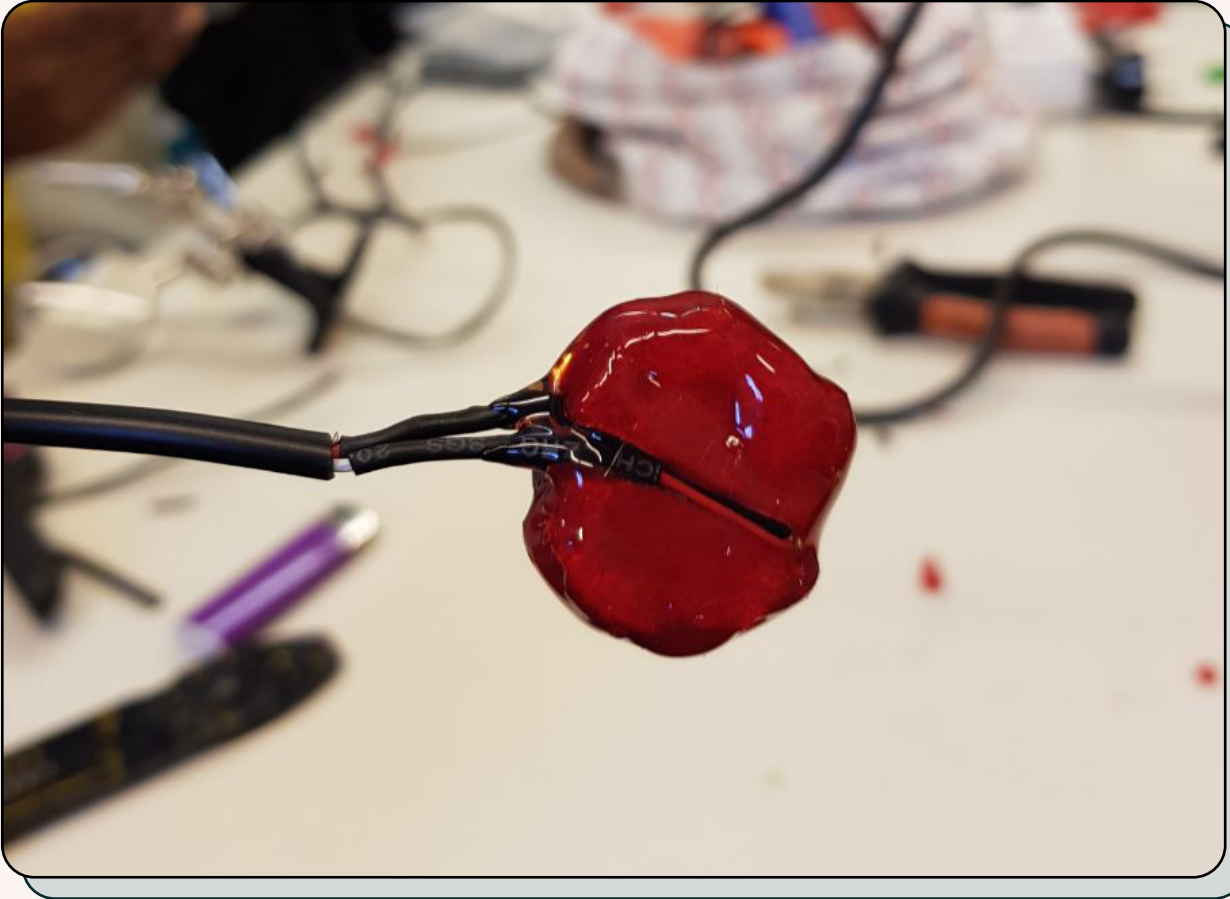
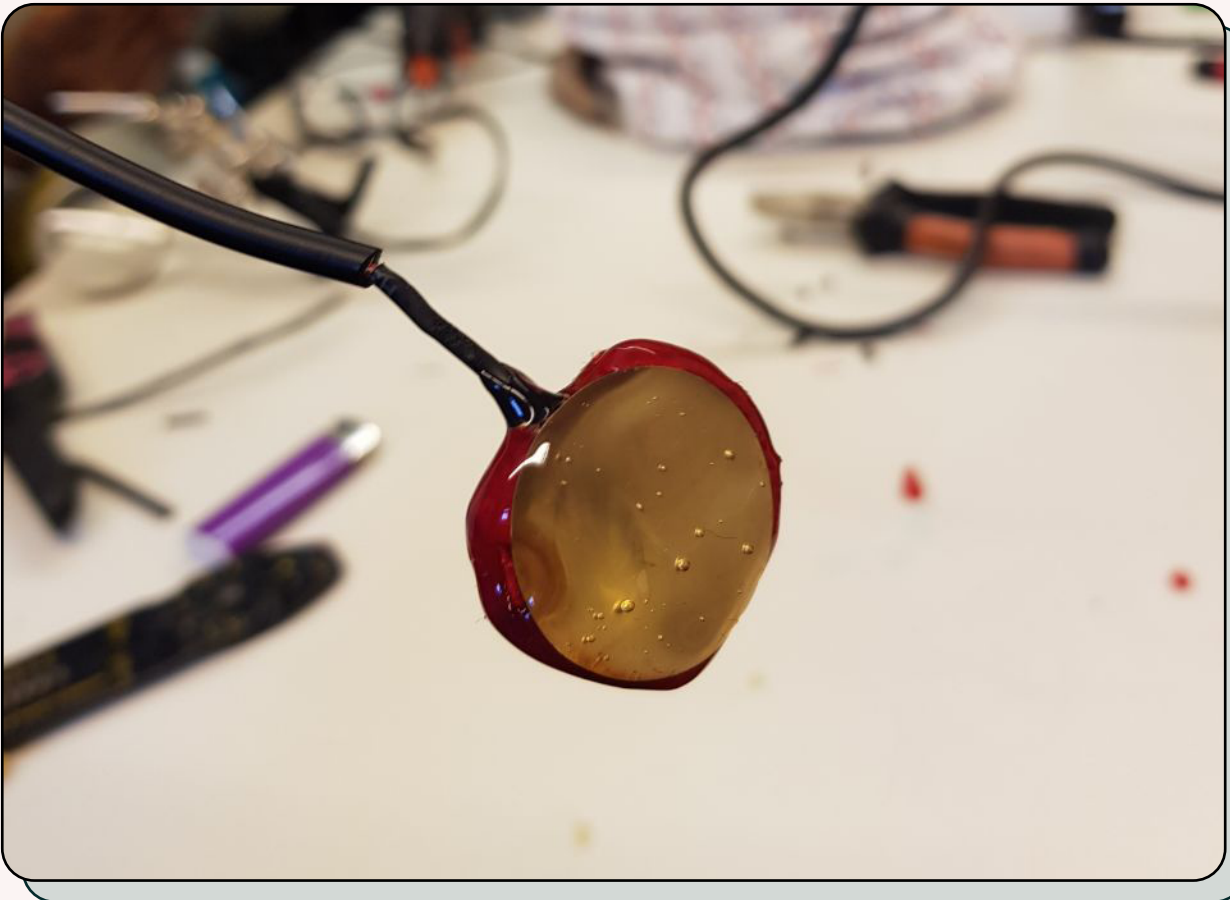




KW 28 (28.1.22)

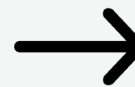


Contact Mic Workshop  
by Ludwig M.  
at TUDo/Ini-Keller at EB building



PREVIOUS  
HIGHLIGHT

NEXT  
HIGHLIGHT





KW 4 (28.1.22)

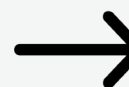


Field Recording Introduction & Practice  
(Barry, practice, videos, practice).  
Soundwalks, data collection (SDP &  
Soundscape)Possible study sites , small  
groups.



PREVIOUS  
HIGHLIGHT

NEXT  
HIGHLIGHT

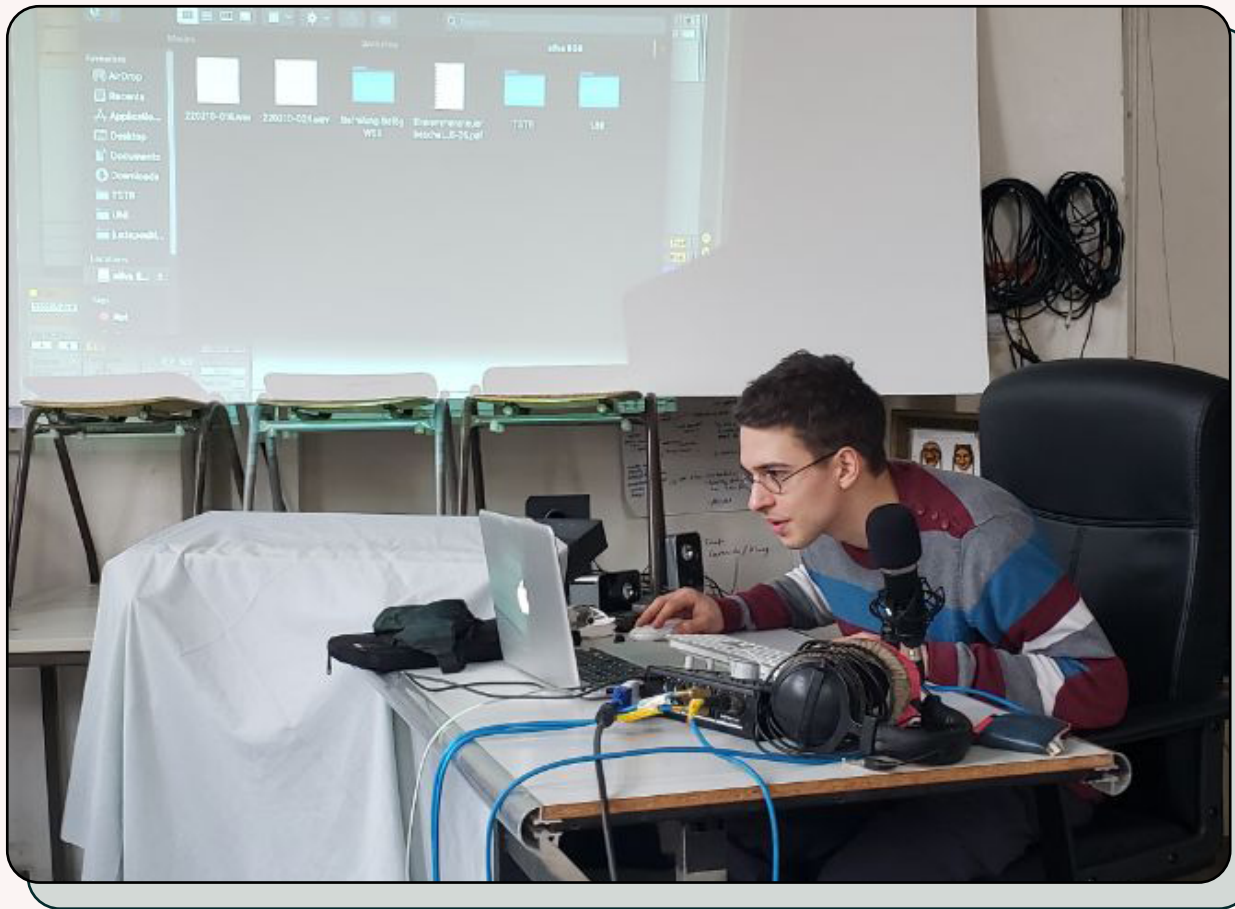




KW 7 (18.2.22)



ABLETON WORKSHOP by Noah  
In-house workshops: Introduction  
sound editing/"aesthetics", soundscape  
compositions, (Possibly in small groups)  
Audiopaper brainstorming, preparation,  
publishing thoughts.



PREVIOUS  
HIGHLIGHT



WS 21/22 PROJECTS

COMMS &  
NETWORK

DEN  
ESSBAREN CAMPUS  
HÖRBAR MACHEN

HISTORY  
DRIFT

SOUNDS  
OF TU

SOUNDWALK  
AUSWERTUNG

VIBRATION  
OF THINGS

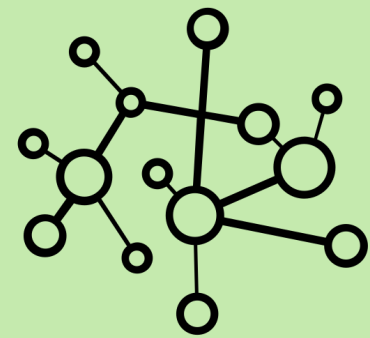
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## COMMS & NETWORK

Daniel D. & Ilias M.

Network building  
Relationship management,  
Expert interviews  
Strategic outreach  
Design & Concept



## PROJECT OUTLINE

The overall goal of this project is to secure the sustainability of the project even after the Projektwerkstatt's end. In addition, we explore and reach out to partners, supporting platforms and initiatives.

### We achieved following goals during WS21/22:

- Concept and design of a report that also serves as prototype of the future SoundscapeTUB website.

- Colaboradio, part of Freie Radios Berlin Brandenburg (Ilias is part of them now) and we can use slots and as a platform each month as sound-medium-communication means of our results/art etc: [www.colaboradio.org](http://www.colaboradio.org)

- SFB 1265 Re-Figuration von Räumen, hosted by the TU Berlin. Daniel initiated and also moderates the interdisciplinary Space Oddity podcast with topics on space and society from sociology, urban design, communication science, architecture, etc., that could be a platform for publishing works from the course. [www.sfb1265.de](http://www.sfb1265.de)

- Projektwerkstatt Campus in Transition and achieved that this report can be published there as a web site this semester. In addition, we will be featured in the Alternative Campus-Karte.
- Linking the related project with the Essbare Campus initiative will be further developed: <https://www.campus-in-transition.de/campusleben/campuskarte/>

- We have established a positive relationship with Udo Noll and his Radio Aporee and Radio Earth projects, with whom a closer contact

has been agreed for the next semesters: <https://aporee.org/maps/>  
<https://radio.earth/>  
- Ilias and Daniel had a meeting with Francesko Aletta, who contributed in the making of Chatty Maps. He can support us in need, he suggested us more to use noise. planet which we might use as a main tool next semester: <https://noise-planet.org/map.html>

- Projektwerkstatt Virtual Realities was contacted. May support with interactive sound and embodiment map-app in the future, maybe using Geocast.
- Projektwerkstatt "Torhaus" that created critical mapping content of the tempelhofer feld this semester and are interested in integrating Soundscapes in their next semester.

- In contact with the Auditory Architecture Research Unit of the UDK.



ALL  
PROJECTS



## VOM SOUND DRIFT ZUM HISTORY DRIFT

### Reflexionen zur Projektwerkstatt als Audiopaper



### ABSTRACT

Eine Collage über Soundscapes und was es bedeutet, an der Schwelle von Soundtheorie und der sinnlichen Wahrnehmung von Sounds zu *driften*. Wir erkunden die theoretischen Grundlagen von Soundscapes und wie der künstlerische Zugang über Sound Drifts dabei helfen könnte, nicht nur historische Sachverhalte, sondern auch historische Soundscapes zu reproduzieren und zu vermitteln. Wir reflektieren über Potentiale und Grenzen einer solchen immersiven, kollektiven Erfahrung und wie sie unsere Wahrnehmung (von urbanen Umgebungen) beeinflusst hat.

Trailer



Full Audio



### Literatur

Groth, S. K., & Samson, K. (2016). Audio Papers—A Manifesto. *Seismograf*, 16, 1.

<https://doi.org/10.48233/seismograf1601>

Groth, S. K., & Samson, K. (2019). The audio paper. *Seismograf*, 21, 1. <https://doi.org/10.48233/seismograf2106>

Schulze, H. (2016). Idiosyncrasy as Method. *Seismograf*, 16, 1. <https://doi.org/10.48233/seismograf1602>

New, D. (2009). R. Murray Schafer: Listen. The National Film Board of Canada.

<https://www.youtube.com/watch?v=rOlXuXHWfHw&t=38s>





# **SOUNDSCAPE**

## **SOUNDWALK AUSWERTUNG**

**WS 21/ 22 - 14.01.2022**

**NOAH FRICK  
MARTINA LUSTINA  
18.03.2022**

**TUB SOUNDSCAPE PROJEKT: ERHALTUNGSDESIGN**



# SOUNDWALK





# SOUNDWALK



## Soundwalk - Stationen

- TU Campus vor der Zwille
- UDK Innenhof
- Ernst- Reuter Platz
- Pyramide
- Einsteinufer



# SOUNDWALK





# SOUNDWALK





# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

In welchem Umfang stimmen Sie den folgenden Aussagen zu, wenn Sie die unmittelbare akustische Umgebung wahrnehmen? Bitte kreuzen Sie pro Kategorie eine Antwort an.

| <i>Die akustische Umgebung ist:</i> | stimme voll zu           | stimme größtenteils zu   | weder noch               | stimme größtenteils nicht zu | stimme voll nicht zu     |
|-------------------------------------|--------------------------|--------------------------|--------------------------|------------------------------|--------------------------|
| angenehm                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |
| chaotisch                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |
| aufregend                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |
| ereignisarm                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |
| beruhigend                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |
| lästig                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |
| ereignisreich                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |
| monoton                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/> |

- Akustik – Soundscape
- Teil 3: Datenanalyse (ISO/TS 12913-3:2019)
- ISO1996-1



# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

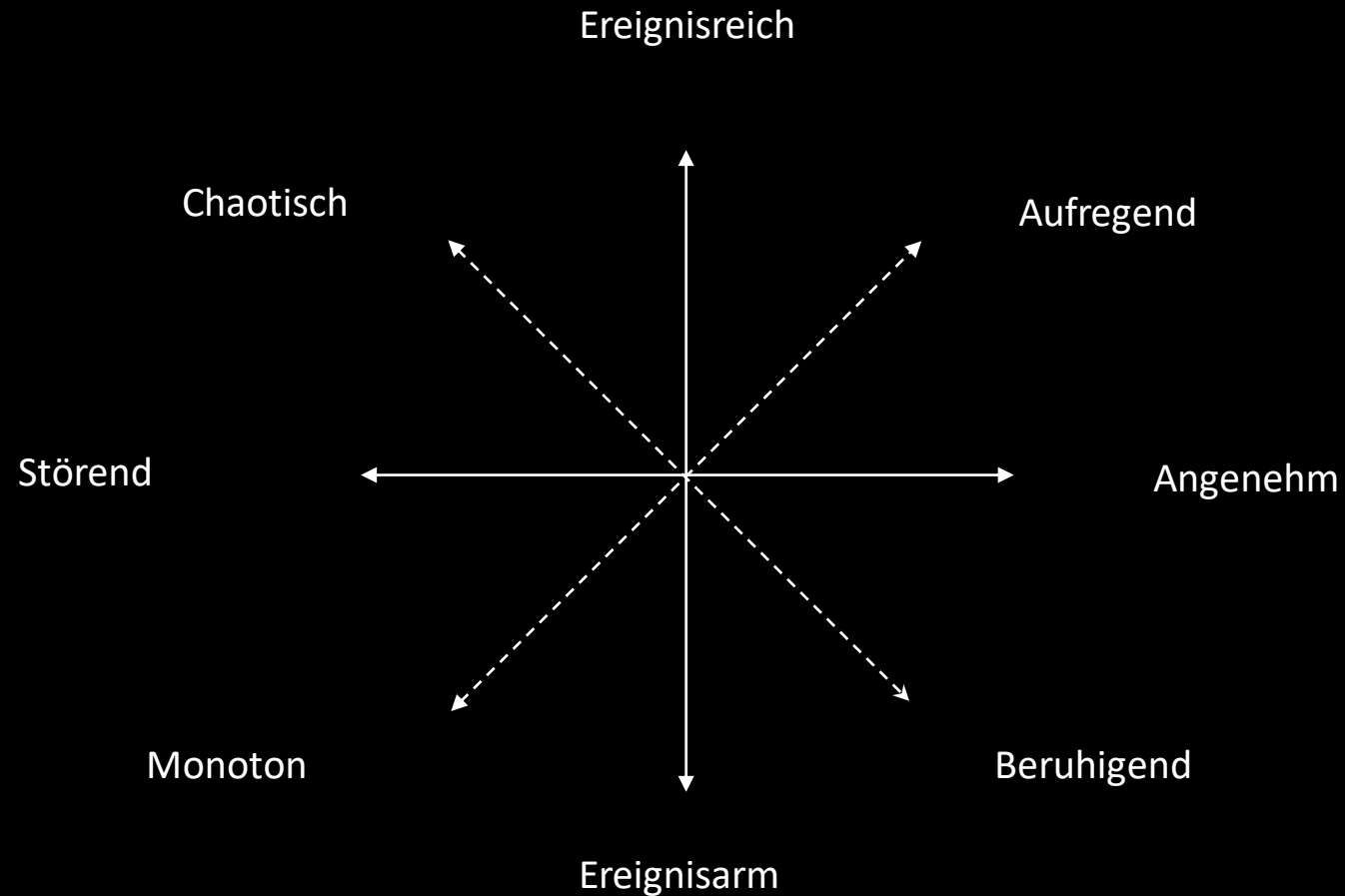
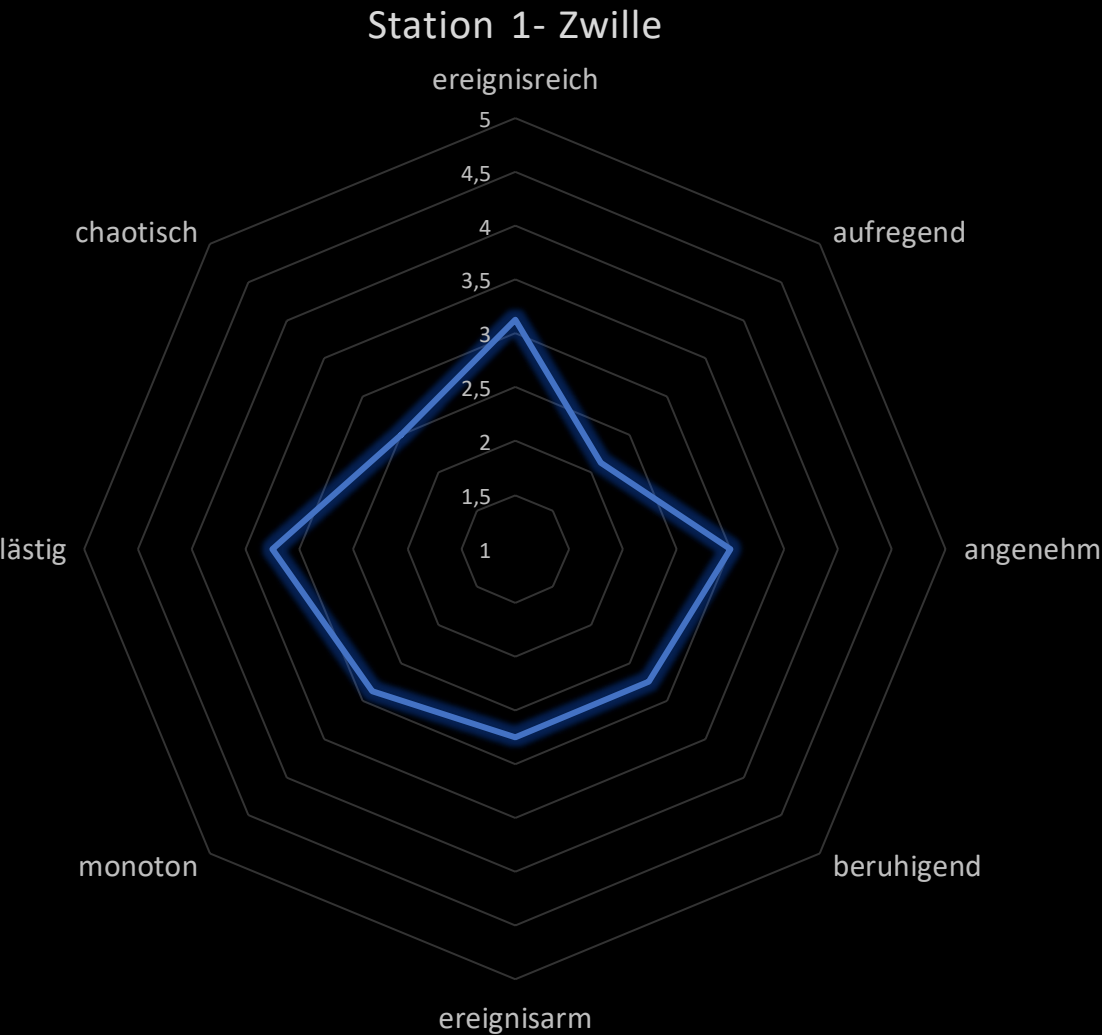


Diagramm 2: Angenehmheit vs. Ereignisreichtum



# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

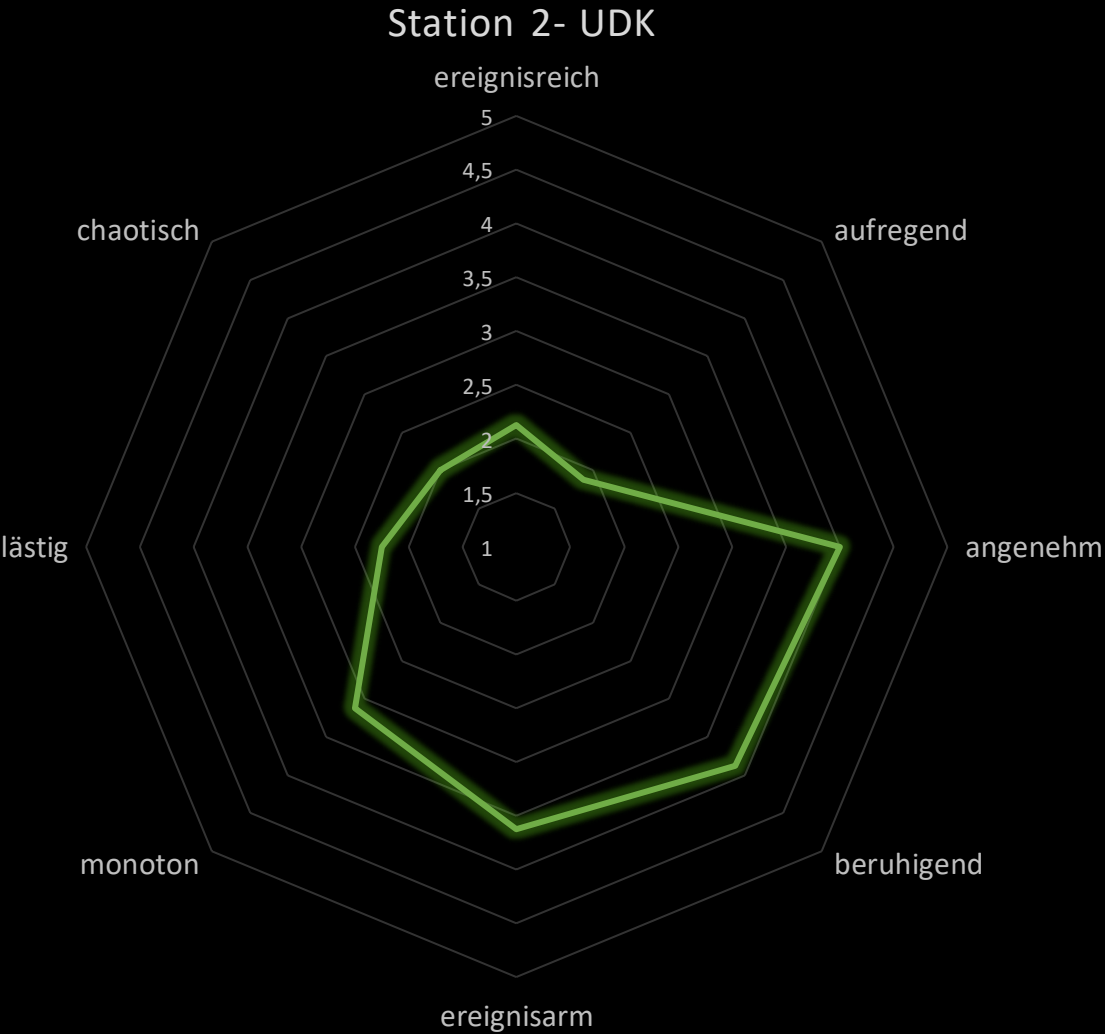
|                              |                |                        |            |                              |                      |                              |                               |
|------------------------------|----------------|------------------------|------------|------------------------------|----------------------|------------------------------|-------------------------------|
| Soundwalk-Station 1          | 5              | 4                      | 3          | 2                            | 1                    |                              |                               |
| Die akustische Umgebung ist: | stimme voll zu | Stimme größtenteils zu | weder noch | stimme größtenteils nicht zu | stimme voll nicht zu | Lage-<br>maßzahl<br>(Median) | Steuungs-<br>maß<br>(Bereich) |
| ereignisreich                |                | 2                      | 5          | 1                            |                      | 3,125                        | 4-2                           |
| aufregend                    |                | 1                      |            | 6                            | 1                    | 2,125                        | 4-1                           |
| angenehm                     |                | 2                      | 4          | 2                            |                      | 3                            | 4-2                           |
| beruhigend                   |                | 1                      | 4          | 3                            |                      | 2,75                         | 4-2                           |
| ereignisarm                  |                | 3                      | 1          | 3                            | 1                    | 2,75                         | 4-1                           |
| monoton                      |                | 4                      | 1          | 1                            | 2                    | 2,875                        | 4-1                           |
| lästig                       |                | 4                      | 2          | 2                            |                      | 3,25                         | 4-2                           |
| chaotisch                    |                | 2                      | 2          | 2                            | 2                    | 2,5                          | 4-1                           |





# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

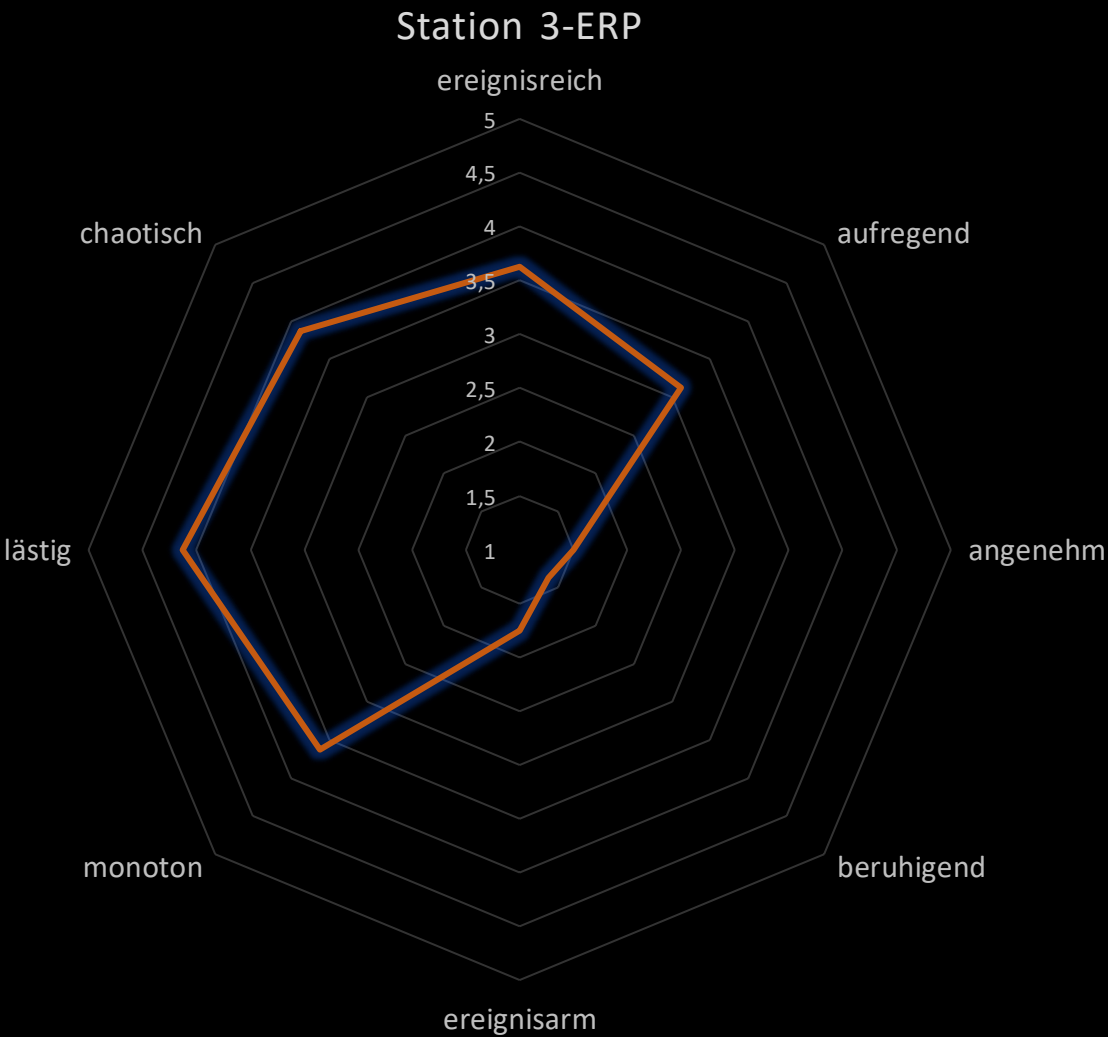
|                              |                |                        |            |                              |                      |                  |                               |
|------------------------------|----------------|------------------------|------------|------------------------------|----------------------|------------------|-------------------------------|
| Soundwalk-Station 2          | 5              | 4                      | 3          | 2                            | 1                    |                  |                               |
| Die akustische Umgebung ist: | stimme voll zu | stimme größtenteils zu | weder noch | stimme größtenteils nicht zu | stimme voll nicht zu | Lage-<br>maßzahl | Steuungs-<br>maß<br>(Bereich) |
| ereignisreich                |                |                        | 3          | 3                            | 2                    | 2,125            | 3-1                           |
| aufregend                    |                |                        | 1          | 5                            | 2                    | 1,875            | 3-1                           |
| angenehm                     |                | 8                      |            |                              |                      | 4                | 4                             |
| beruhigend                   | 1              | 5                      | 2          |                              |                      | 3,875            | 5-3                           |
| ereignisarm                  |                | 6                      | 1          | 1                            |                      | 3,625            | 4-2                           |
| monoton                      | 1              | 2                      | 4          |                              |                      | 3,125            | 5-3                           |
| lästig                       |                | 1                      | 1          | 5                            | 1                    | 2,25             | 4-1                           |
| chaotisch                    |                |                        | 2          | 4                            | 2                    | 2                | 3-1                           |





# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

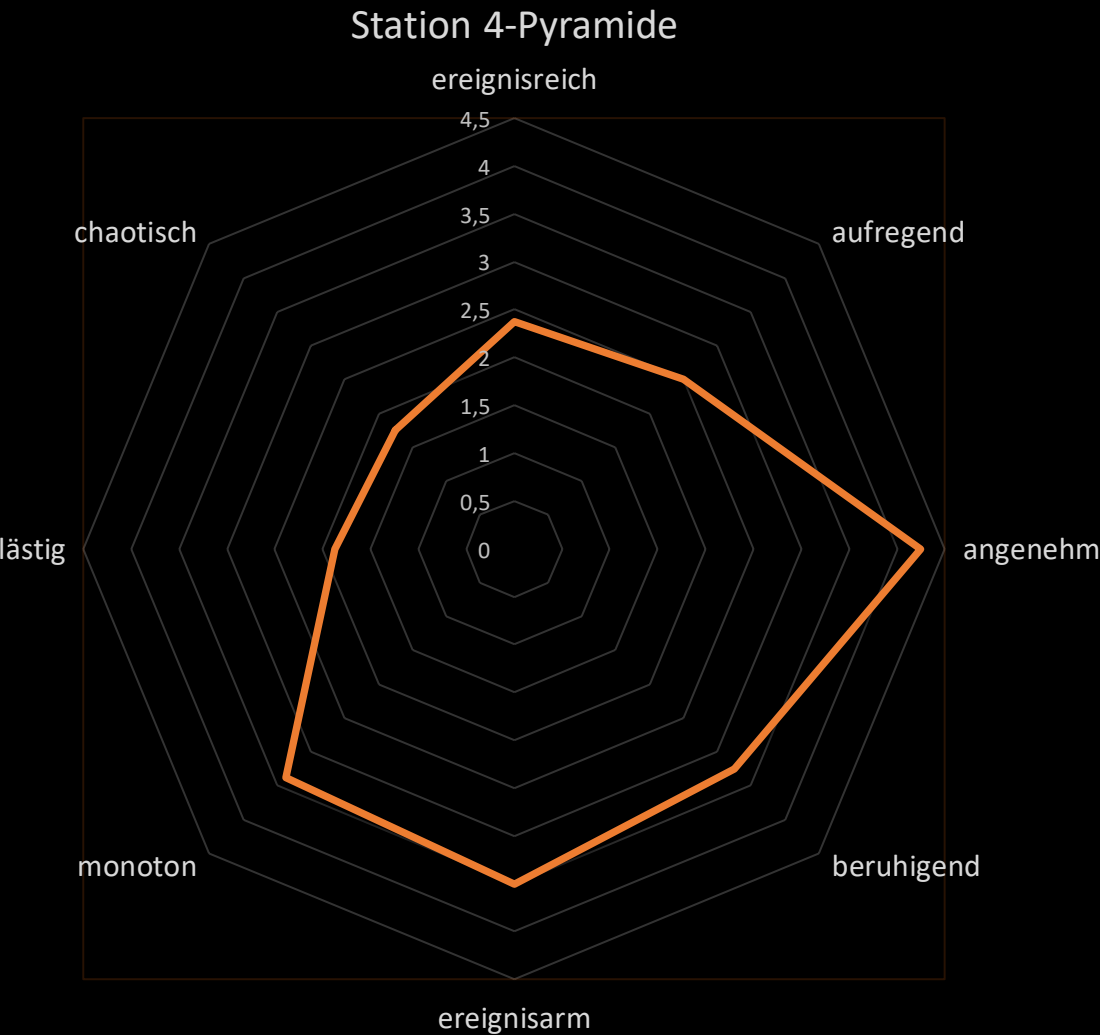
|                              |                |                        |            |                               |                      |              |                        |
|------------------------------|----------------|------------------------|------------|-------------------------------|----------------------|--------------|------------------------|
| Soundwalk-Station 3          | 5              | 4                      | 3          | 2                             | 1                    |              |                        |
| Die akustische Umgebung ist: | stimme voll zu | stimme größtenteils zu | weder noch | stimme größten-teils nicht zu | stimme voll nicht zu | Lagemaß-zahl | Steuungs-maß (Bereich) |
| ereignisreich                | 1              | 4                      | 2          | 1                             |                      | 3,625        | 5-2                    |
| aufregend                    |                | 4                      | 1          | 3                             |                      | 3,125        | 4-2                    |
| angenehm                     |                |                        |            | 4                             | 4                    | 1,5          | 2-1                    |
| beruhigend                   |                |                        | 1          | 1                             | 6                    | 1,375        | 3-1                    |
| ereignisarm                  |                |                        | 1          | 4                             | 3                    | 1,75         | 3-1                    |
| monoton                      | 2              | 4                      |            | 1                             | 1                    | 3,625        | 5-1                    |
| lästig                       | 2              | 5                      | 1          |                               |                      | 4,125        | 4-3                    |
| chaotisch                    | 3              | 2                      | 2          | 1                             |                      | 3,875        | 5-2                    |





# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

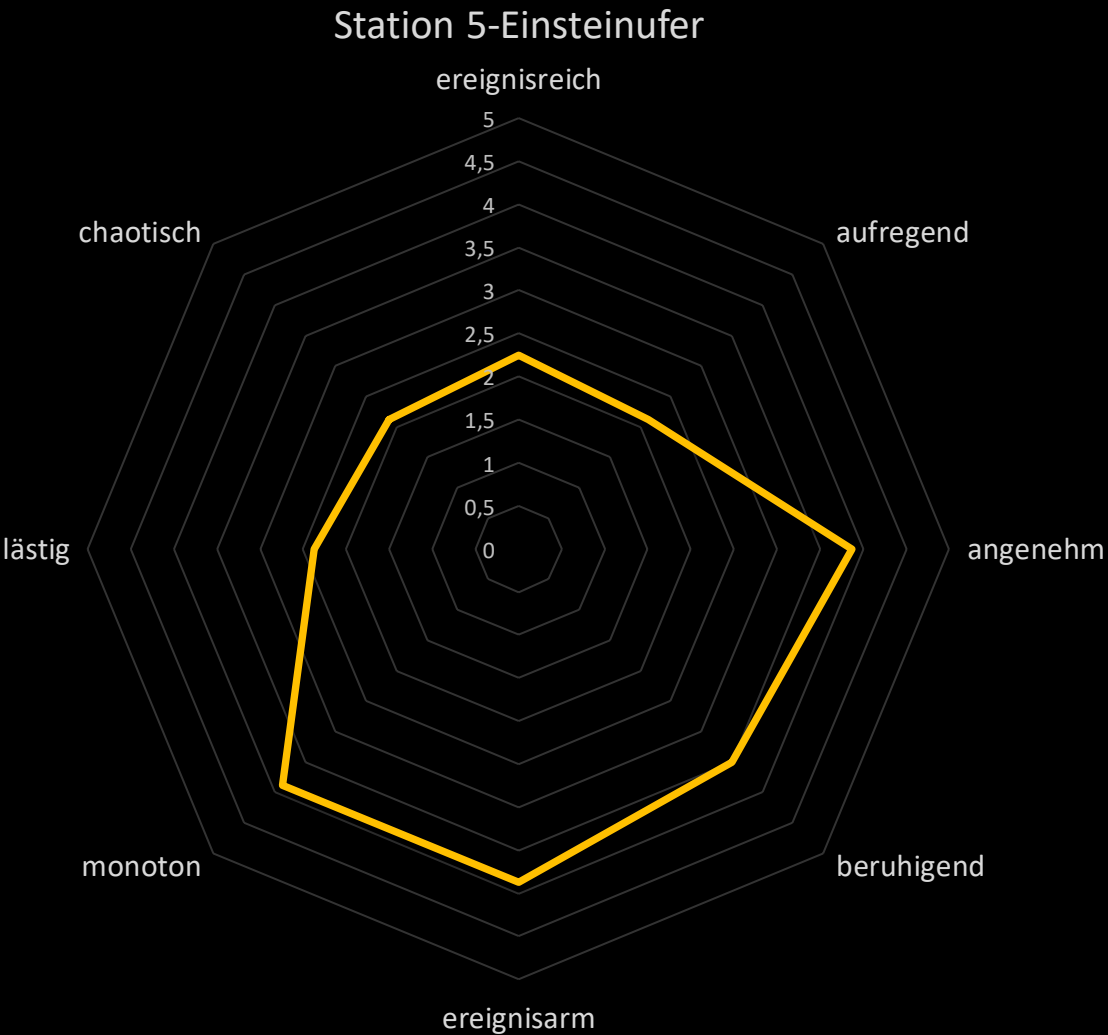
| Soundwalk-Station 4          | 5              | 4               | 3          | 2                     | 1             |             |                       |
|------------------------------|----------------|-----------------|------------|-----------------------|---------------|-------------|-----------------------|
|                              |                | stimme          |            | stimme                | stimme        |             |                       |
| Die akustische Umgebung ist: | stimme voll zu | größtenteils zu | weder noch | größtenteils nicht zu | voll nicht zu | Lagemaßzahl | Steuungsmaß (Bereich) |
| ereignisreich                |                | 2               | 1          | 3                     | 2             | 2,375       | 4-1                   |
| aufregend                    |                | 1               | 3          | 3                     | 1             | 2,5         | 4-1                   |
| angenehm                     | 2              | 6               |            |                       |               | 4,25        | 5-4                   |
| beruhigend                   | 2              | 2               | 2          | 1                     |               | 3,25        | 5-2                   |
| ereignisarm                  | 1              | 4               | 2          |                       | 1             | 3,5         | 5-1                   |
| monoton                      | 1              | 3               | 2          | 2                     |               | 3,375       | 5-2                   |
| lästig                       |                |                 |            | 7                     | 1             | 1,875       | 2-1                   |
| chaotisch                    |                |                 |            | 6                     | 2             | 1,75        | 2-1                   |





# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

|                              |         |              |       |               |            |          |           |
|------------------------------|---------|--------------|-------|---------------|------------|----------|-----------|
| Soundwalk-Station 5          | 5       | 4            | 3     | 2             | 1          |          |           |
|                              |         | stimme       |       | stimme        | stimme     |          | Steuungs- |
| Die akustische Umgebung ist: | stimme  | größtenteils | weder | größten-teils | voll nicht | Lagemaß- | maß       |
|                              | voll zu | zu           | noch  | nicht zu      | zu         | zahl     | (Bereich) |
| ereignisreich                |         | 1            | 1     | 5             | 1          | 2,25     | 4-1       |
| aufregend                    |         |              | 2     | 5             | 1          | 2,125    | 3-1       |
| angenehm                     | 1       | 5            | 2     |               |            | 3,875    | 5-2       |
| beruhigend                   |         | 5            | 2     | 1             |            | 3,5      | 4-2       |
| ereignisarm                  | 1       | 5            | 2     |               |            | 3,875    | 5-3       |
| monoton                      | 3       | 1            | 4     |               |            | 3,875    | 5-3       |
| lästig                       |         | 1            | 2     | 4             | 1          | 2,375    | 4-1       |
| chaotisch                    |         |              | 2     | 5             | 1          | 2,125    | 3-1       |



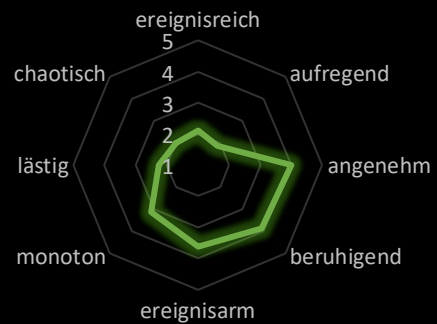


# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

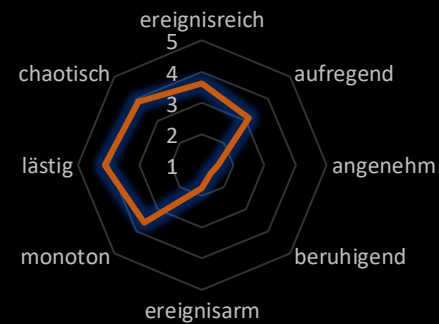
Station 1- Zwille



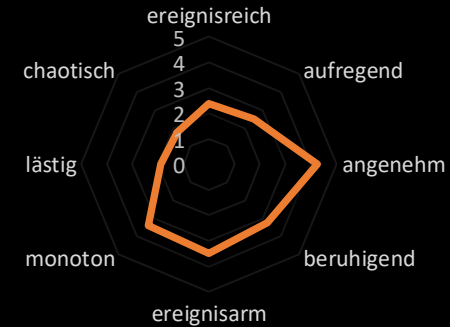
Station 2- UDK



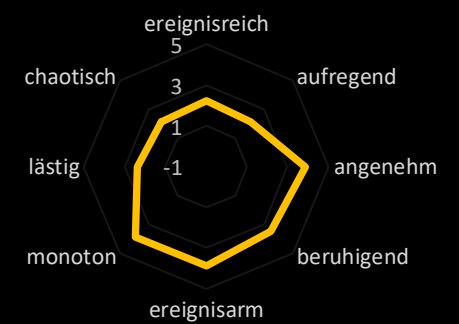
Station 3-ERP



Station 4-Pyramide



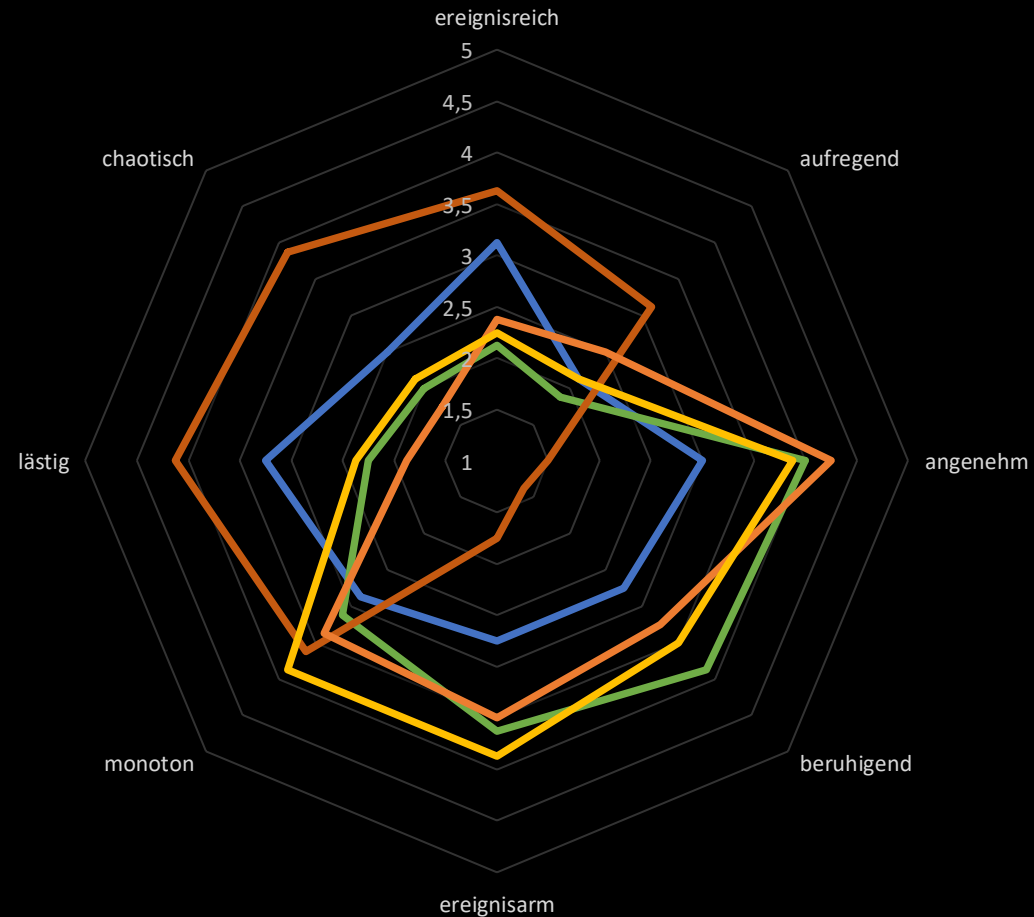
Station 5-Einsteinufer





# AUSWERTUNGSMETHODE: METHODE A - EMPFUNDENE AFFEKTIVE QUALITÄT

Auswertung der Akustischen Umgebung



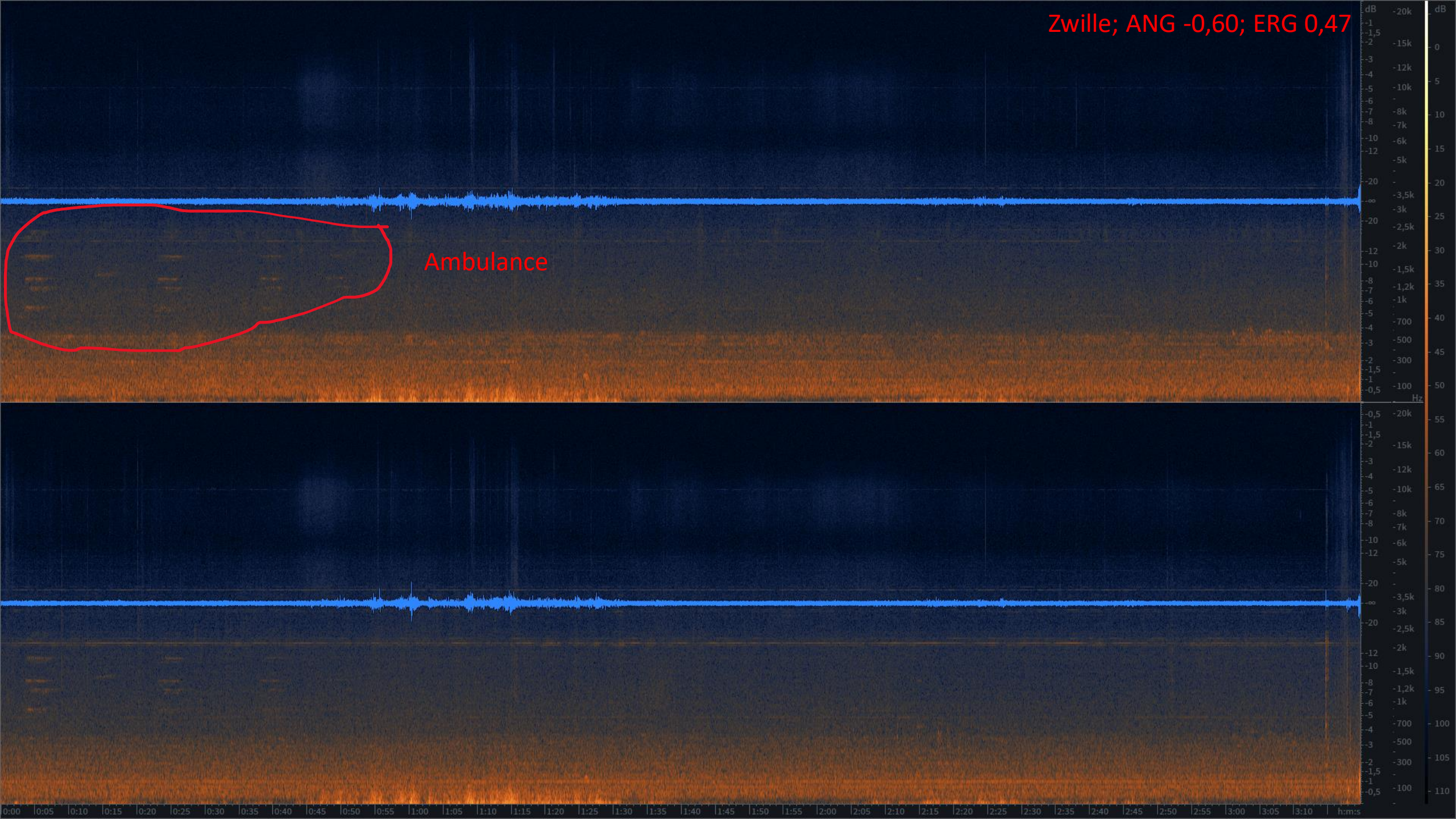
Station 1-Zwille Station 2-UDK Station 3-ERP Station 4-Pyramide Station 5-Einsteinufer







Zwille; ANG -0,60; ERG 0,47

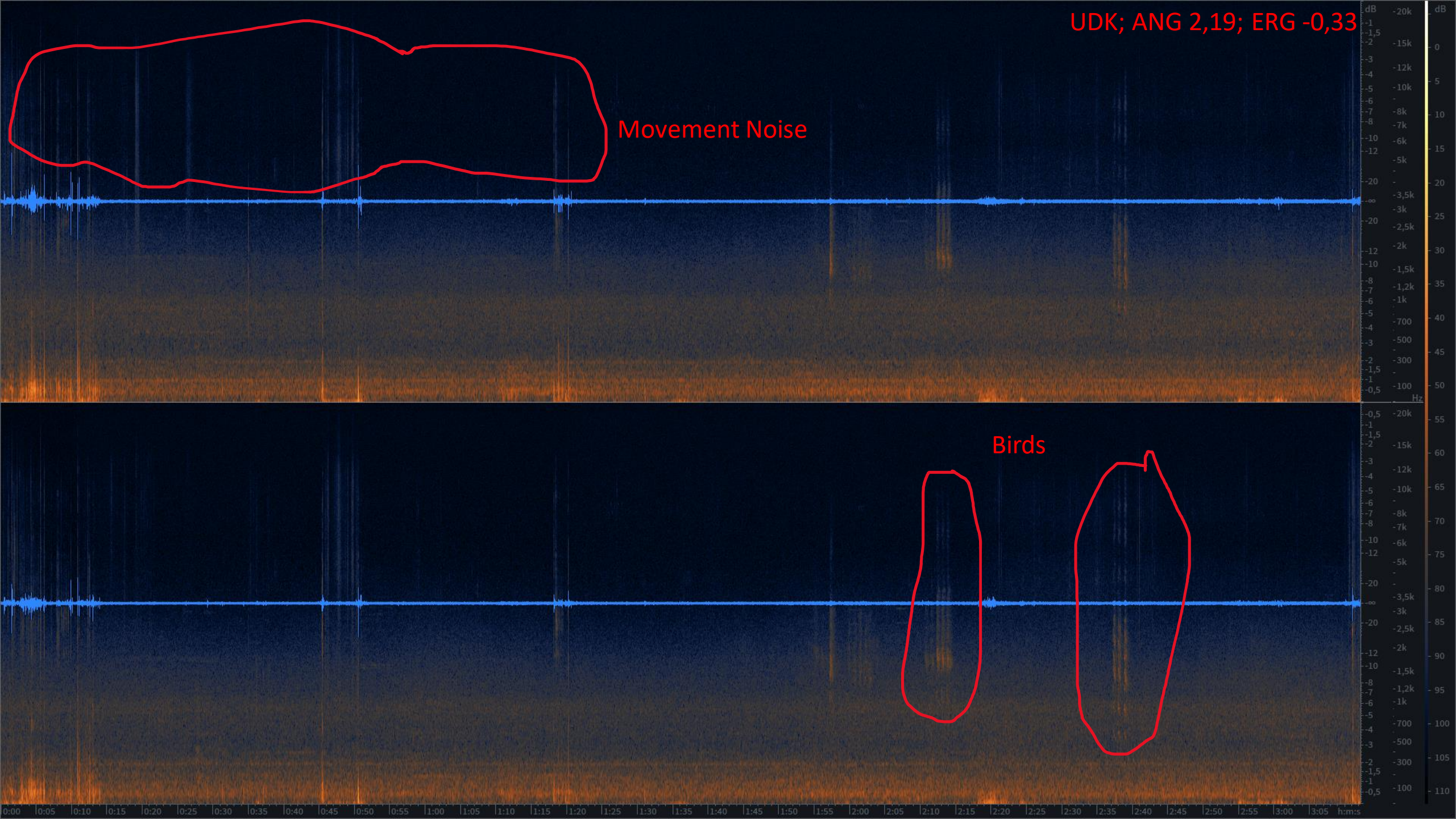




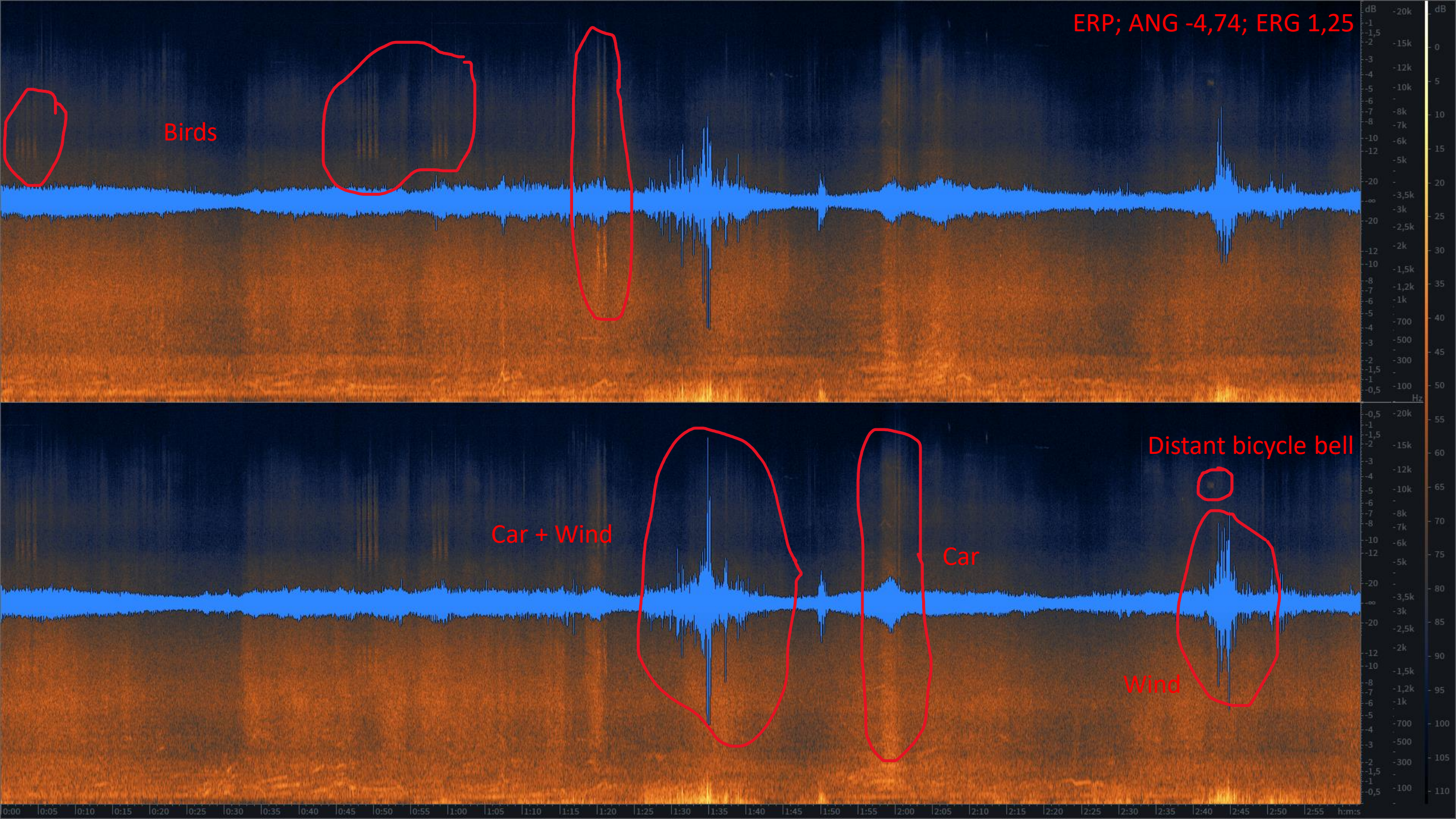
UDK; ANG 2,19; ERG -0,33

Movement Noise

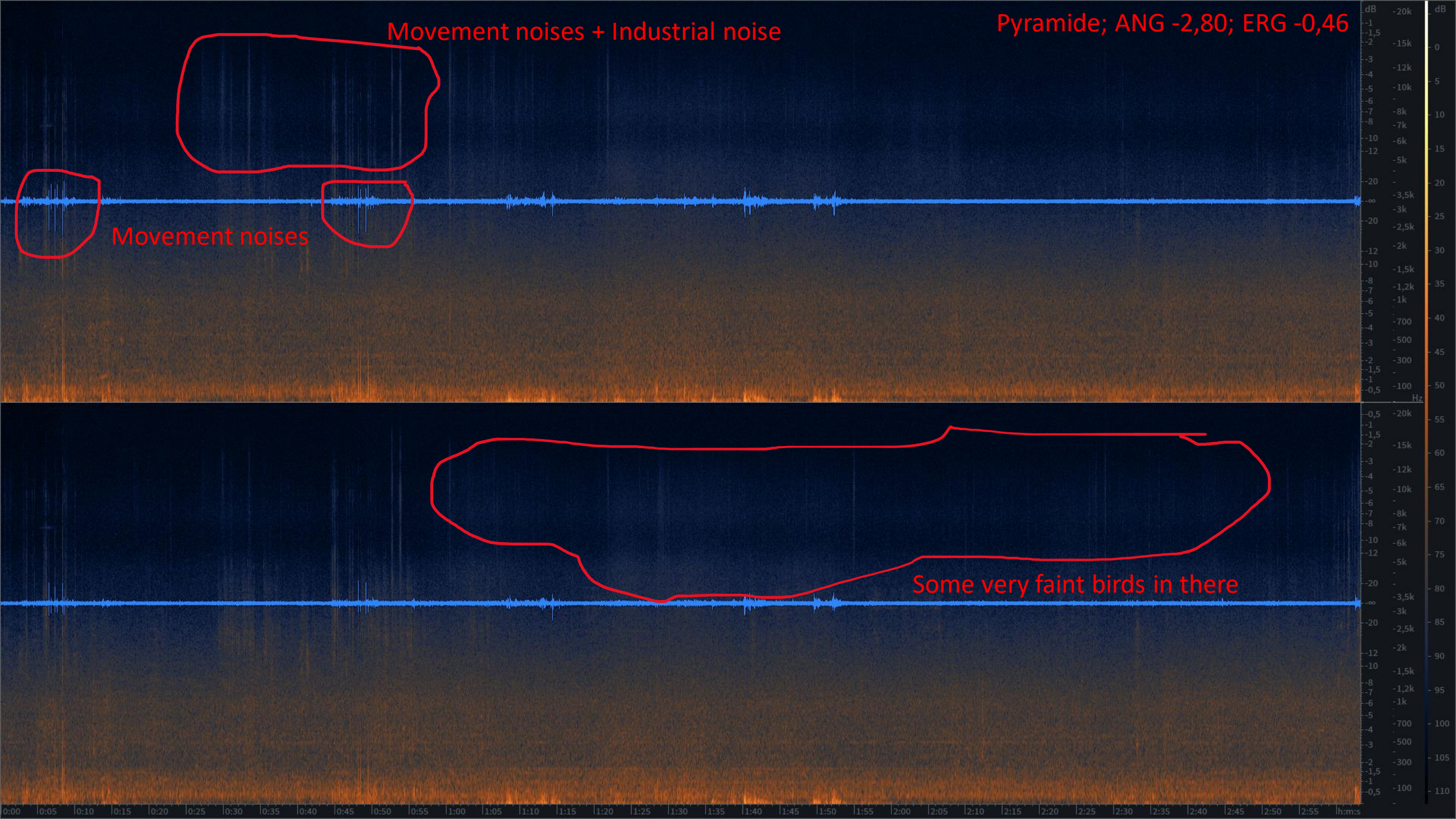
Birds













Fluss; ANG 1,23; ERG -0,42

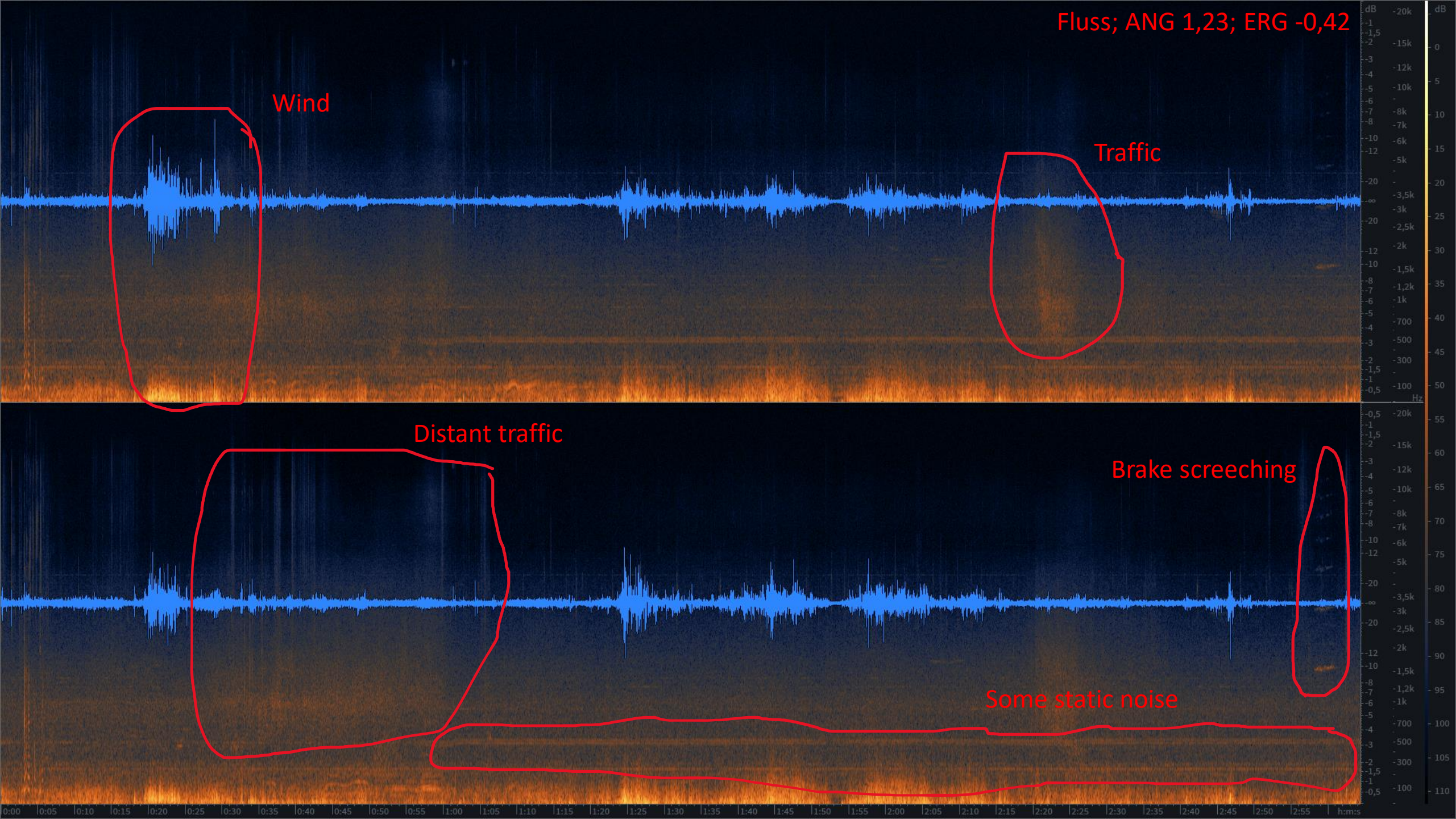
Wind

Traffic

Distant traffic

Brake screeching

Some static noise





# Spearman-Korrelationstest

Zwischen Angenehmheit und Ereignisreichtum

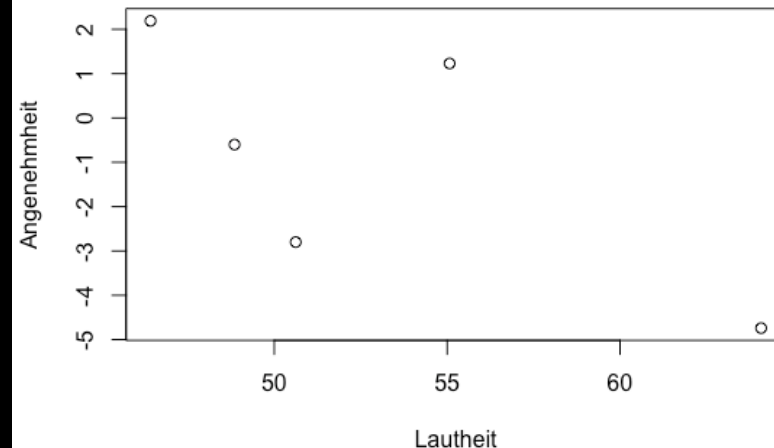
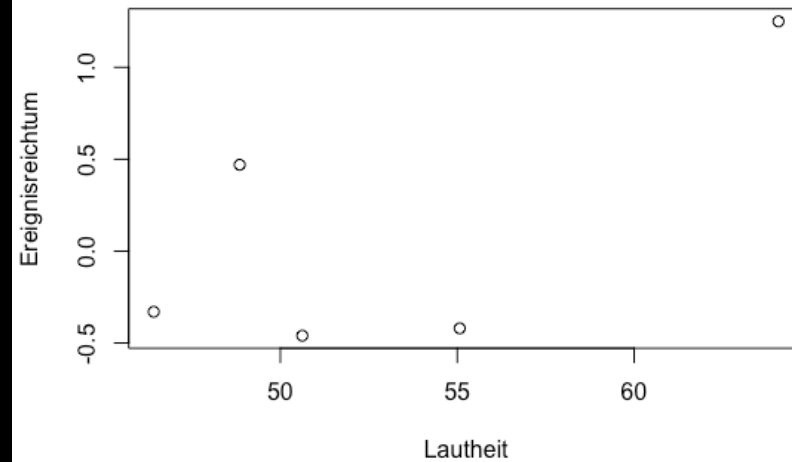
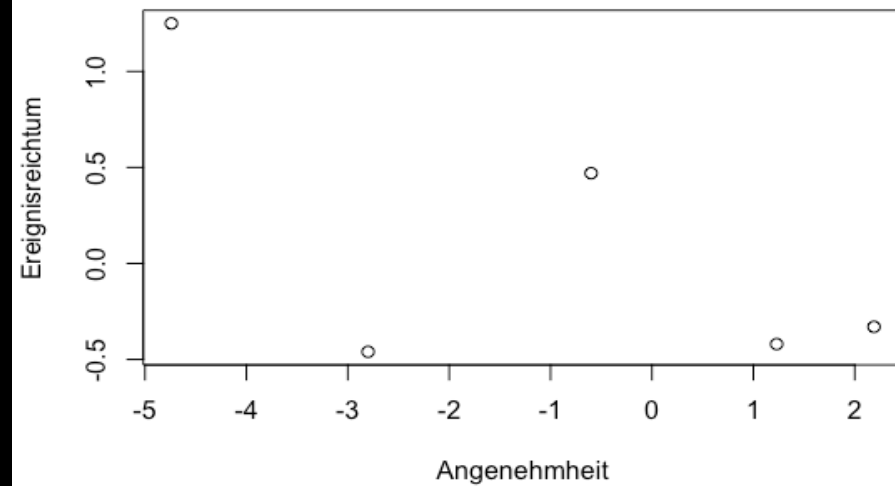
```
data: y1 and y2
S = 26, p-value = 0.7417
alternative hypothesis: true rho is greater than 0
sample estimates:
rho
-0.3
```

Zwischen Lautheit und Ereignisreichtum

```
data: x and y1
S = 16, p-value = 0.3917
alternative hypothesis: true rho is greater than 0
sample estimates:
rho
0.2
```

Zwischen Lautheit und Angenehmheit

```
data: x and y2
S = 34, p-value = 0.9333
alternative hypothesis: true rho is greater than 0
sample estimates:
rho
-0.7
```





# ANOVA

Zwischen Angenehmheit und Ereignisreichtum

## Analysis of Variance Table

Response: ERG

|           | Df | Sum Sq  | Mean Sq | F value | Pr(>F) |
|-----------|----|---------|---------|---------|--------|
| ANG       | 1  | 0.99095 | 0.99095 | 2.4027  | 0.2189 |
| Residuals | 3  | 1.23733 | 0.41244 |         |        |

Zwischen Lautheit und Ereignisreichtum

## Analysis of Variance Table

Response: ERG

|           | Df | Sum Sq | Mean Sq | F value | Pr(>F) |
|-----------|----|--------|---------|---------|--------|
| LAFmaxD   | 1  | 1.0571 | 1.05710 | 2.7078  | 0.1984 |
| Residuals | 3  | 1.1712 | 0.39039 |         |        |

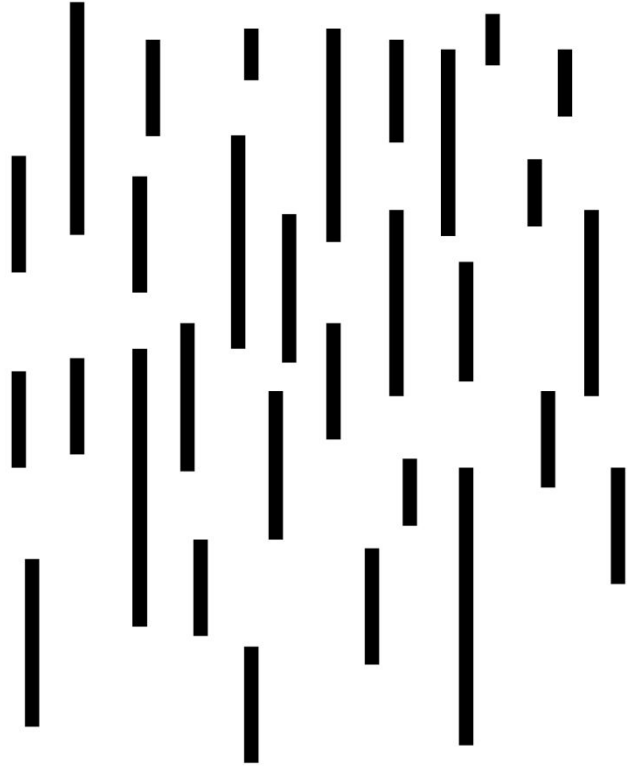
Zwischen Lautheit und Angenehmheit

## Analysis of Variance Table

Response: ANG

|           | Df | Sum Sq | Mean Sq | F value | Pr(>F) |
|-----------|----|--------|---------|---------|--------|
| LAFmaxD   | 1  | 15.764 | 15.7638 | 2.8222  | 0.1916 |
| Residuals | 3  | 16.757 | 5.5857  |         |        |





# **THE SOUNDS OF TU**

---

**LYNN HABERMANN  
MARTINA LUSTINA  
XAVIER SCHÖNHAMMER**



# Inhalt

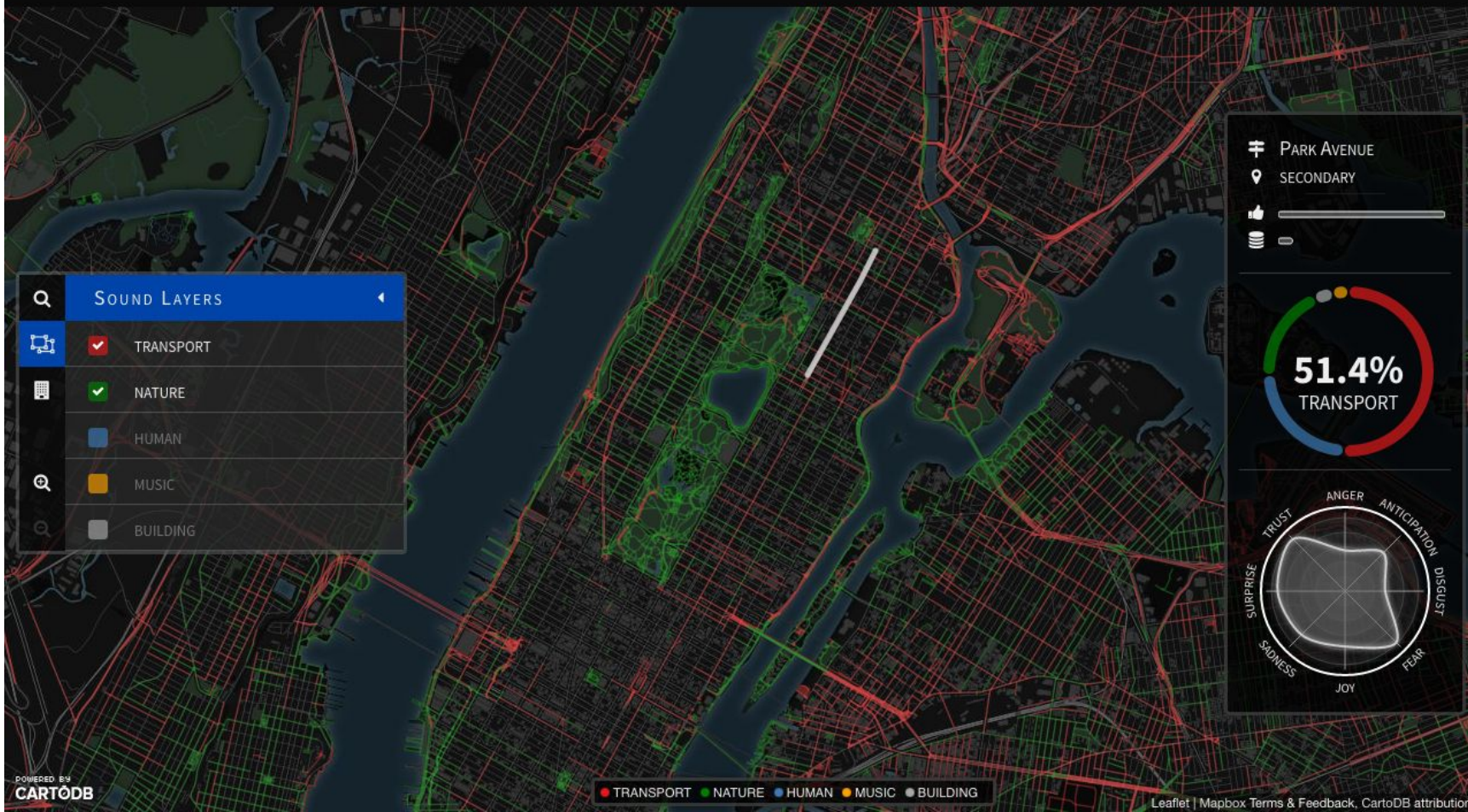
1. Was sind Soundmaps?
2. Beispiele und Anknüpfungspunkte
3. Konzeptionierung einer Soundm(app) der TU Berlin
4. Teilprojekt: ENTER BIB



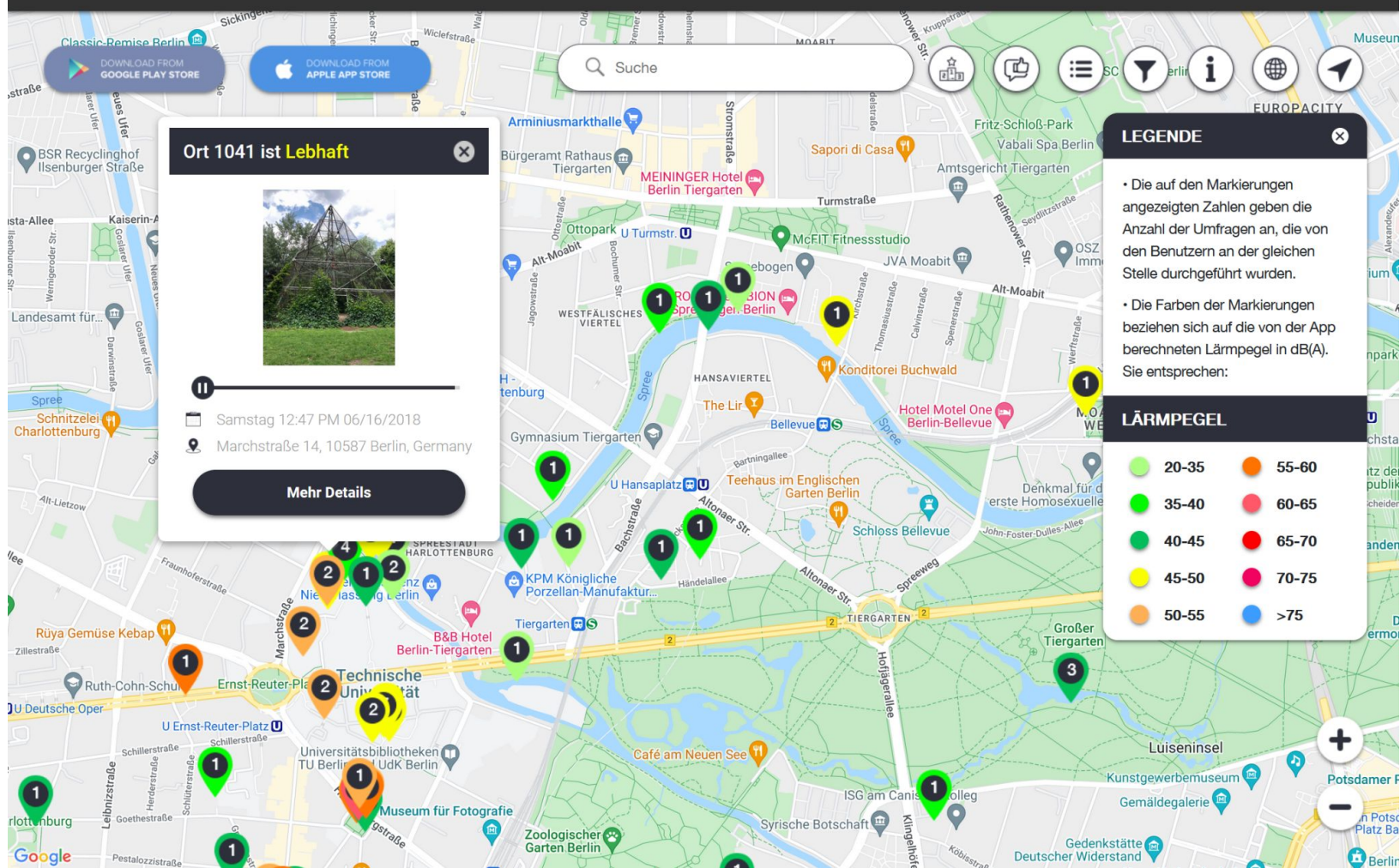
# **WAS SIND SOUND MAPS?**

*„Digitale geografische Karten, in denen die akustische Wahrnehmung eines bestimmten Ortes im Vordergrund steht.“*









Classic-Remise Berlin  
Download from  
GOOGLE PLAY STORE

Download from  
APPLE APP STORE

Suche



### Ort 1041 ist Lebhaft



Samstag 12:47 PM 06/16/2018  
Marchstraße 14, 10587 Berlin, Germany

Mehr Details

### LEGENDE

- Die auf den Markierungen angezeigten Zahlen geben die Anzahl der Umfragen an, die von den Benutzern an der gleichen Stelle durchgeführt wurden.
- Die Farben der Markierungen beziehen sich auf die von der App berechneten Lärmpegel in dB(A). Sie entsprechen:

### LÄRMPEGEL

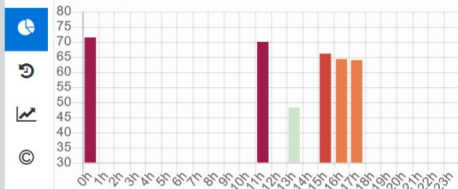
|       |       |
|-------|-------|
| 20-35 | 55-60 |
| 35-40 | 60-65 |
| 40-45 | 65-70 |
| 45-50 | 70-75 |
| 50-55 | >75   |



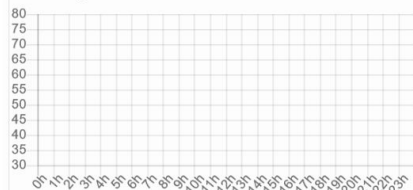




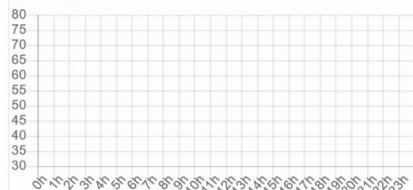
## Working days ⓘ



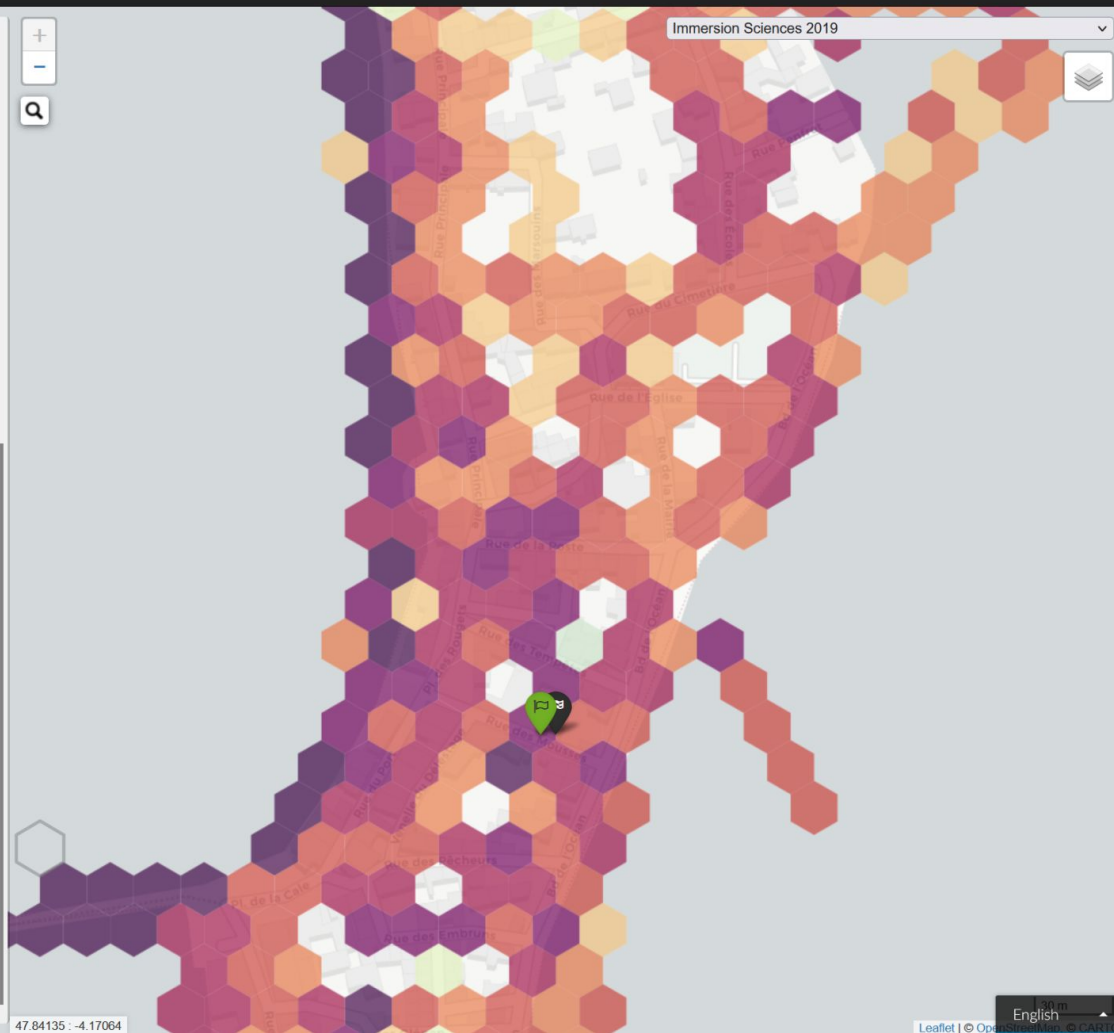
## Saturday ⓘ



## Sunday ⓘ

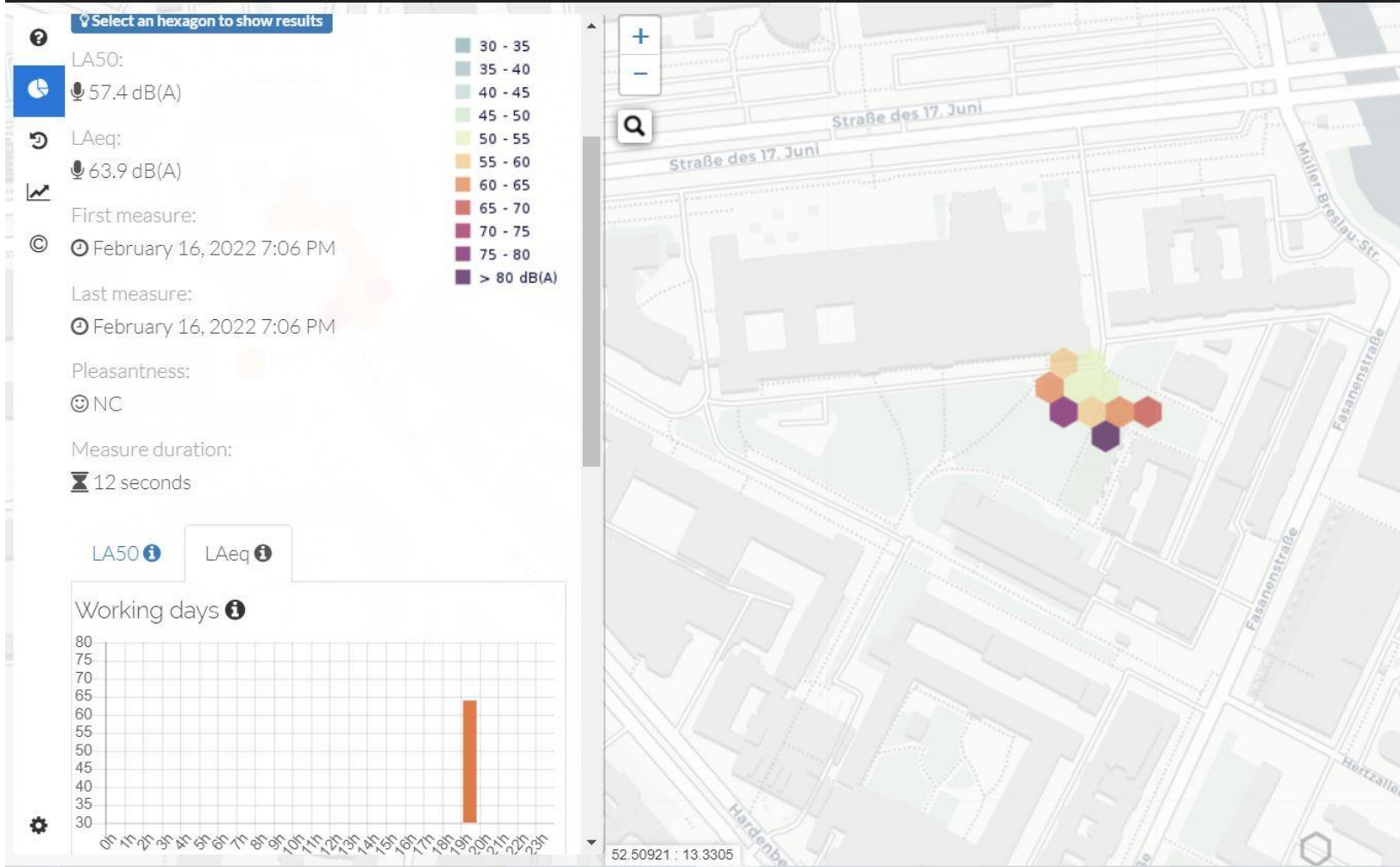


## Tags ⓘ



47.84135 - 4.17064









Satellit

Karte

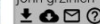
OSM

add recording share & embed open geo mixer

## Berlin Technical University courtyard

★ Berlin Technical University courtyard

john grzinich • 15.07.2008 16:03 Europe/Berlin • 3:39min • CC-BY-SA



sent by jg@maaheli.ee at 15.07.2008 16:03:09

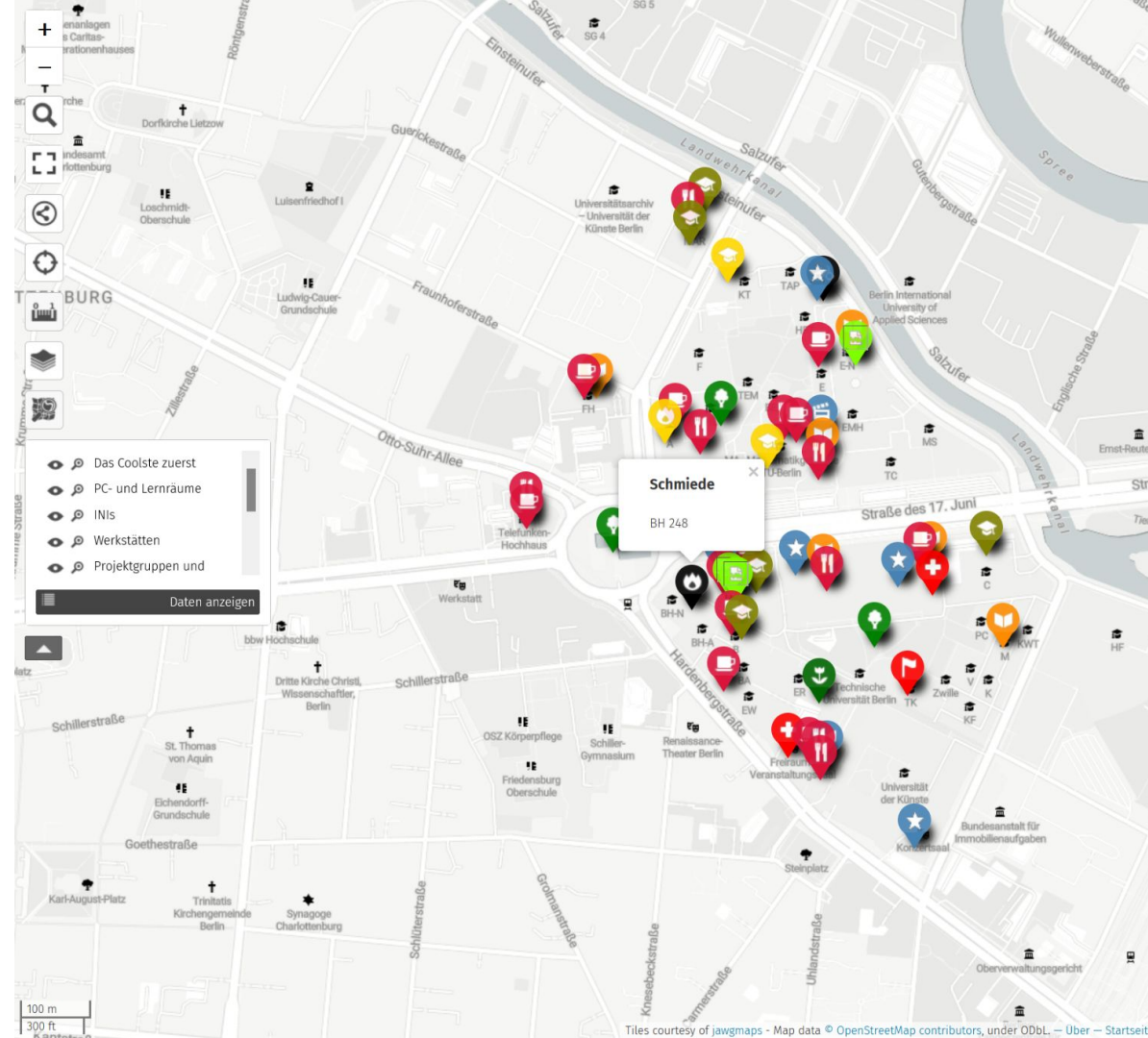


Google

status:







## CIT\_Wegweiser

Elemente filtern...

Das Coolste zuerst

- Ausstellung
- Büchertauschschrank
- Charlie's Campus Filmclub - Unikino
- GYM
- Konzertsaal Udk
- Massageraum
- ULA

PC- und Lernräume

- Abaqus Raum
- Audiovisuellen Zentrum (AVZ)
- CAD-Pool
- Lernraum FH301
- PI Raum
- TUBIT Raum
- Unix-Pool

INIS

- EB 104
- Freitagsrunde
- INI Chemie
- KulT-Ini
- Projekttrat

Werkstätten

- Lötlabor
- Schmiede
- TUßö Feinwerkstatt
- TUßö Holzwerkstatt
- UniRad

Projektgruppen und Vereine



# KONZEPIERUNG EINER SOUND M(APP) DER TU BERLIN

## KLANGEIGENSCHAFT

WIEDERHOLEND



IMPULSIV



DYNAMISCH



STETIG



## TYPOLOGIE NACH SCHÄFERS TAXONOMIE

NATUR



HUMAN



GESELLSCHAFTLICH



MECHANISCH



STILL& LEISE



WARNSIGNAL



## LAUTHEIT

KAUM HÖRBAR



MODERAT



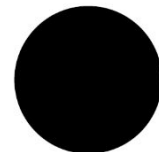
LAUT



SEHR LAUT



SCHMERZHAFT







Uhrzeit

Klang

Emotion



Laute Sirenen von den Krankenwä-  
gen am Ernst Reuter Platz



Schöne Opernklänge



Studis im Cafe vor der Bib sind sehr  
irritierend



Laute Sirenen von den Krankenwä-  
gen am Ernst Reuter Platz



Schöne Opernklänge



Vogelzwitschern



Presslufthammer bis hier hörbar







Uhrzeit

Klang

Emotion



**Angenehm**

**Chaotisch**

**Aufregend**

**Ereignisarm**

**Beruhigend**

**Ereignisreich**

**Monoton**



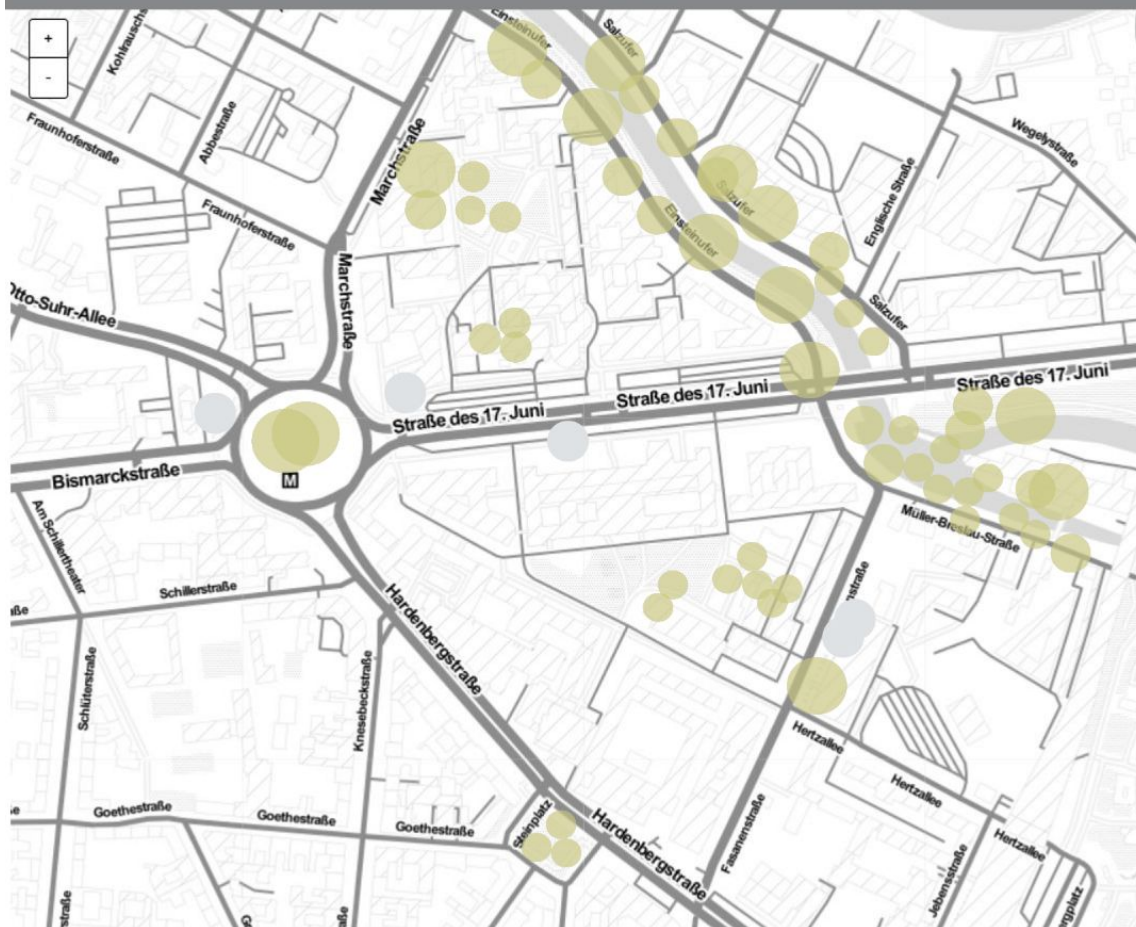




Uhrzeit

Klang

Emotion



**Natur**



**Human**



**Gesellschaftlich**



**Mechanisch**



**Still & Leise**



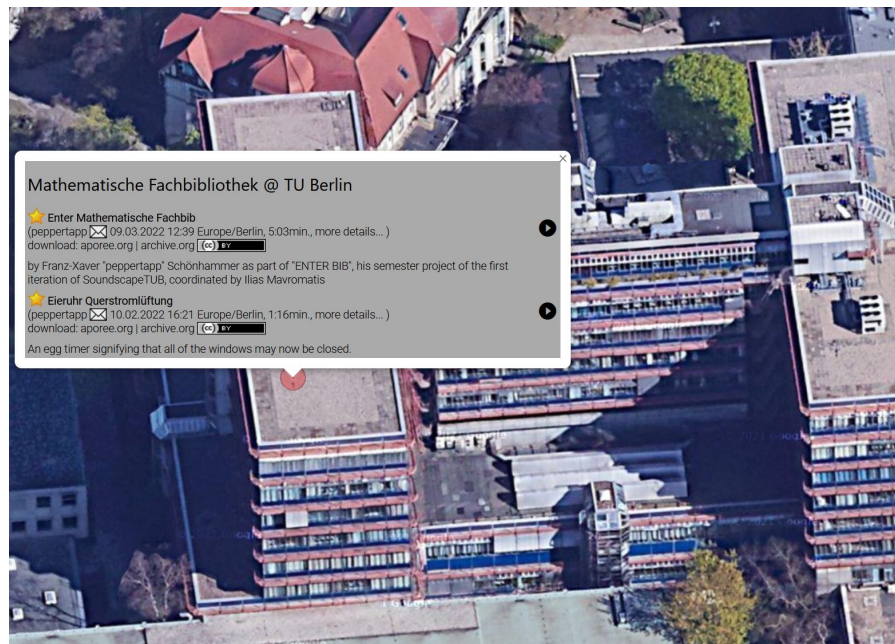
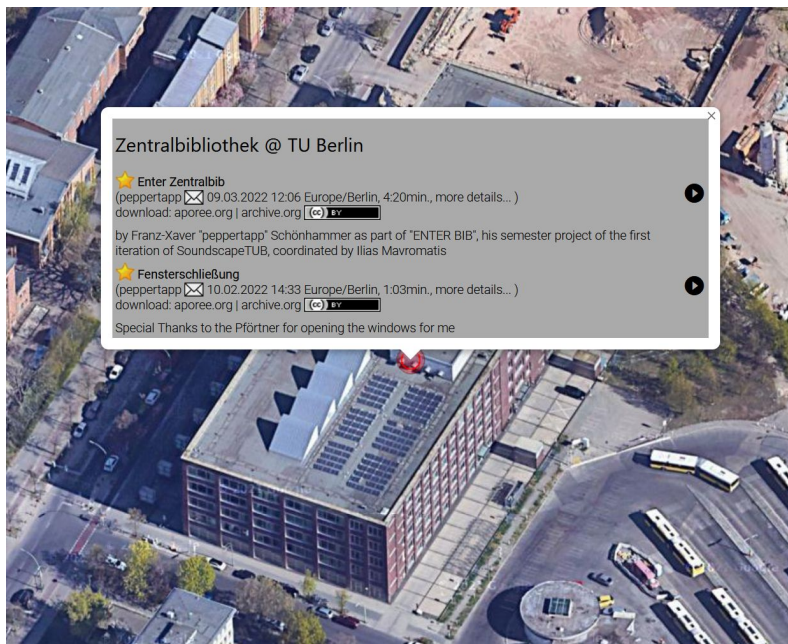
**Warnsignal**





# ENTER BIB [bit.ly/enterbib](https://laporee.org/maps/work/projects.php?project=enterbib)

“Setzen Sie bitte nun ihre Kopfhörer auf”





Danke



,



Projektwerkstätten

,

SOUNDSCAPETUB !

Grafiken von Mariana Carvalho





# Vibration of Things

Kontaktmikrofone - Aufbau und Anwendung

Workshop und Präsentation von Ludwig Meckel



Piezoelektrisches Element (passiv)

Impedanz- Wandler

Stecker (XLR/ JACK)

# Aufbau







Klangkunst

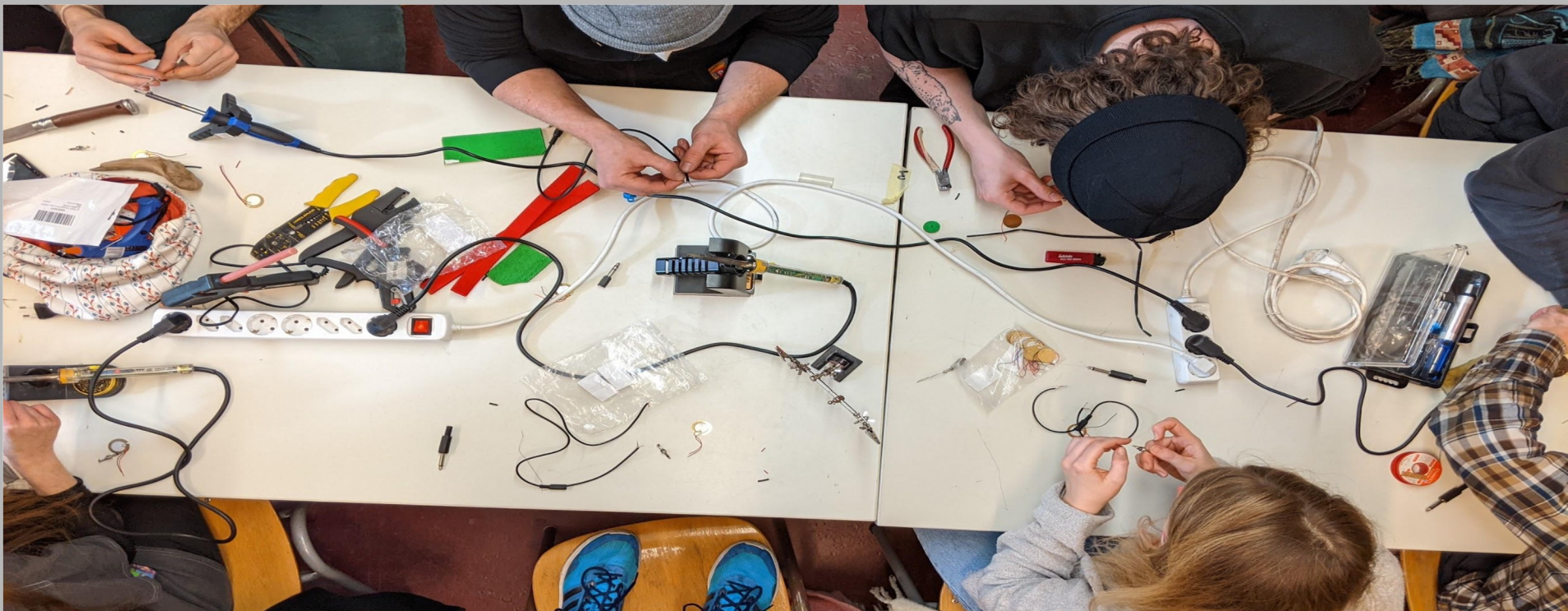
Akustische Ökologie

Analyseverfahren

# Anwendung







## Quellen

Nicolas Collins, Handmade Electronic Music, 2009

Ian Smith, Sound in Contact, <https://vimeo.com/561521240>

Felix Blume, <https://felixblume.com/hydrophone/>