(1/14) Initial Survey * Required

| 1. | Email address * |
|----|---|
| 2. | Full Name * |
| 3. | Age * |
| 4. | Gender * Mark only one oval. Male Female |
| 5. | Degree of literacy * Mark only one oval. Basic Secondary Bachelor Master Other |
| 6. | Nationality * |
| 7. | Do you have experience visualizing information? * Mark only one oval. Yes No |
| 8. | Are you experienced with mobile virtual immersive environments, virtual reality or augmented reality? * Mark only one oval. Yes No |

(2/14) Temperature over the years

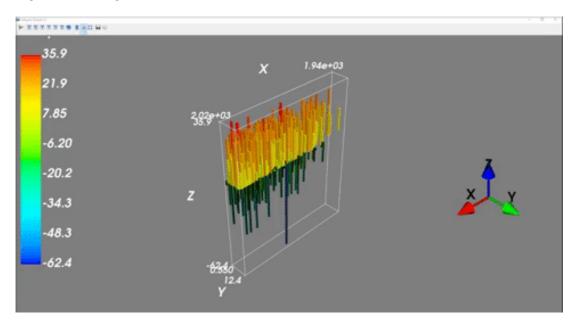
Analyze the relationship of years and / or months with temperatures, since there are records, from stations around the world.

In this section the views have the following caption x= years y= months

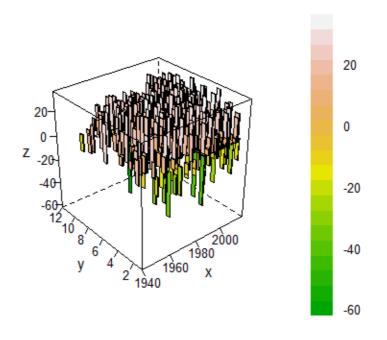
z= temperature (°C)

05/12/2019

Python Mayavi barchart()



R latticeExtra



Data-Room bar chart

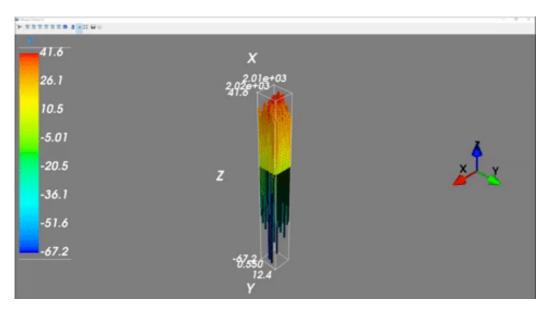
Go to the Data-Room application and click on menu button 1.

| 9. In which of the visual representations is it easier to identify the highest temperature value? * |
|---|
| Mark only one oval. |
| Python Mayavi barchart() |
| R latticeExtra |
| Data-Room bar chart |
| 10. What value did you identify? * |
| Mark only one oval. |
| 35,94 |
| 43,28 |
| 43,33 |
| Other |
| 11. What do you consider relevant in the visualization? * Check all that apply. |
| A. Axes for spatial dimensions (x, y and z) |
| B. Color scale for temperature mapping |
| C. Overview of the chart |
| D. Immersive Visualization |
| E. Zoom in and out |
| F. Amount of data |
| 12. Regarding the previous question, indicate the order of priorities (Example - ADB). * |
| 13. Which environment allows for easier interaction / exploration? * Mark only one oval. |
| Python Mayavi barchart() |
| R latticeExtra |
| Data-Room bar chart |
| 14. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. |
| Python Mayavi barchart() |
| R latticeExtra |
| Data-Room bar chart |
| |
| (3/14) Temperature in the last 10 years |

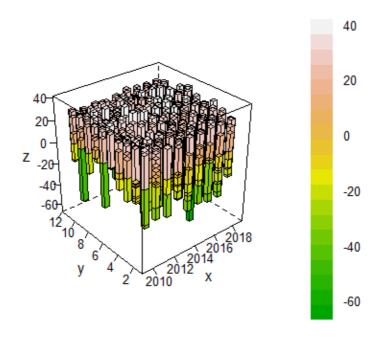
Analyze the relationship of years and / or months with temperatures, using data from the past 10 years, from stations around the world.

In this section the views have the following caption x= years y= months z= temperature (°C)

Python Mayavi barchart()



R latticeExtra



Data-Room bar chart

Go to the Data-Room application and click on menu button 2.

15. In which of the visual representations is it easier to identify the lowest temperature value?

Mark only one oval.

Python Mayavi barchart()

R latticeExtra

Data-Room bar chart

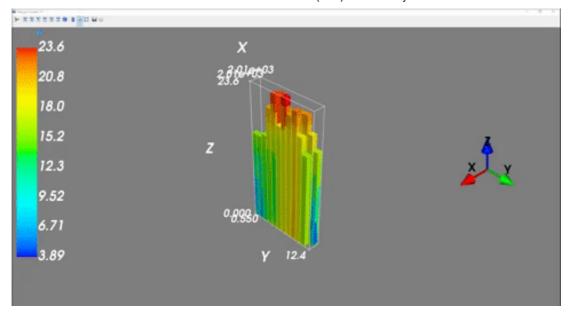
| 16. What value did you identify? * Mark only one oval. |
|--|
| -81,50 |
| -77,83 |
| -67,17 |
| Other |
| 17. What do you consider relevant in the visualization? * Check all that apply. |
| A. Axes for spatial dimensions (x, y and z) |
| B. Color scale for temperature mapping |
| C. Overview of the chart |
| D. Immersive Visualization |
| E. Zoom in and out |
| F. Amount of data |
| 19. Which environment allows for easier interaction / exploration? * Mark only one oval. |
| Python Mayavi barchart() |
| R latticeExtra |
| Data-Room bar chart |
| 20. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. |
| Python Mayavi barchart() |
| R latticeExtra |
| Data-Room bar chart |
| (4/14) Temperature in the last 10 years in Cabo Carvoeiro |

Analyze the relationship of years and $\!\!/$ or months with temperatures, using data from the past 10 years, in Cabo Carvoeiro.

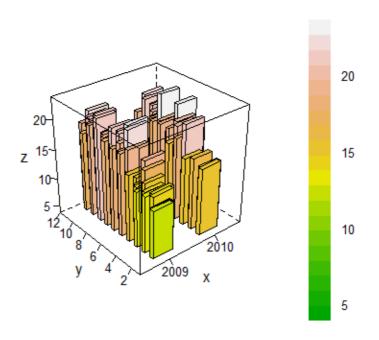
In this section the views have the following caption x= years y= months

z= temperature (°C)

Python Mayavi barchart()



R latticeExtra



Data-Room bar chart

Go to the Data-Room application and click on menu button 3.

21. In which of the visual representations is it easier to identify the last year in which we have records? *

Mark only one oval.

| Pvthon | Mavavi | barchart() |
|--------|--------|------------|
| | | |

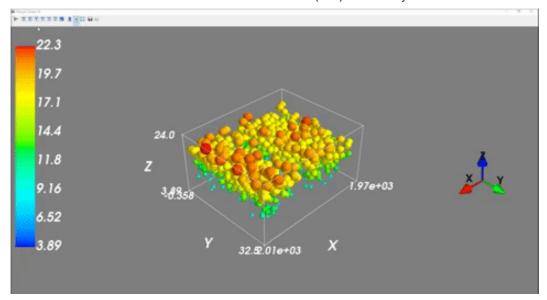
R latticeExtra

Data-Room bar chart

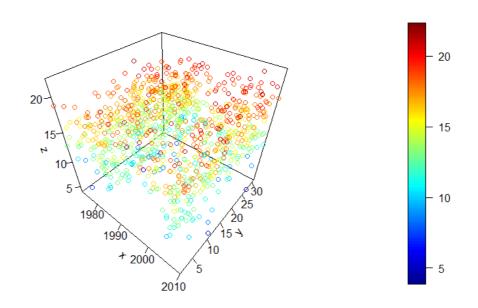
| 22. What value did you identify? * Mark only one oval. |
|---|
| 2009 |
| 2010 |
| 2013 |
| Other |
| 23. What do you consider relevant in the visualization? * Check all that apply. |
| A. Axes for spatial dimensions (x, y and z) |
| B. Color scale for temperature mapping |
| C. Overview of the chart |
| D. Immersive Visualization |
| E. Zoom in and out |
| F. Amount of data |
| 24. Regarding the previous question, indicate |
| the order of priorities (Example - ADB). * 25. Which environment allows for easier interaction / exploration? * |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. |
| 25. Which environment allows for easier interaction / exploration? * |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi barchart() |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi barchart() R latticeExtra |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi barchart() R latticeExtra Data-Room bar chart 26. Which environment is most desirable to see on a mobile phone screen? * |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi barchart() R latticeExtra Data-Room bar chart 26. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi barchart() R latticeExtra Data-Room bar chart 26. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. Python Mayavi barchart() |
| 25. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi barchart() R latticeExtra Data-Room bar chart 26. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. Python Mayavi barchart() R latticeExtra |

x= years y= days

z= temperature (°C)



R plot3D



Data-Room bubble chart

Go to the Data-Room application and click on menu button 4.

27. In which of the visual representations is it easier to identify temperature variation? * Mark only one oval.

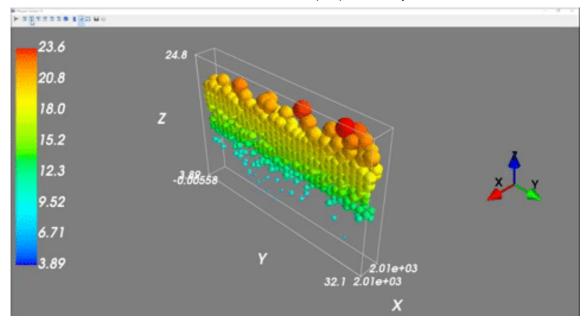
| | Python | Mayavi | points3D() |
|--|--------|--------|------------|
|--|--------|--------|------------|

R plot3D

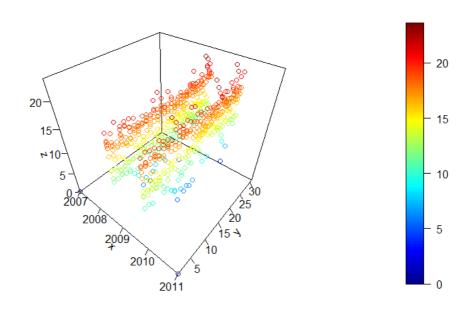
Data-Room bubble chart

| Mark only one oval. |
|--|
| 4 e 25 |
| 3 e 25 |
| 5 e 20 |
| Other |
| 29. What do you consider relevant in the visualization? * Check all that apply. |
| A. Axes for spatial dimensions (x, y and z) |
| B. Color scale for temperature mapping |
| C. Overview of the chart |
| D. Immersive Visualization |
| E. Zoom in and out |
| F. Amount of data |
| 30. Regarding the previous question, indicate the order of priorities (Example - ADB). * |
| |
| the order of priorities (Example - ADB). * 31. Which environment allows for easier interaction / exploration? * |
| 31. Which environment allows for easier interaction / exploration? * Mark only one oval. |
| the order of priorities (Example - ADB). * 31. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi points3D() |
| the order of priorities (Example - ADB). * 31. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi points3D() R plot3D |
| the order of priorities (Example - ADB). * 31. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi points3D() R plot3D Data-Room bubble chart 32. Which environment is most desirable to see on a mobile phone screen? * |
| 31. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi points3D() R plot3D Data-Room bubble chart 32. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. |
| the order of priorities (Example - ADB). * 31. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi points3D() R plot3D Data-Room bubble chart 32. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. Python Mayavi points3D() |
| 31. Which environment allows for easier interaction / exploration? * Mark only one oval. Python Mayavi points3D() R plot3D Data-Room bubble chart 32. Which environment is most desirable to see on a mobile phone screen? * Mark only one oval. Python Mayavi points3D() R plot3D |

y= days z= temperature (°C)



R plot3D



Data-Room bubble chart

Go to the Data-Room application and click on menu button 5.

33. In which of the visual representations is it easier to identify the highest temperature value? *

Mark only one oval.

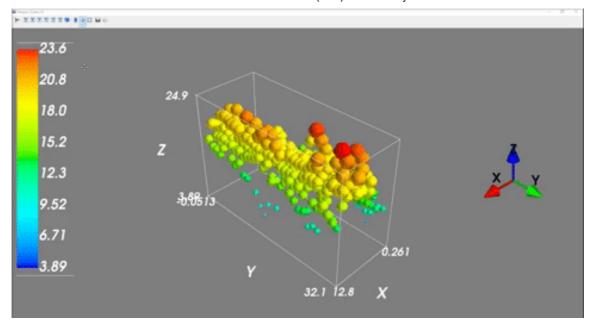
| Python Mayavi points3D() |
|--------------------------|
| R plot3D |

Data-Room bubble chart

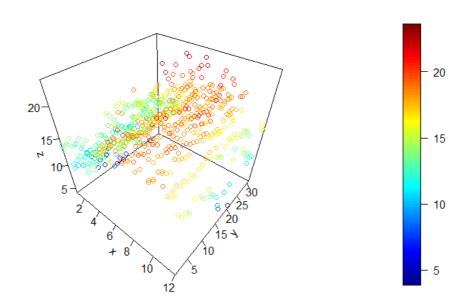
| | t value did you identify? * only one oval. |
|-----------|--|
| | 23,61 |
| | 15,24 |
| | 30,41 |
| |) Other |
| | t do you consider relevant in the visualization? * ck all that apply. |
| | A. Axes for spatial dimensions (x, y and z) |
| | B. Color scale for temperature mapping |
| | C. Overview of the chart |
| | D. Immersive Visualization |
| | E. Zoom in and out |
| | F. Amount of data |
| | ch environment allows for easier interaction / exploration? * |
| IVIAIK | |
| | Python Mayavi points3D() |
| | R plot3D |
| | Data-Room bubble chart |
| | ch environment is most desirable to see on a mobile phone screen? * only one oval. |
| | Python Mayavi points3D() |
| | R plot3D |
| | Data-Room bubble chart |
| | |
| Analyze t | Temperature in the last 10 years in Cabo Carvoeiro he relationship of months and / or days with temperatures, using data from the past m Cabo Carvoeiro. |

In this section the views have the following caption x= months y= days

z= temperature (°C)



R plot3D



Data-Room bubble chart

Go to the Data-Room application and click on menu button 6.

39. In which of the visual representations is it easier to identify the month with the highest temperature? *

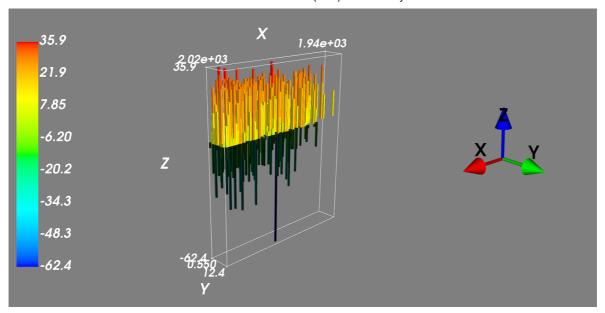
Mark only one oval.

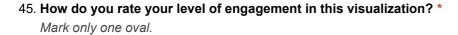
R plot3D

Data-Room bubble chart

| | (1, 1.1) |
|--|---|
| 40. What month <i>Mark only on</i> | did you identify? * e oval. |
| May | |
| July | |
| Augu | st |
| Octob | per |
| 41. What do you | u consider relevant in the visualization? * t apply. |
| A. Axes | s for spatial dimensions (x, y and z) |
| B. Colo | r scale for temperature mapping |
| C. Over | rview of the chart |
| D. Imm | ersive Visualization |
| E. Zoor | m in and out |
| F. Amo | unt of data |
| | he previous question, indicate priorities (Example - ADB). * |
| 43. Which envir <i>Mark only on</i> | onment allows for easier interaction / exploration? * |
| _ | on Mayavi points3D() |
| R plo | t3D |
| O Data- | Room bubble chart |
| 44. Which envir | conment is most desirable to see on a mobile phone screen? * |
| Pytho | on Mayavi points3D() |
| R plo | t3D |
| Data- | Room bubble chart |
| (8/14) Gene | eral - Python Mayavi barchart() |

Python Mayavi barchart()







46. How do you rate the overall visualization? *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|----------|---|---|---|---|---|-----------|
| Horrible | | | | | | Excellent |

47. Visualization's satisfaction level *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|-----------------|---|---|---|---|---|-------------------|
| No satisfaction | | | | | | Very satisfactory |

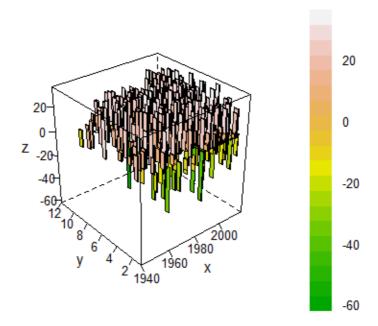
48. Easiness to focus on this visualization *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|----------------|---|---|---|---|---|-----------|
| Very difficult | | | | | | Very easy |

(9/14) General - R latticeExtra

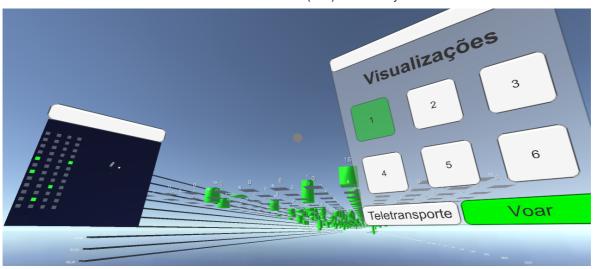
R latticeExtra



| d | | | | | |
|--------------------------|---|---|---|--|---|
| | | | | Very engag | jed |
| u rate the o | overall vie | w? * | | | |
| 1 2 | 3 | 4 | 5 | | |
| | | | E> | ccellent | |
| on's satisfa ne oval. | ction leve | el * | | | |
| 1 | 2 | 3 | 4 5 | | |
| tion | | | |) Very satis | sfac |
| o focus on | this visua | ilization * | , | | |
| | 1 2 on's satisfa ne oval. 1 cion of focus on | 1 2 3 on's satisfaction level ne oval. 1 2 ion | 1 2 3 4 on's satisfaction level * ne oval. 1 2 3 ion | 1 2 3 4 5 on's satisfaction level * ne oval. 1 2 3 4 5 ion of focus on this visualization * | 1 2 3 4 5 on's satisfaction level * ne oval. 1 2 3 4 5 ion |

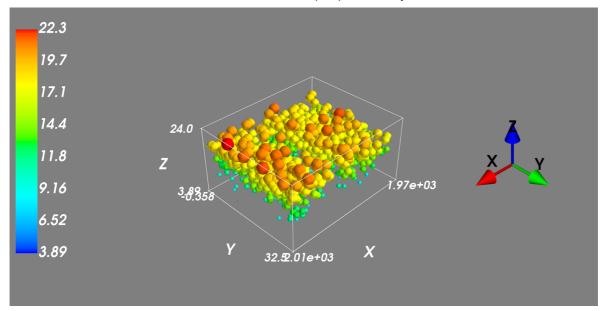
(10/14) General - Data-Room gráfico de barras

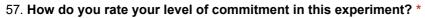
Data-Room gráfico de barras



| | 1 | 2 | 3 | 4 | 5 | |
|--------------------------------|----------------------|-----------|--------|---|--------|--------------|
| Not engaged | | | | | | Very engage |
| How do you i Mark only one | | verall vi | iew? * | | | |
| | 1 2 | 3 | 4 | 5 | | |
| | | | | | | |
| Horrible | | | | |) Exce | ellent |
| | | ction lev | vel * | 4 |) Exce | ellent |
| Visualization | oval. | | | 4 | , | Very satisfa |
| Visualization Mark only one | oval. 1 n ocus on t | 2 | 3 | | , | |

(11/14) General - Python Mayavi points3d()





Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|-------------|---|---|---|---|---|--------------|
| Not engaged | | | | | | Very engaged |

58. How do you rate the overall view? *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|----------|---|---|---|---|---|-----------|
| Horrible | | | | | | Excellent |

59. Visualization's satisfaction level *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|-----------------|---|---|---|---|---|-------------------|
| No satisfaction | | | | | | Very satisfactory |

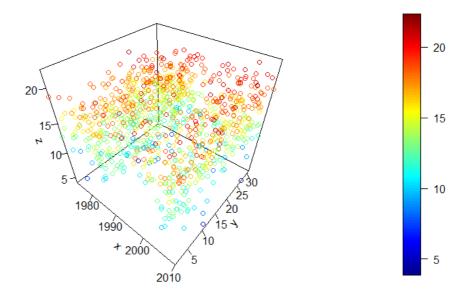
60. Easiness to focus on this visualization *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|----------------|---|---|---|---|---|-----------|
| Very difficult | | | | | | Very easy |

(12/14) **General - R plot3D**

R plot3D





| | 1 | 2 | 3 | 4 | 5 | |
|-------------|---|---|---|---|---|--------------|
| Not engaged | | | | | | Very engaged |

62. How do you rate the overall view? *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|----------|---|---|---|---|---|-----------|
| Horrible | | | | | | Excellent |

63. Visualization's satisfaction level *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|-----------------|---|---|---|---|---|-------------------|
| No satisfaction | | | | | | Very satisfactory |

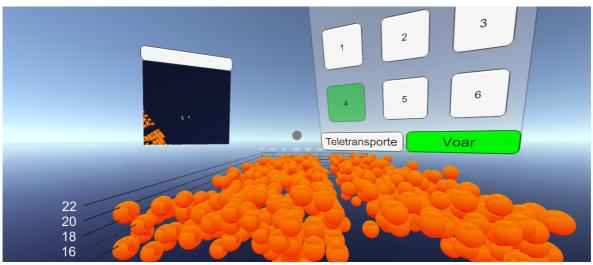
64. Easiness to focus on this visualization *

Mark only one oval.

| | 1 | 2 | 3 | 4 | 5 | |
|----------------|---|---|---|---|---|-----------|
| Very difficult | | | | | | Very easy |

(13/14) General - Data-Room gráfico de bolhas

Data-Room gráfico de bolhas



| 22 20 18 16 How do you rate you Mark only one oval. 1 Not engaged How do you rate the Mark only one oval. 1 Horrible | 2 | 3 ew? * | ment in t | this exp | periment? * | |
|--|-----------------|------------|-----------|----------|-------------|------|
| Mark only one oval. 1 Not engaged How do you rate the Mark only one oval. | 2 overall vi | 3 ew? * | | | | |
| Not engaged How do you rate the Mark only one oval. | overall vi | ew? * | 4 | 5 | Very engag | ged |
| How do you rate the Mark only one oval. | | | | | Very engag | ged |
| Mark only one oval. | | | | | | |
| | 2 3 | 4 | | | | |
| | | | 5 | Exce | ellent | |
| Visualization's satisf Mark only one oval. | | | 4 | 5 | | |
| No satisfaction | | | | | Very satis | sfac |
| Easiness to focus or Mark only one oval. | n this visu | ıalizatior | ı * | | | |
| 1 | 2 | 3 | 4 | 5 | | |
| Very difficult | | | |) | Very easy | |

| | Mark only one oval. | |
|----------|--|---------------------------|
| | Yes | |
| | ○ No | |
| 71. | . Comments or suggestions | |
| | | |
| | | |
| | | |
| | | |
| | Do you accept the data to be considered for dissertation Check all that apply. | n purposes? * |
| | Yes, I accept that the data I submit will be considered for | or dissertation purposes. |
| S | Send me a copy of my responses. | |
| | | |
| | | |