



Prezentacja 5

10.05.2023r.





GAUSSIAN PLUME MODEL

STABILITY CLASSES

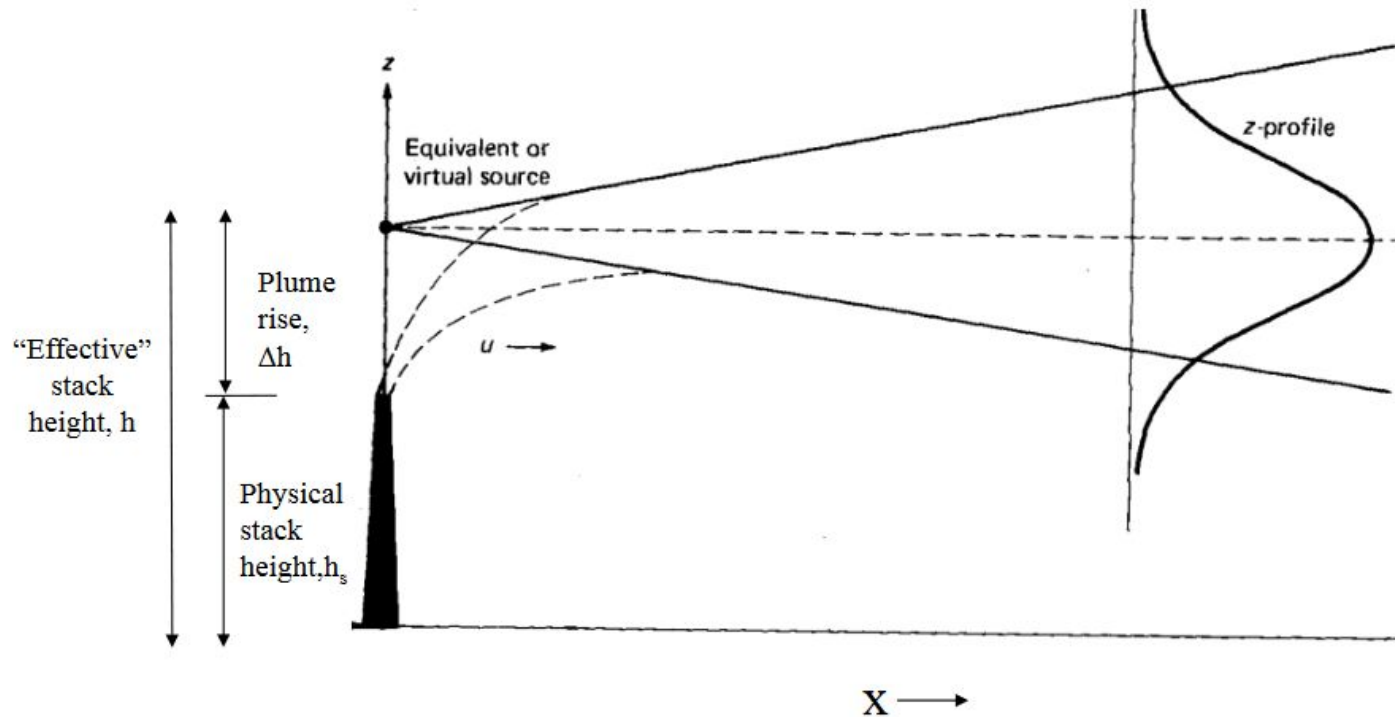
| Wind speed | Solar insolation | | | Cloudiness | |
|------------|------------------|------------|----------|------------|-------|
| | Strong* | Moderate** | Slight** | Cloudy | Clear |
| <2 | A | A-B | B | E | F |
| 2-3 | A-B | B | C | E | F |
| 3-5 | B | B-C | C | D | E |
| 5-6 | C | C-D | D | D | D |
| >6 | C | D | D | D | D |

*Nasłonecznienie co najmniej 719W/m²

**Nasłonecznienie 420-719W/m²

***Nasłonecznienie 180-420W/m²

$$C(x, y, z) = \frac{Q}{2\pi u \sigma_y \sigma_z} \left[\exp\left(\frac{-(z-h)^2}{2\sigma_z^2}\right) + \exp\left(\frac{-(z+h)^2}{2\sigma_z^2}\right) \right] \exp\left(\frac{-y^2}{2\sigma_y^2}\right)$$



WPŁYW POGODY

| X | Y | Z | H | Q |
|------------|-----------|------|-----|---------|
| [0.01,1]km | [-10,10]m | 1.7m | 10m | 0.01g/s |

MAKSYMALNE KONCENTRACJE ZANIECZYSZCZEŃ W ZALEŻNOŚCI OD PRĘDKOŚCI WIATRU

maximum concentration

15

10

5

2

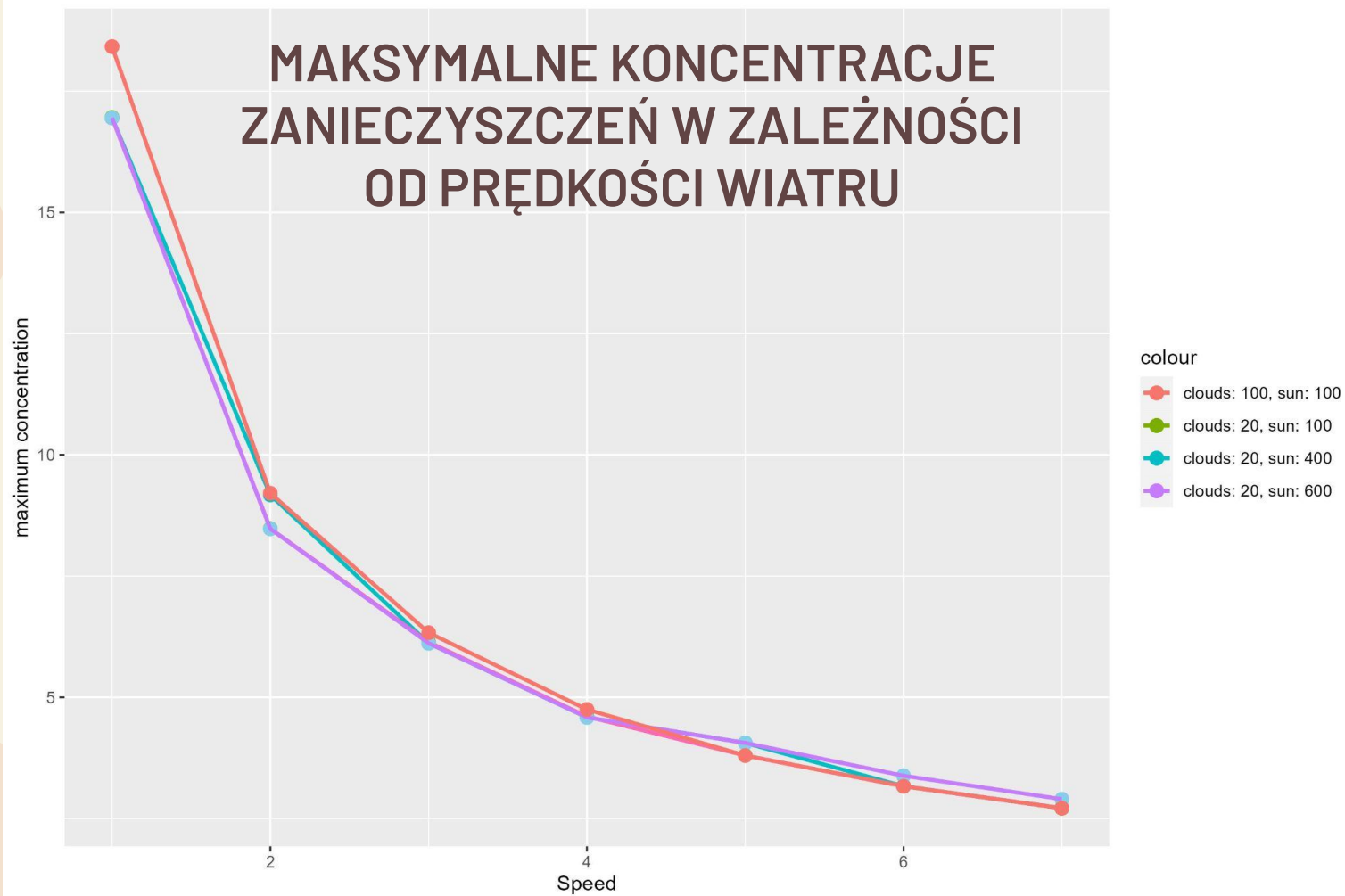
4

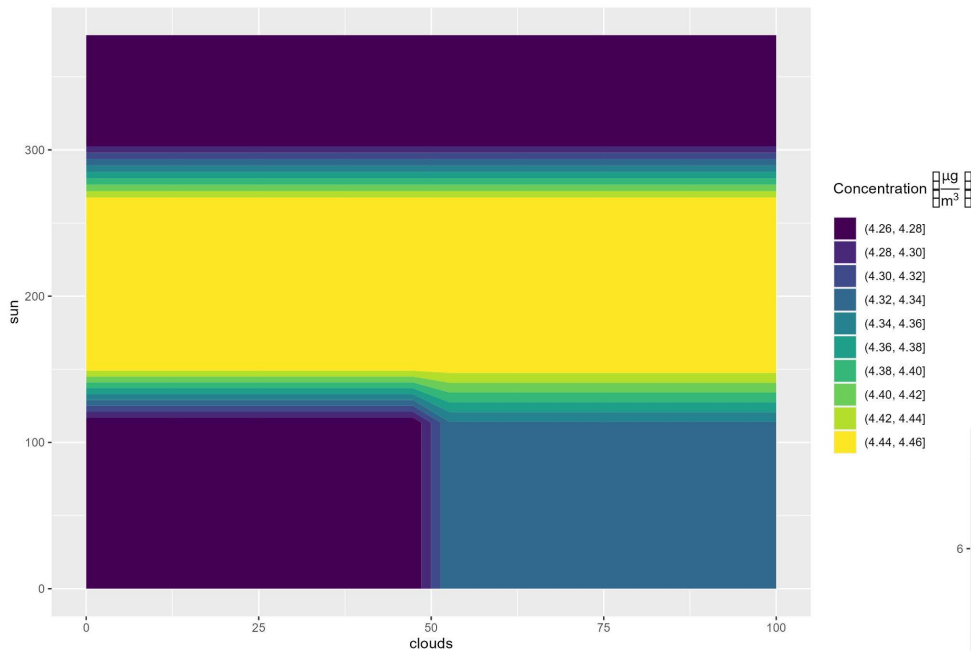
6

Speed

colour

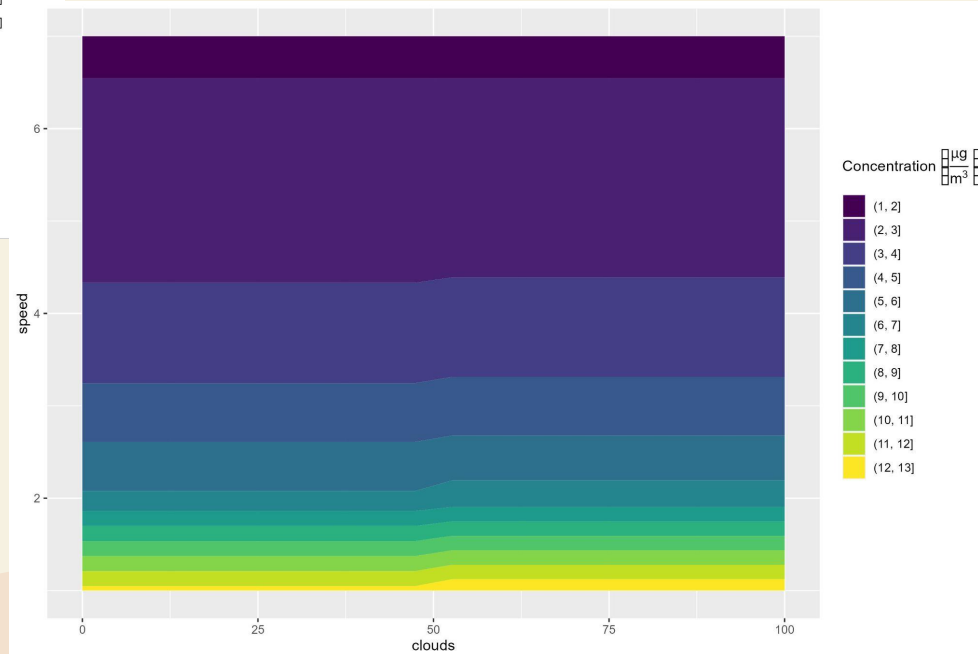
- clouds: 100, sun: 100
- clouds: 20, sun: 100
- clouds: 20, sun: 400
- clouds: 20, sun: 600



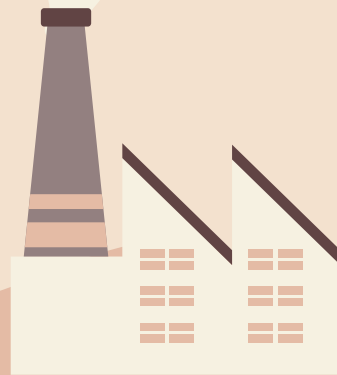
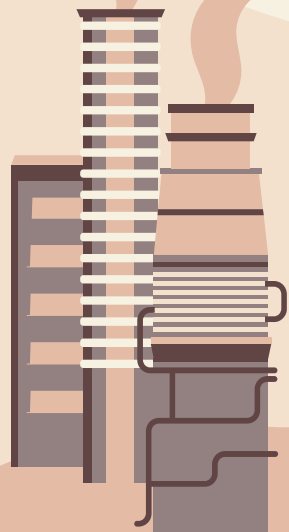


| Speed | Sun | Clouds |
|----------|---------------------|----------|
| [1,7]m/s | 100W/m ² | [0,100]% |

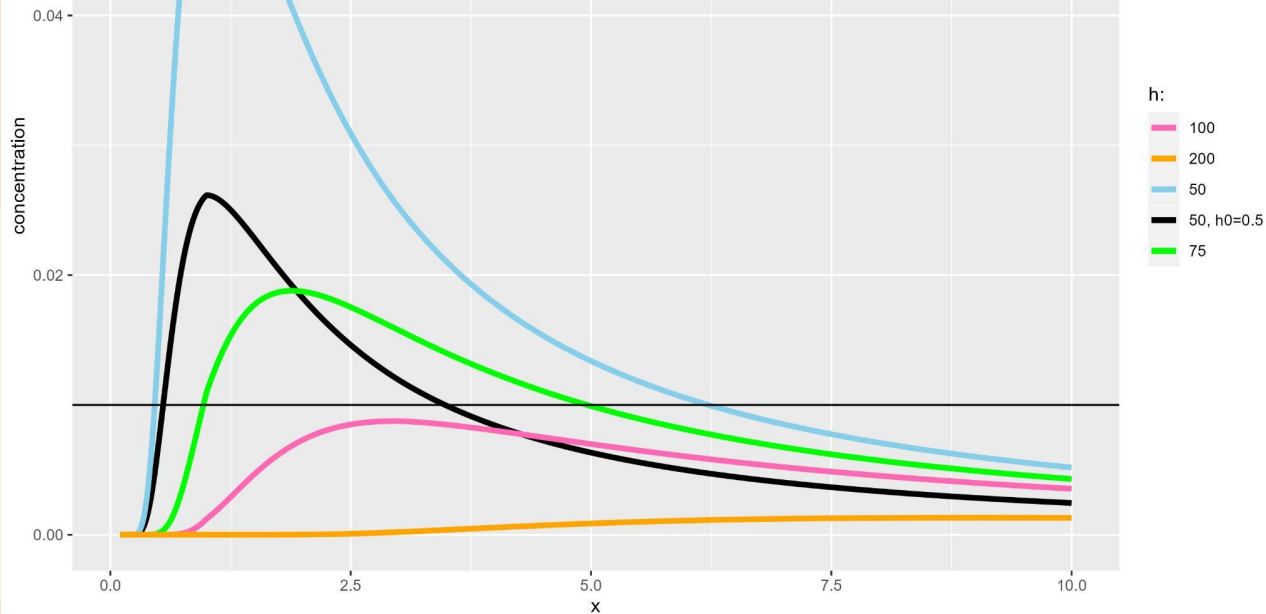
| Speed | Sun | Clouds |
|-------|-------------------------|----------|
| 3m/s | [0,719]W/m ² | [0,100]% |



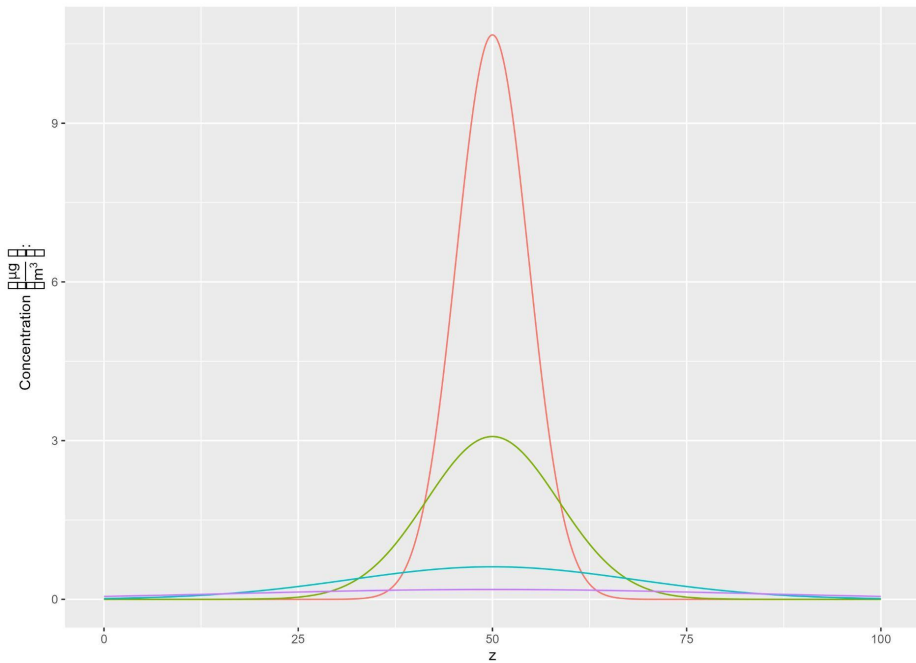
MODEL W 2D



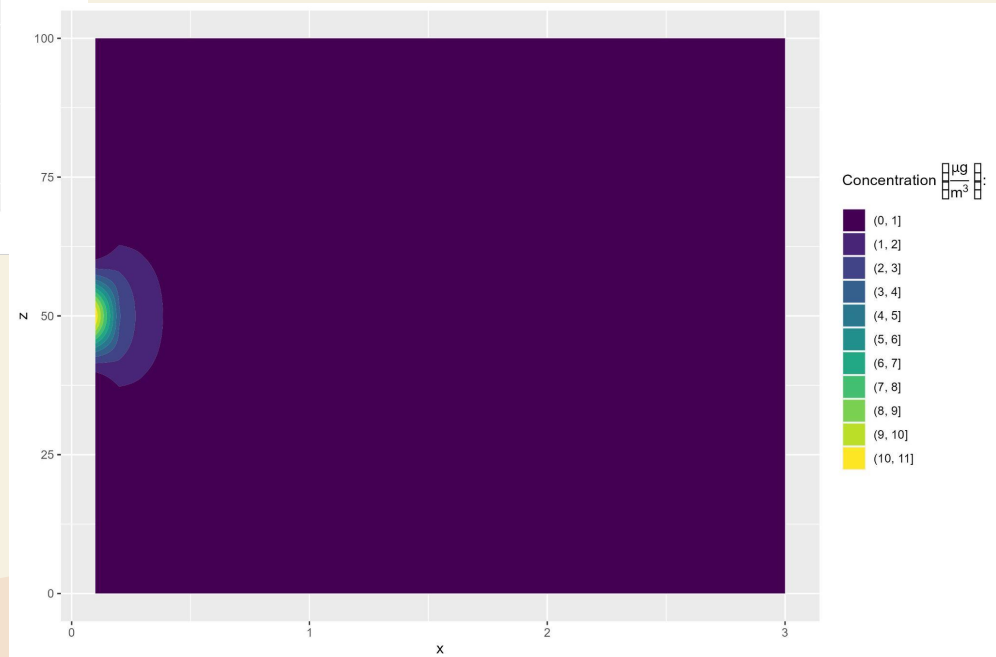
KONCENTRACJE ZANIECZYSZCZEŃ W ZALEŻNOŚCI OD X I H

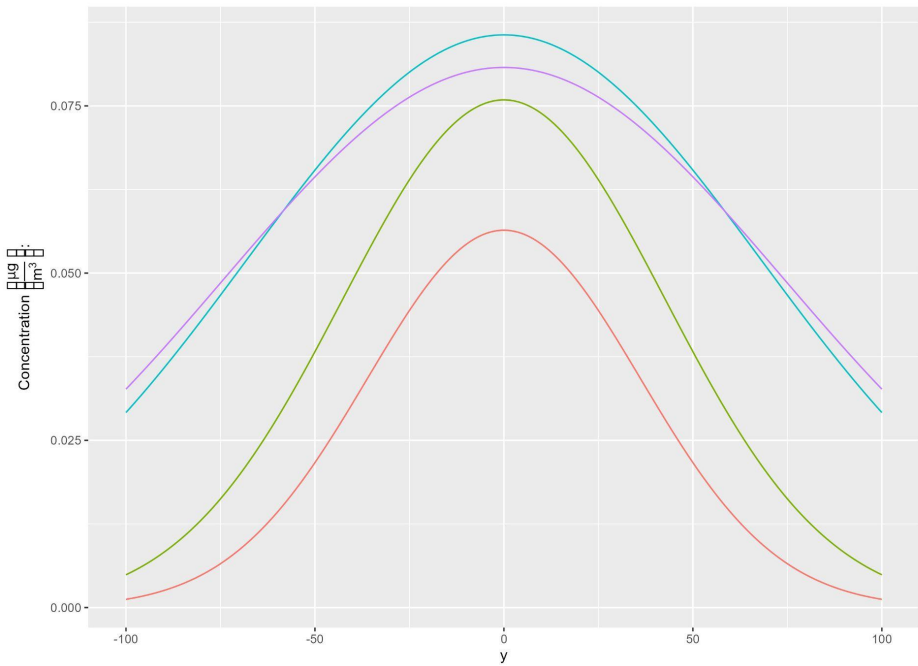


| X | Y | Z | Speed | Sun | Clouds |
|-------------|----|----|---------|--------------------|--------|
| [0.01,10]km | 0m | 0m | 5.23m/s | 70W/m ² | 74% |



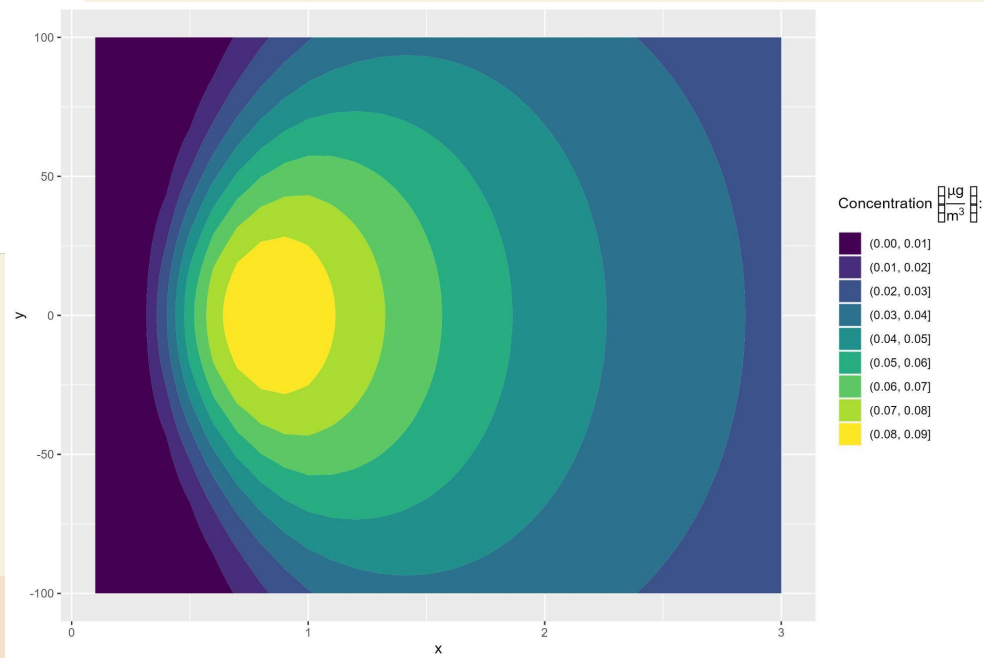
| X | Z | H |
|------------|----------|-----|
| [0.01,3]km | [0,100]m | 50m |



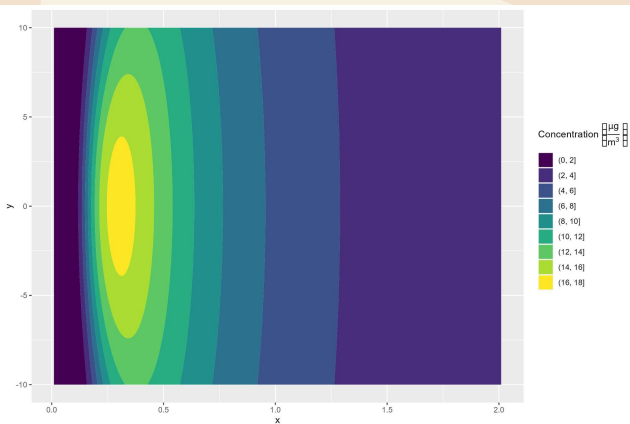


X:
 0.5
 0.6
 1
 1.1

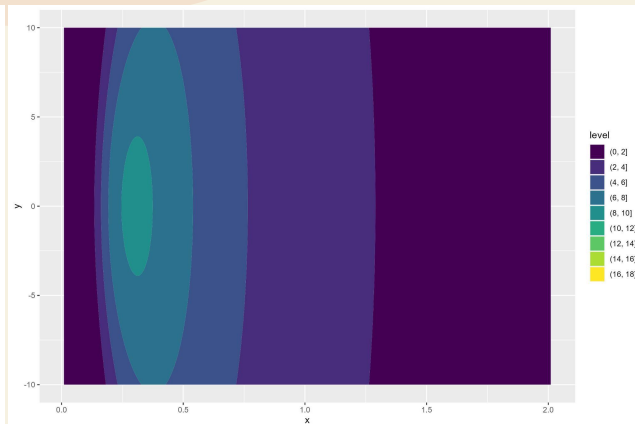
| Y | Z | H |
|-------------|------|-----|
| [-100,100]m | 10 m | 50m |



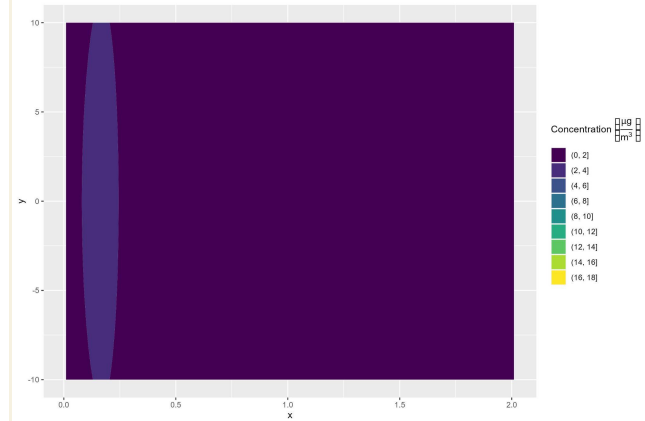
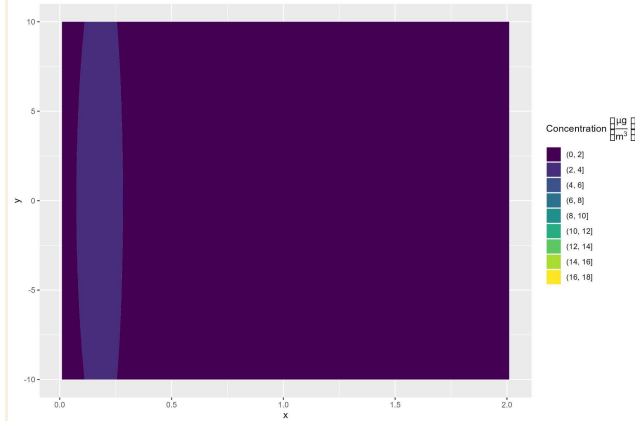
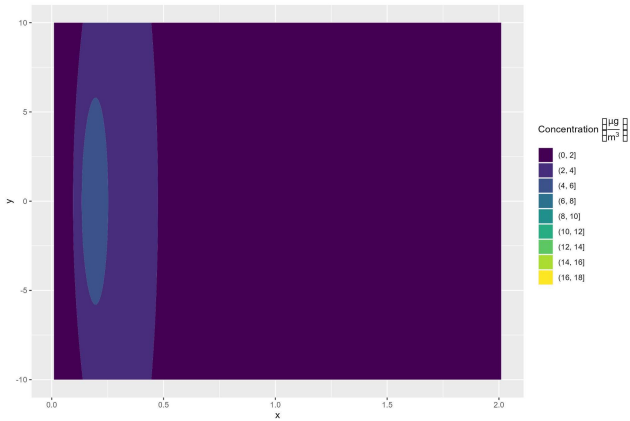
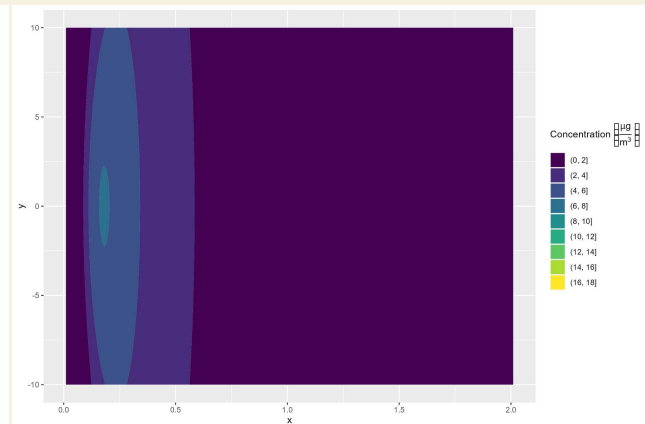
Speed: 1 m/s



Speed: 2 m/s



Speed: 3 m/s



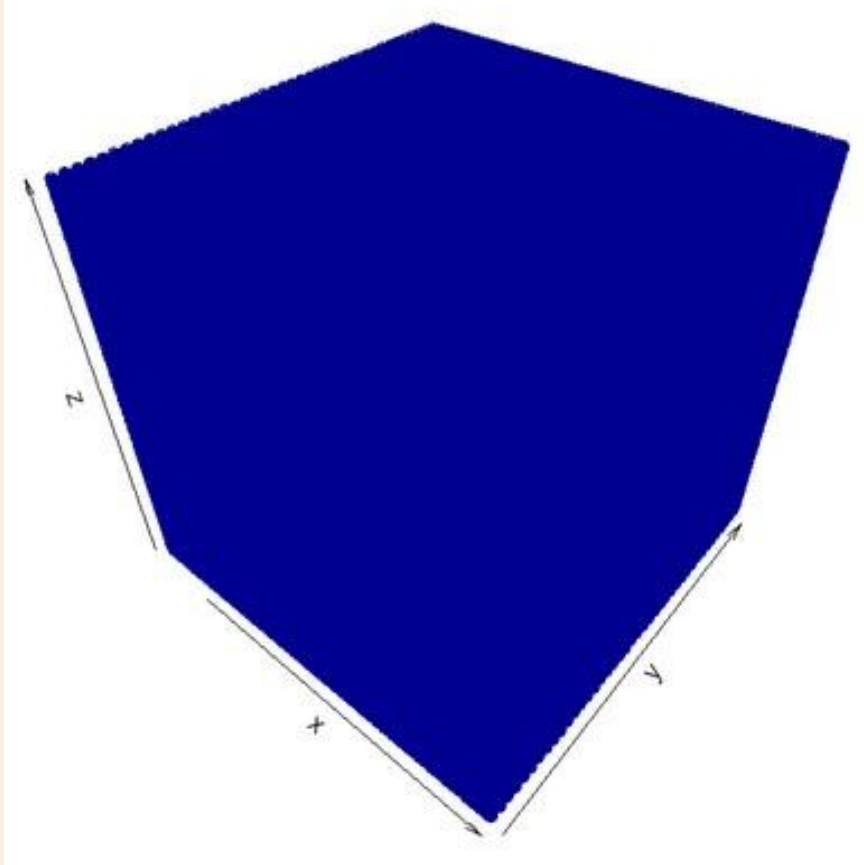
Speed: 4 m/s

Speed: 5 m/s

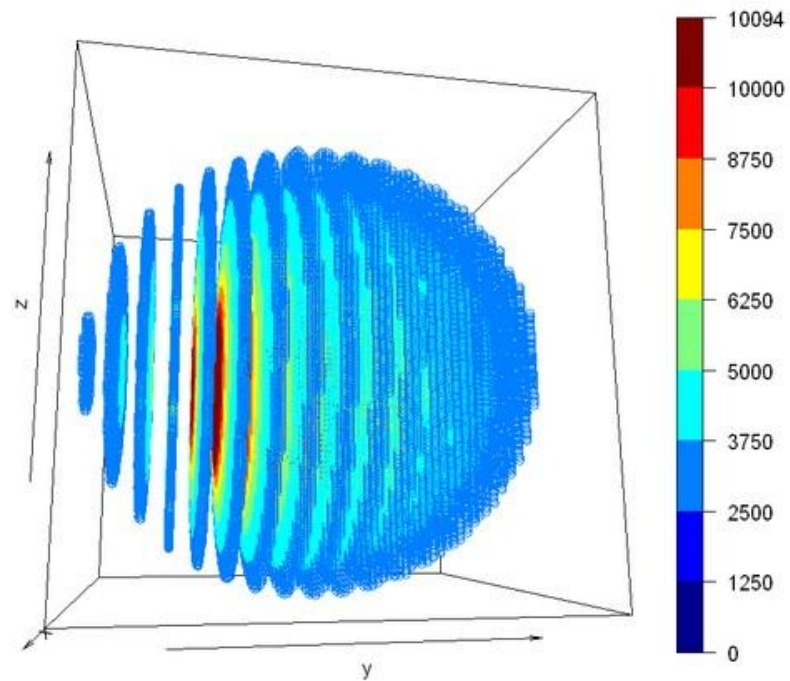
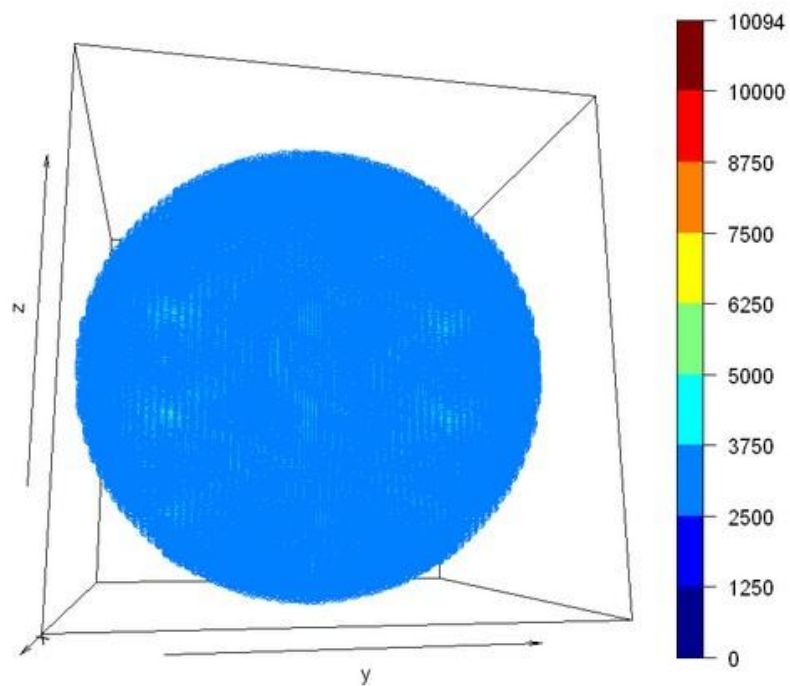
Speed: 6 m/s

MODEL W 3D

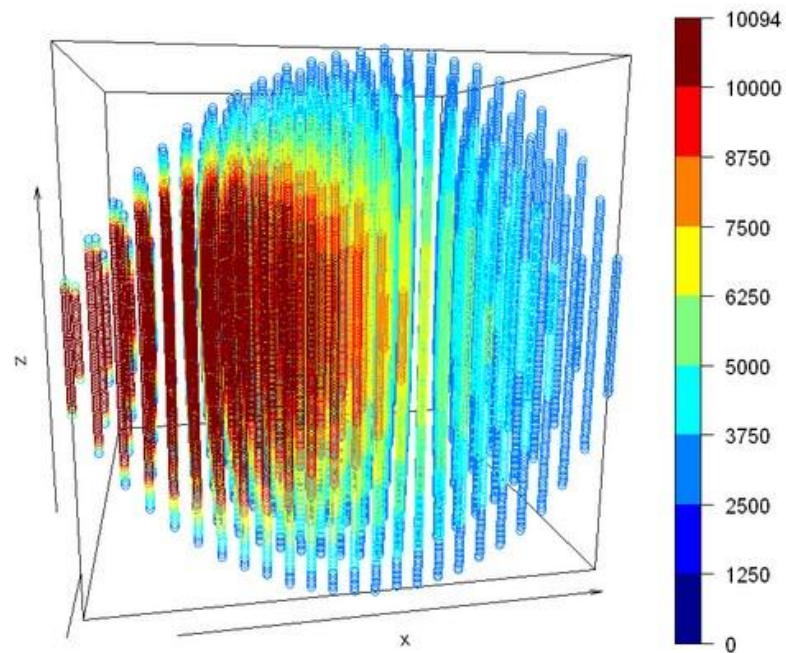
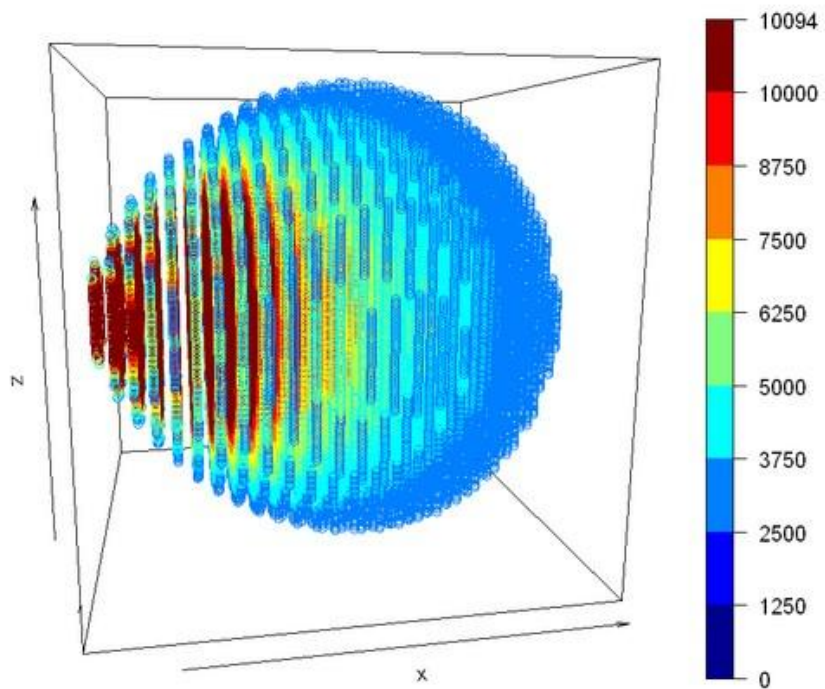





| | |
|---|------------------------|
| X | $[0.01, 1] \text{ km}$ |
| Y | $[-50, 50] \text{ m}$ |
| Z | $[0, 20] \text{ m}$ |
| H | 10m |
| Q | 10g/s |



Koncentracja większa niż $3000\mu\text{g}/\text{m}^3$

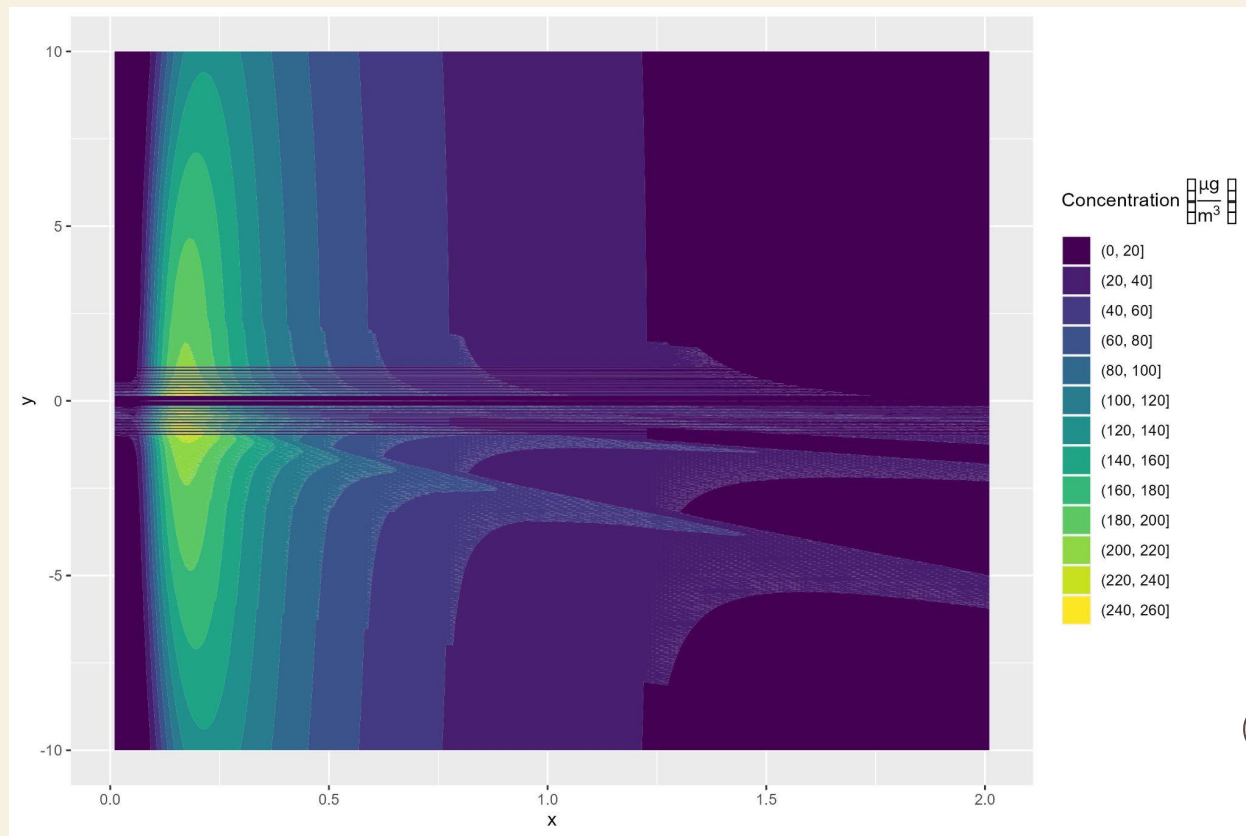


ZACHOWANIE MODELU W CZASIE



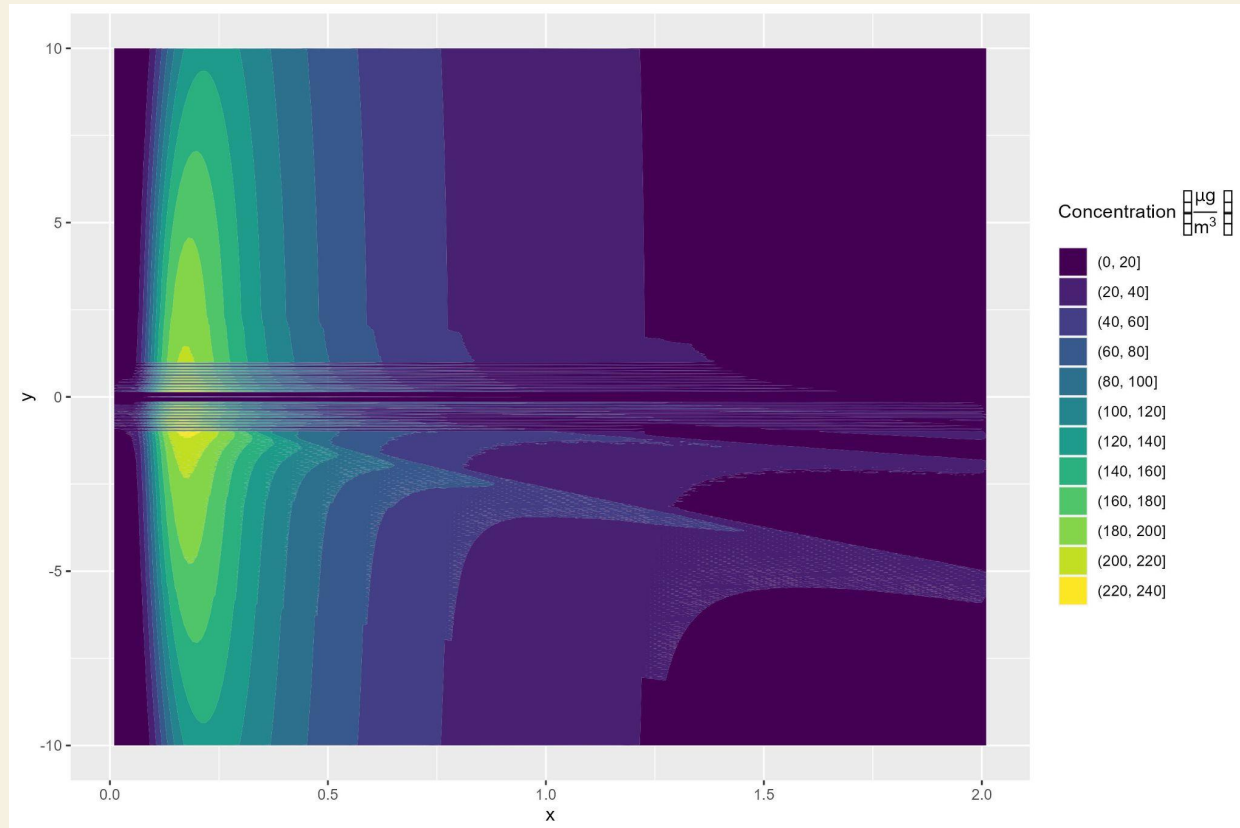
| X | Y | Z | H |
|------------|-----------|----|-----|
| [0.01,2]km | [-10,10]m | 2m | 10m |

NAKŁADANIE WYKRESÓW Z KILKU GODZIN

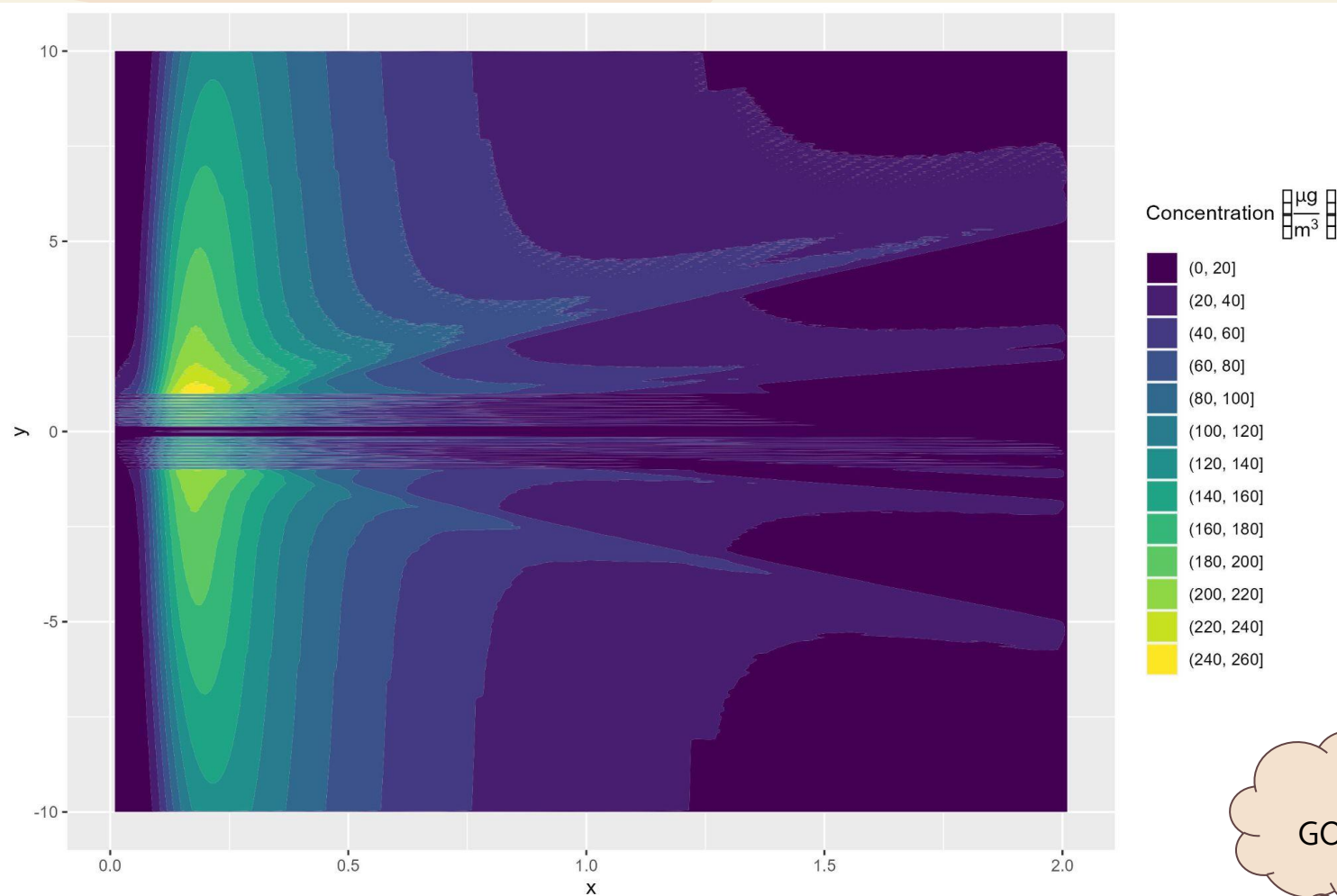


5 GODZIN

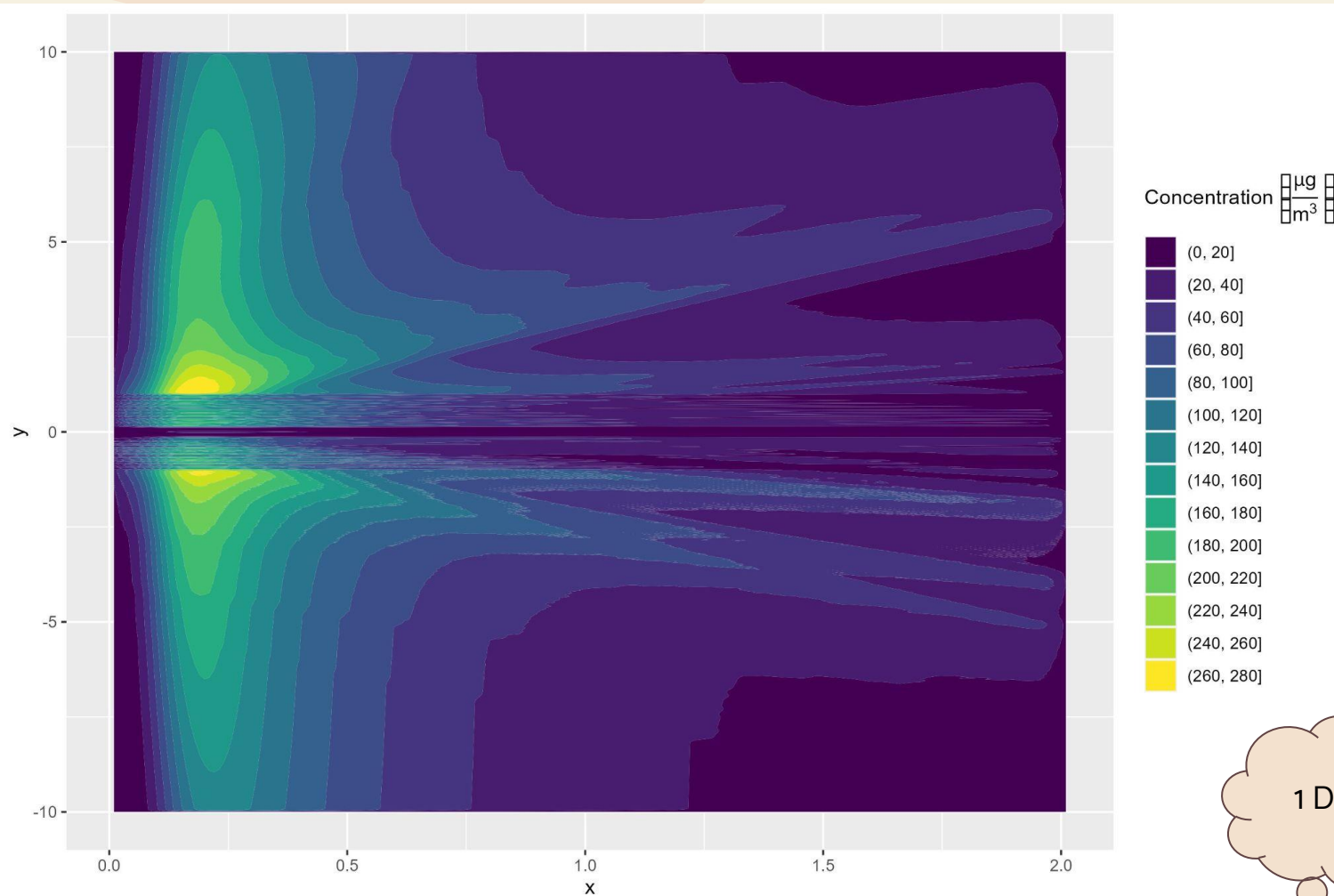
UŚREDNIANIE SIATKI CO GODZINĘ



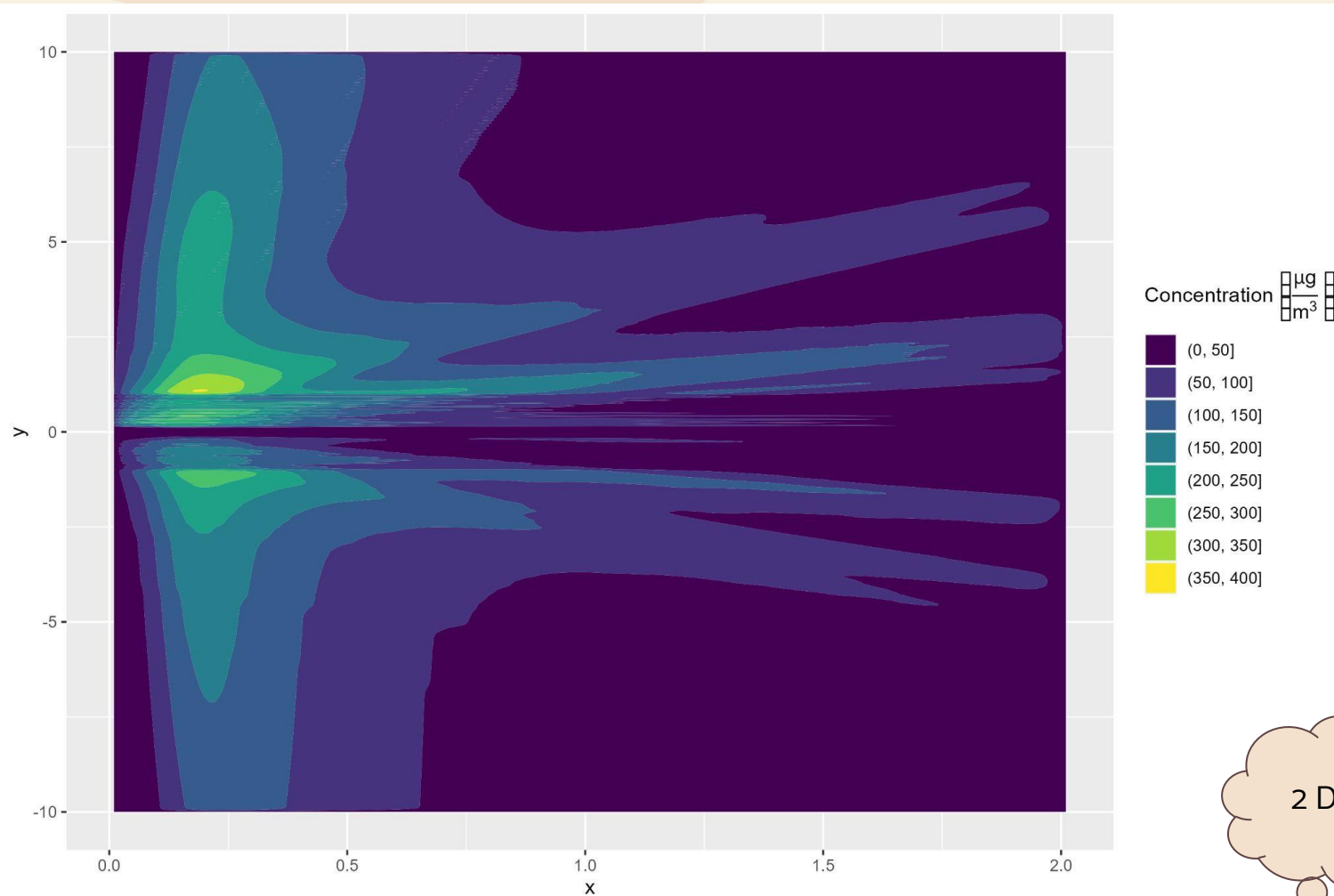
5 GODZIN



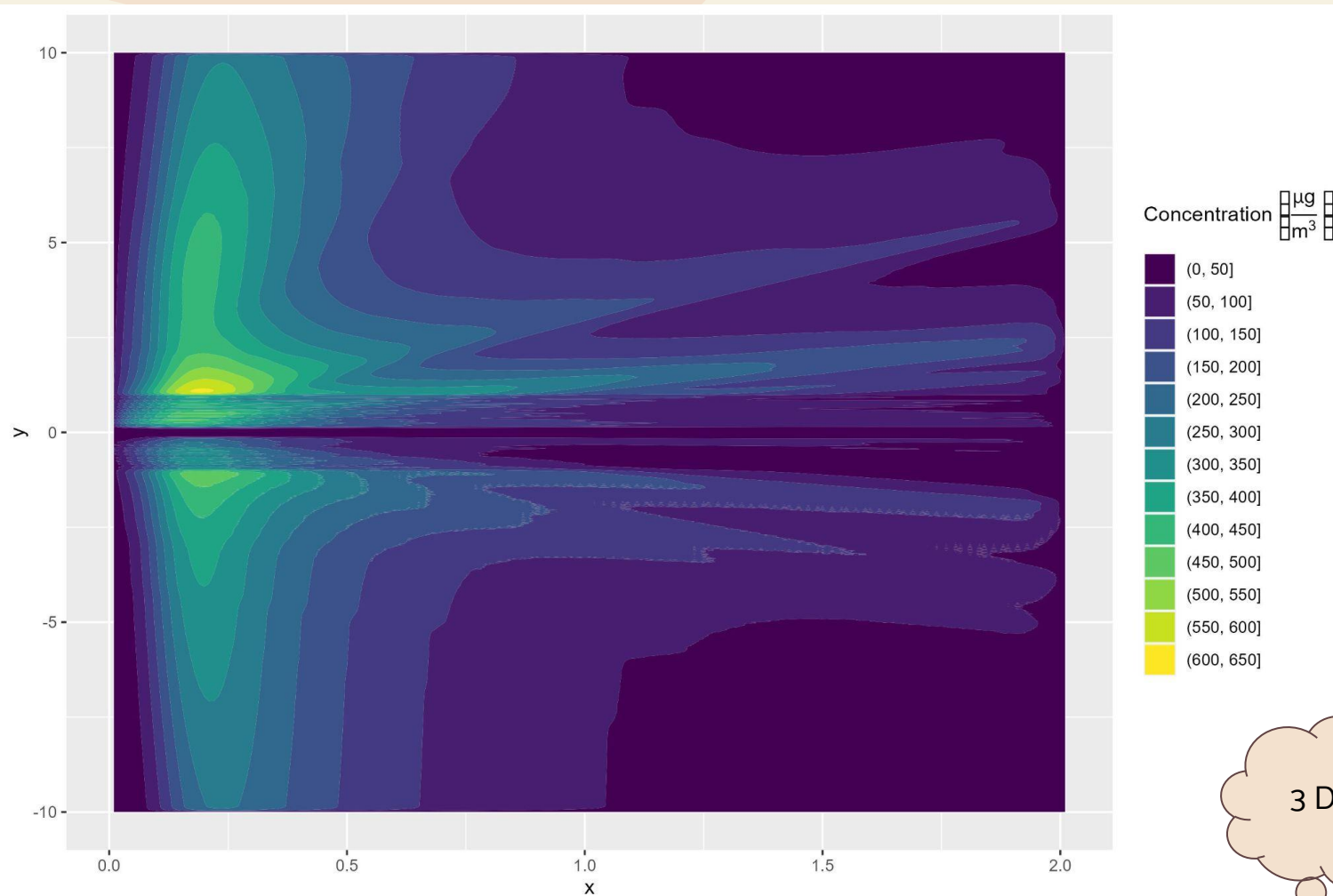
10
GODZIN



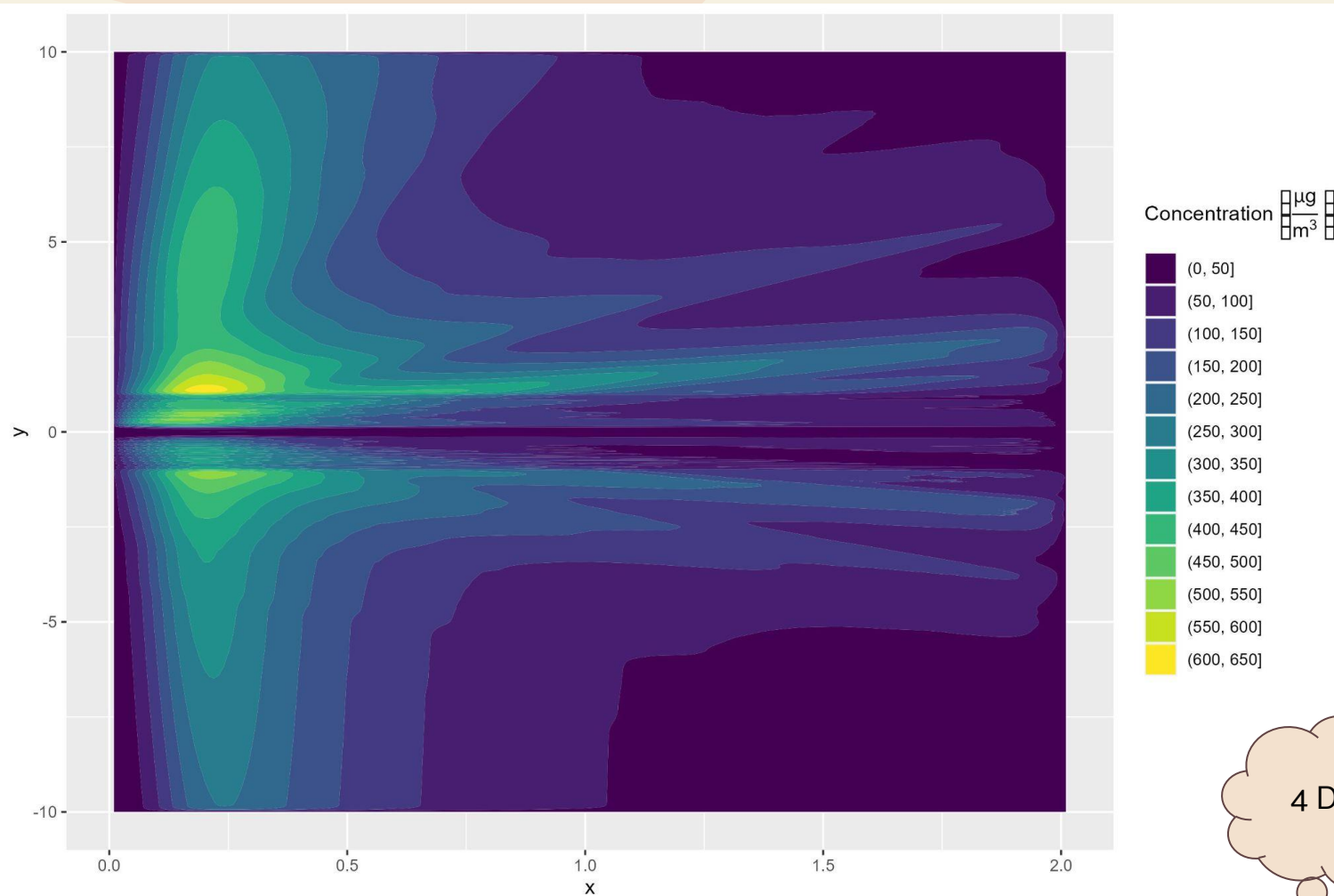
1 DZIEŃ



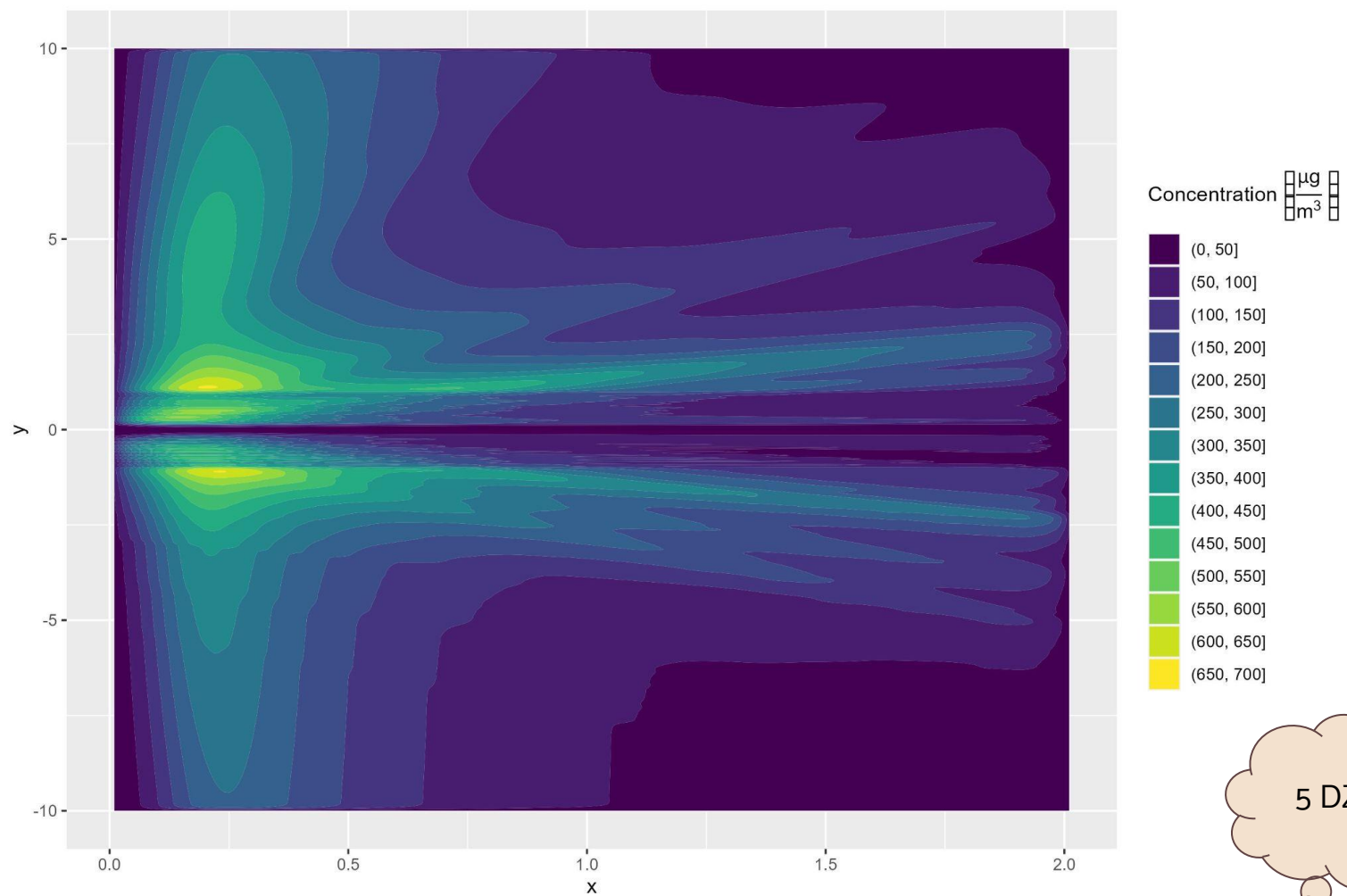
2 DZIEŃ

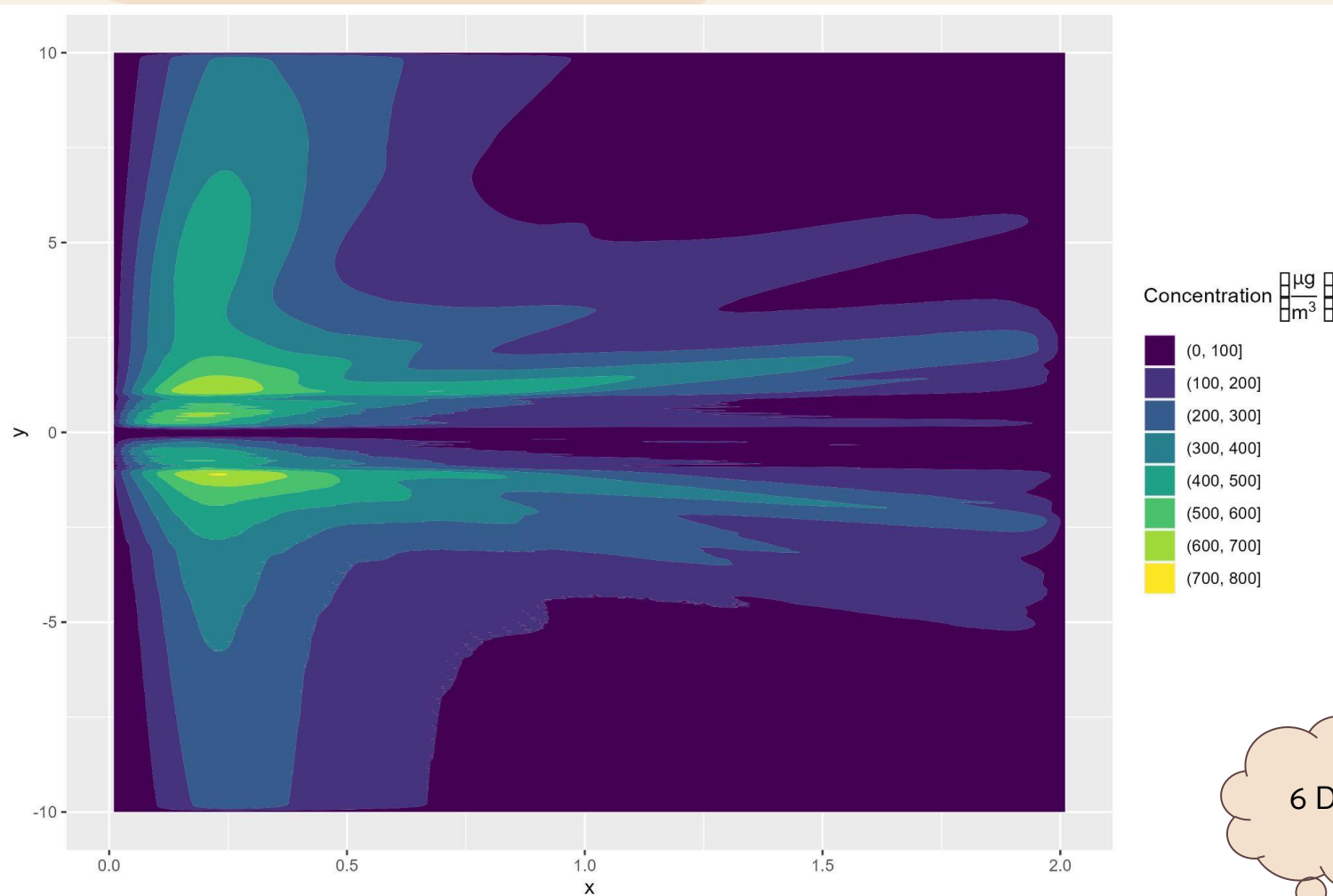


3 DZIEŃ

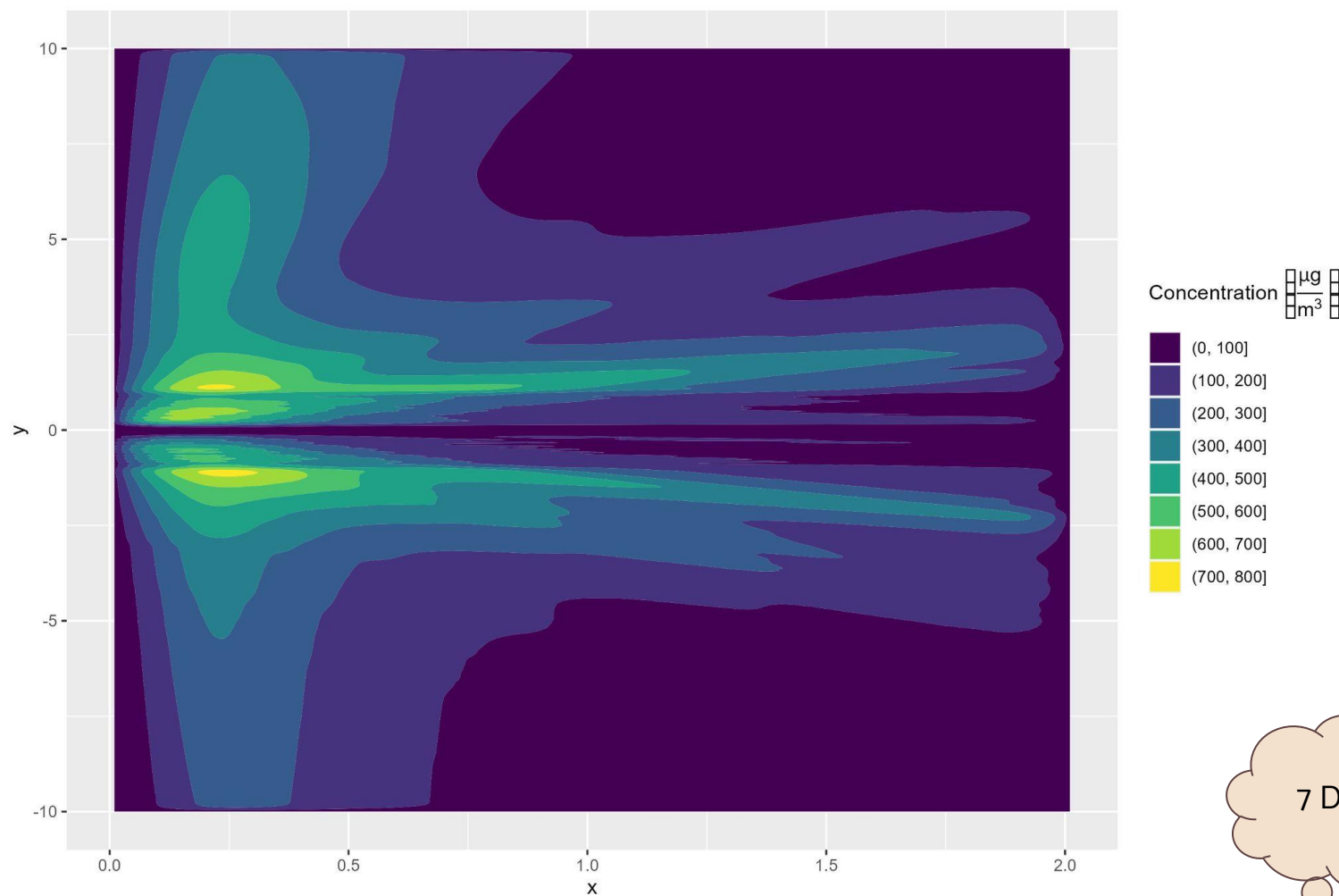


4 DZIEŃ





6 DZIEŃ



7 DZIEŃ

DZIĘKUJEMY ZA UWAGĘ!

PREZENTACJĘ PRZYGOTOWALI:

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