

A world map is shown in the background, divided into vertical bands of color: red/pink for North America, purple for Europe, cyan for Africa, blue for Asia, and dark blue for Australia. The map is overlaid with a grid of white lines.

IM<sup>2</sup>C 2017 Russia

**School 179 team**

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# Something new

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- 1801 Richard Trevithick invented transport, based on steam power.
- 1830 in the United Kingdom started working first passengers` railway.
- 1840 speed of travel grew so high, that governments were forced to Introduce The time zones.



# And more new

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- 1900 Wright brothers' flying machine took off the earth.
- 1913 in the Russian Empire started first passengers' flights.
- Nowadays everyone can fly to every part of the world for a few hours.



# New inventions – new problems

- Speed is high, but price is high too.
- Try to minimize this problem – try to seek optimal meeting place.





# ALGORITHM AND BASE

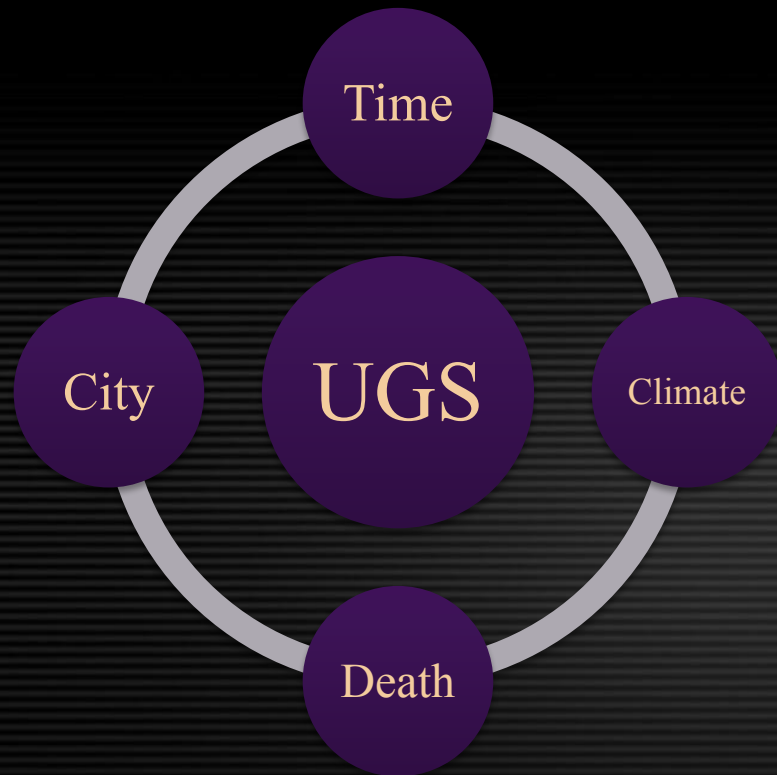


Geography

Earth is a multiplicity  
of sectors.

Universal

Sector



Every UGS has  
important parameters



# Algorithm

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Starting  
UGSs



Analysis



The best  
UGS

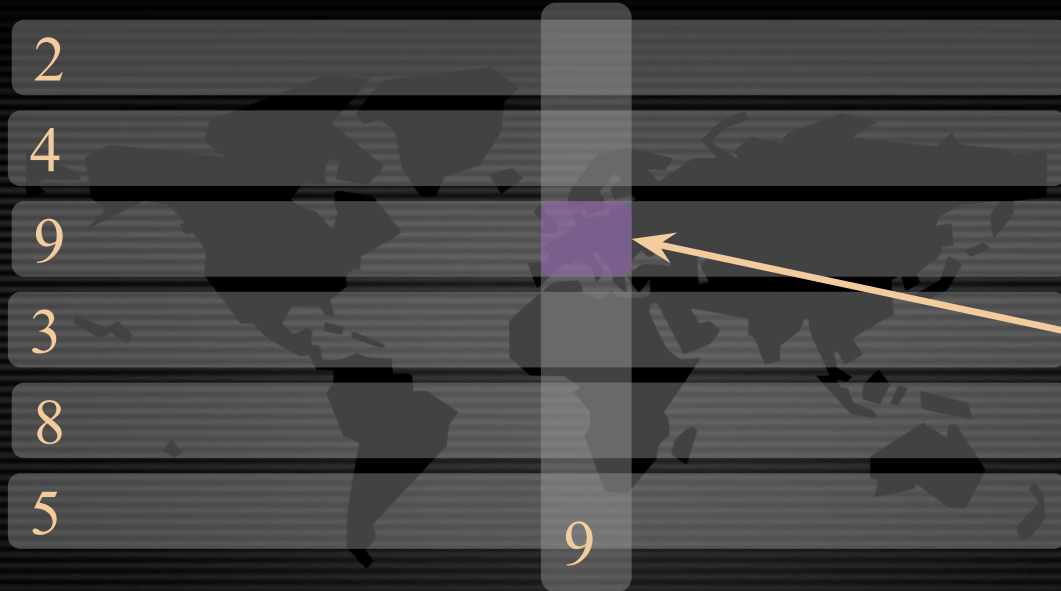


# Algorithm

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# Algorithm



The best place



# JETLAG

# Phenomenon itself



PARIS



LONDON



NEW YORK



SYDNEY

Jetlag is a process which starts after changing Time Zone.



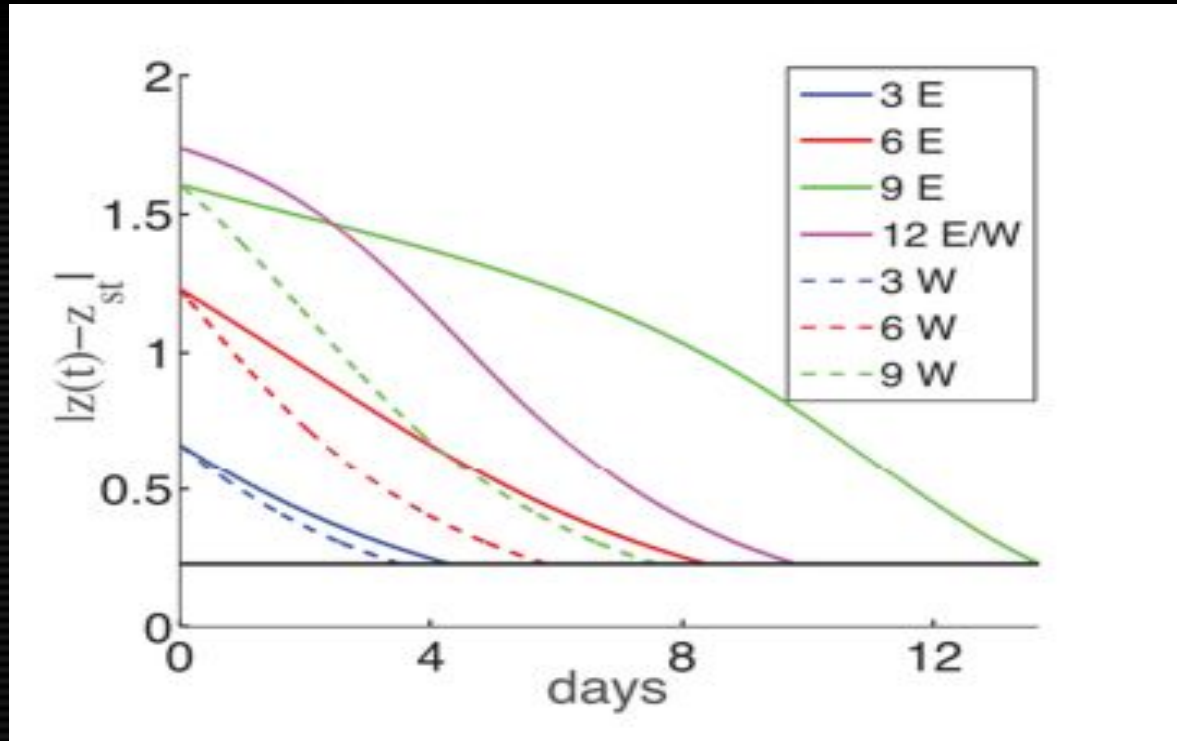
# Calculating algorithm

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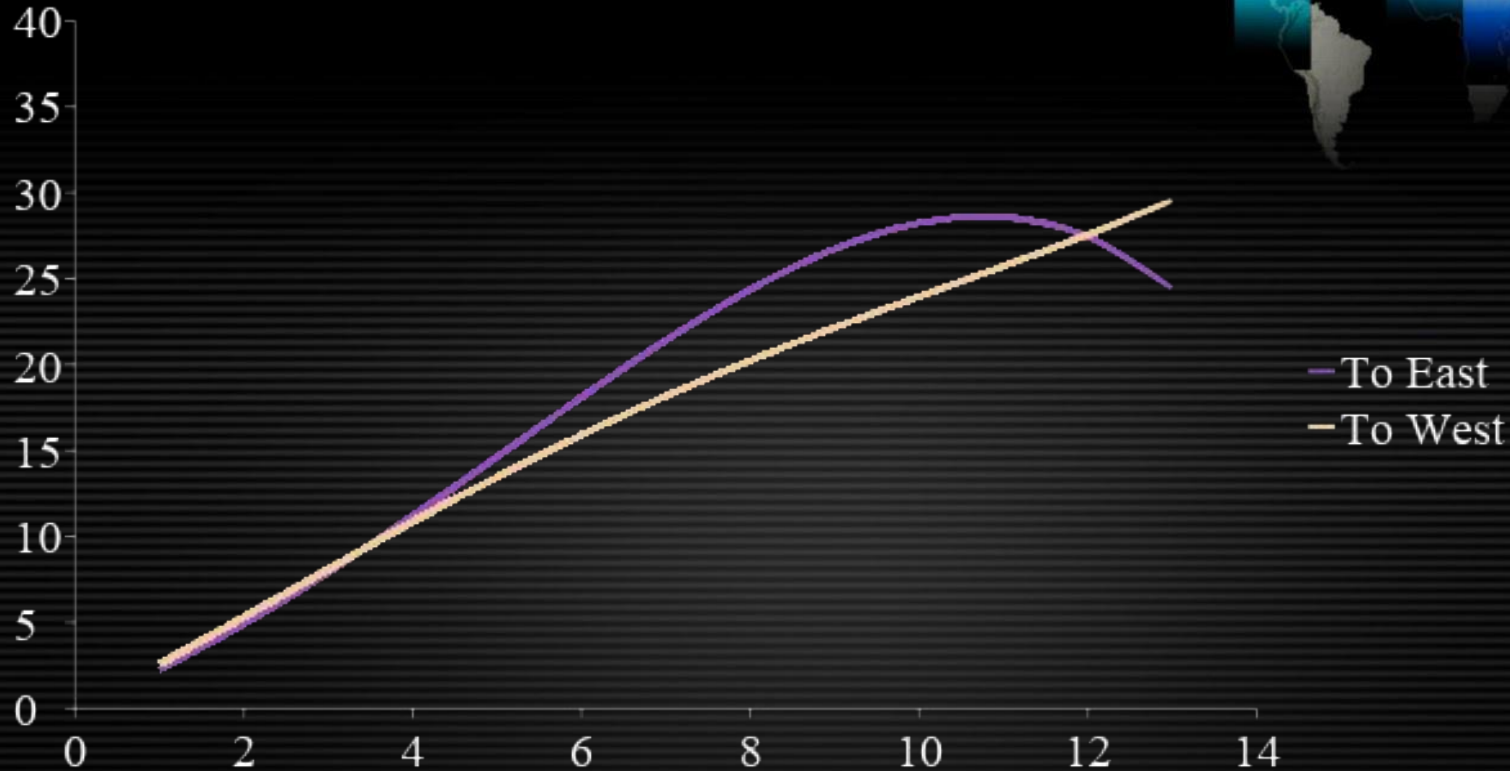


# How to calculate

Base of extrapolating.



# Calculating difference







# ACCLIMATIZATION

# Phenomenon itself

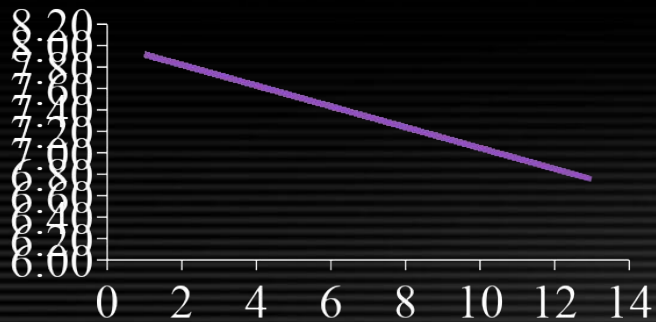


Acclimatization is a process which starts after changing climate conditions.

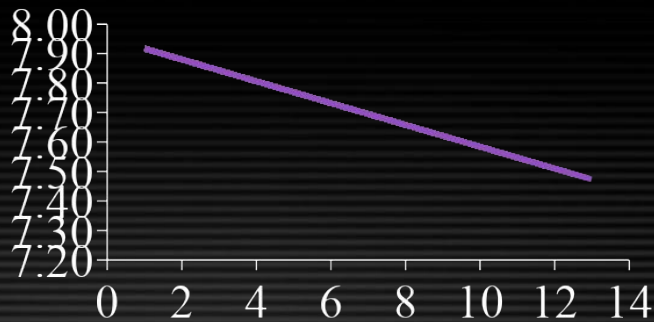
# Research



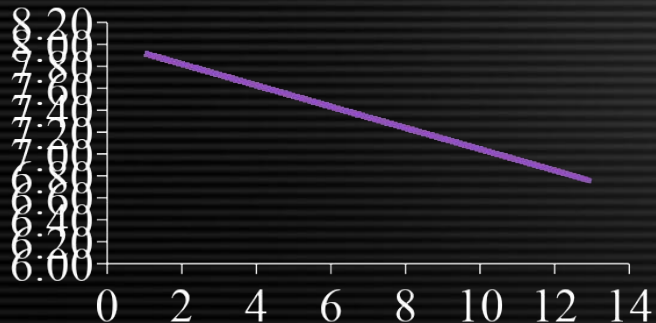
## Pressure



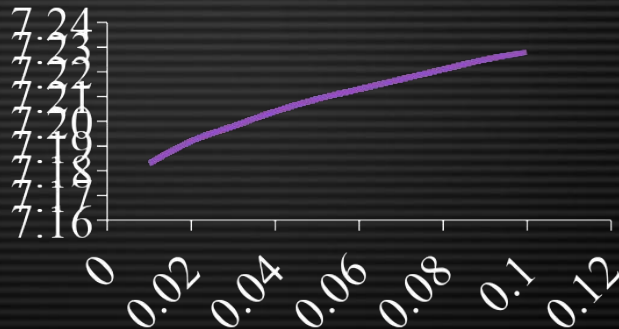
## Air temperature



## Inside temperature



## Wind speed

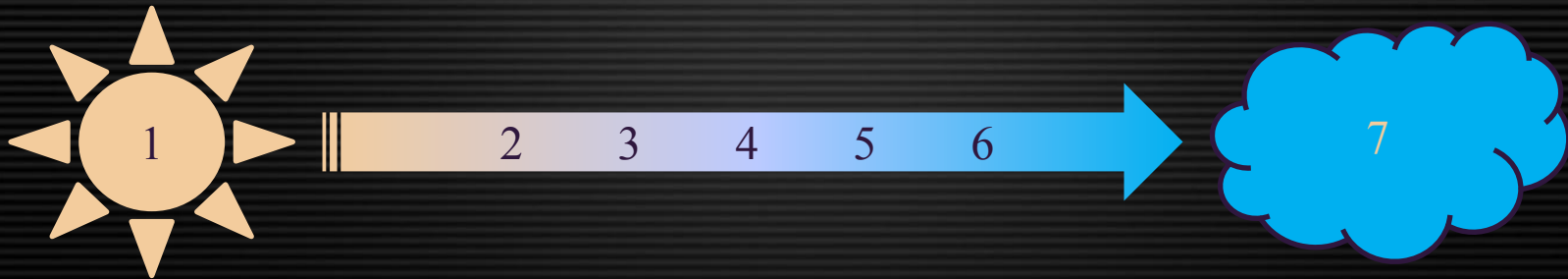


# Van-Zeilen equation

To calculate comfort



$$K = 7,83 - 0,0968t_r - 0,0367P_a + 0,0367\sqrt{v(37,8 - t_a)}$$



# Calculating algorithm





# Comfort difference



- To the warm side ( $Kr > 0$ ):

$$K_r = 0,1(t_{a2} - t_{a1}) + 0,00372 * (P_{a2} - P_{a1}) + \\ + 0,0367(\sqrt{v_1} (37,8 - t_{a1}) - \sqrt{v_2}(37,8 - t_{a2}))$$

- To the cold side ( $Kr < 0$ ):

$$K_r = (0,1(t_{a2} - t_{a1}) + 0,00372 * (P_{a2} - P_{a1}) + \\ + 0,0367(\sqrt{v_1} (37,8 - t_{a1}) - \sqrt{v_2}(37,8 - t_{a2}))) / 2$$



**COST**



# Money makes the world go round

Long way – big cost



# The calculating formula



$$\left[ \begin{array}{l} \left\{ \begin{array}{l} l < 1000 \\ s = (l * 9,08) + \left\lfloor \frac{l}{1000} \right\rfloor * 100 \end{array} \right. \\ \left\{ \begin{array}{l} 1000 < l < 3000 \\ s = (l * 9,08) * 0,9 + \left\lfloor \frac{l}{1000} \right\rfloor * 100 \end{array} \right. \\ \left\{ \begin{array}{l} 3000 < l \\ s = (l * 9,08) * 0,85 + \left\lfloor \frac{l}{1000} \right\rfloor * 100 \end{array} \right. \end{array} \right.$$



# CONCLUSION

# Model`s characteristics

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- ✓ Avoid to compare power of different factors
- ✓ None uncountable parameters
- ✓ Possible to up accurate
- ✓ Final product
- Model neglects another factors.

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**Thank you for attention**

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