

# Understanding air pollution

Andreja Stojić



# Summary

Motivation

Research concept

# Motivation

Environmental Physics Laboratory | IPB  
Atmospheric chemistry and physics  
Environmental impact assessment

Unpredicted change in the environment

Geographical expansion and population growth, industry development, pollution generation, climate change

Unlimited set of interaction pathways, uncertainties, non-linearities, interconnectivities, etc.

Far beyond the patterns which sufficient description would consider simple starting points

Need for a deep understanding of the nature of the environmental complexity and of the responses it requires

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Our research

Towards environmental complexity recognition

Towards sophisticated and synergistic modeling

# Motivation

Environmental Physics Laboratory | IPB

Atmospheric chemistry and physics

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Statistical analysis

Machine learning

Explainable artificial intelligence

Artificial intelligence

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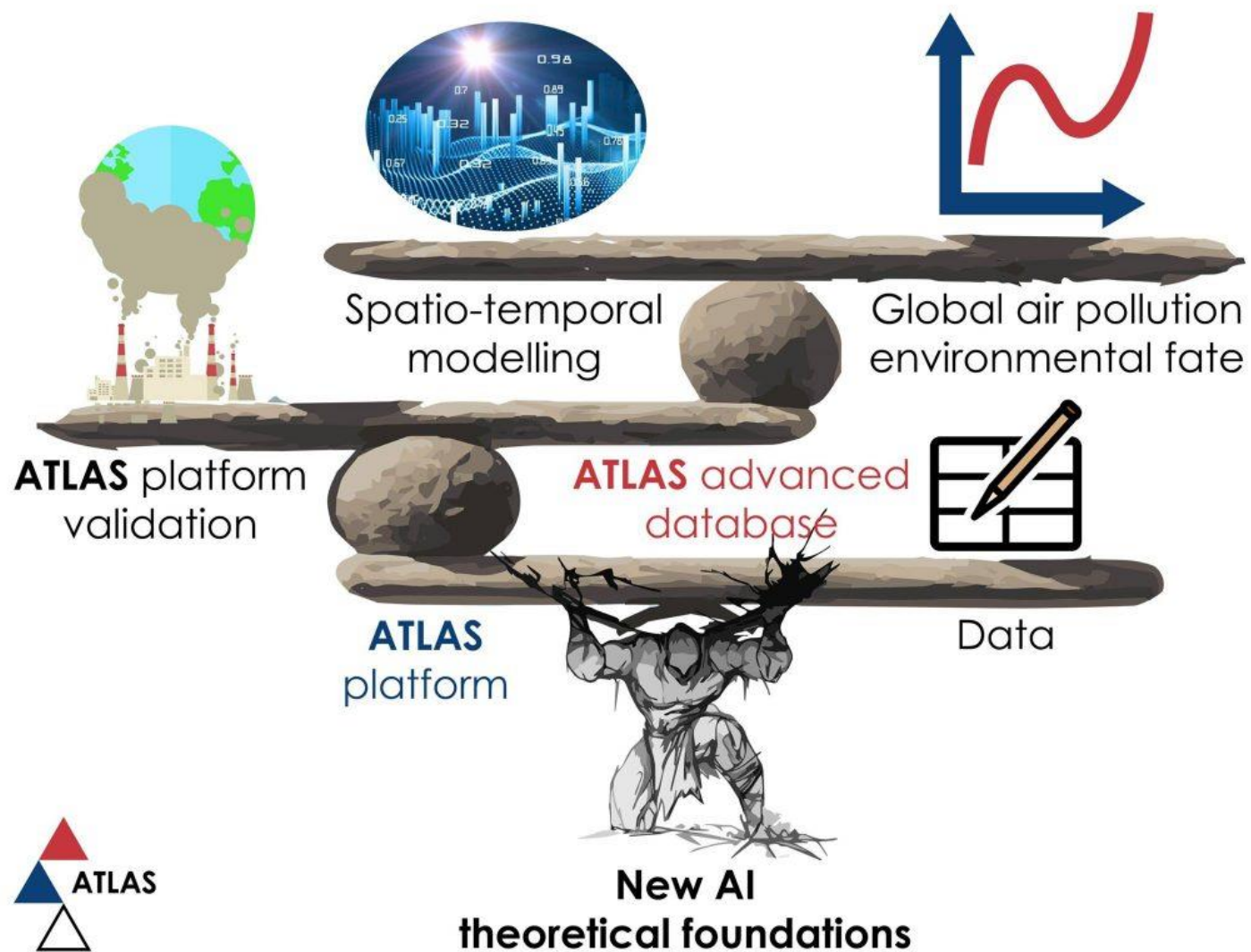
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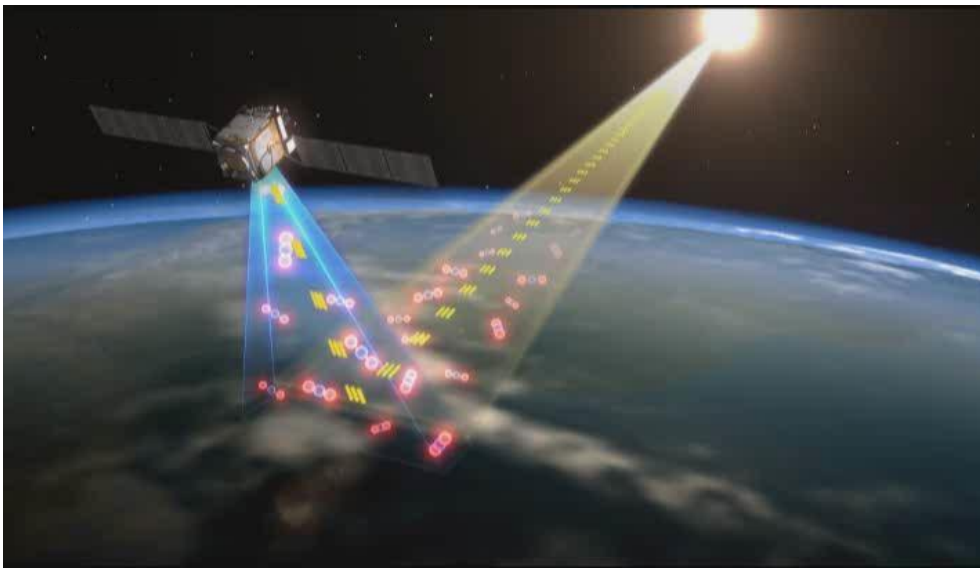
# Motivation





Environmental complexity recognition

# “History”

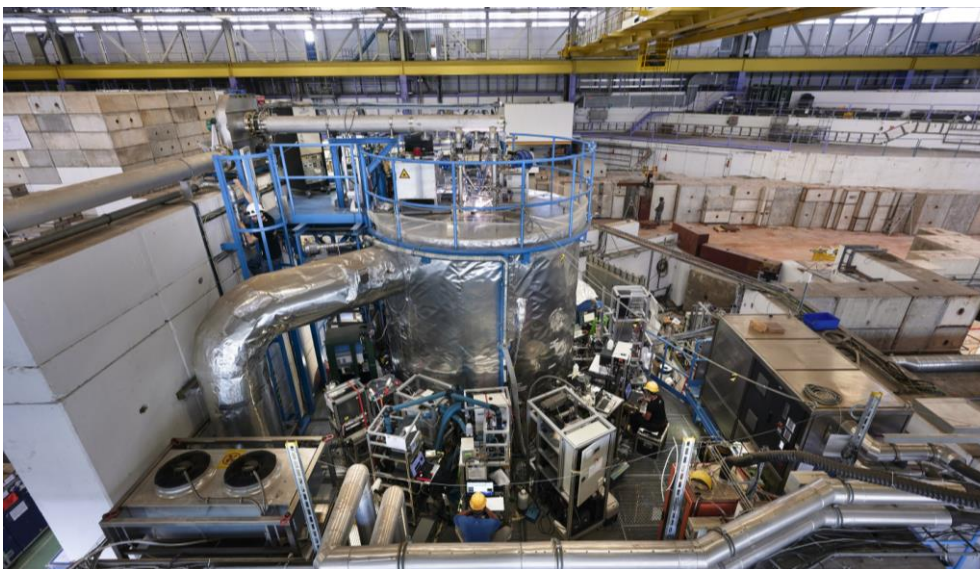


## Environmental science

Laboratory experiments

Case studies

Monitoring

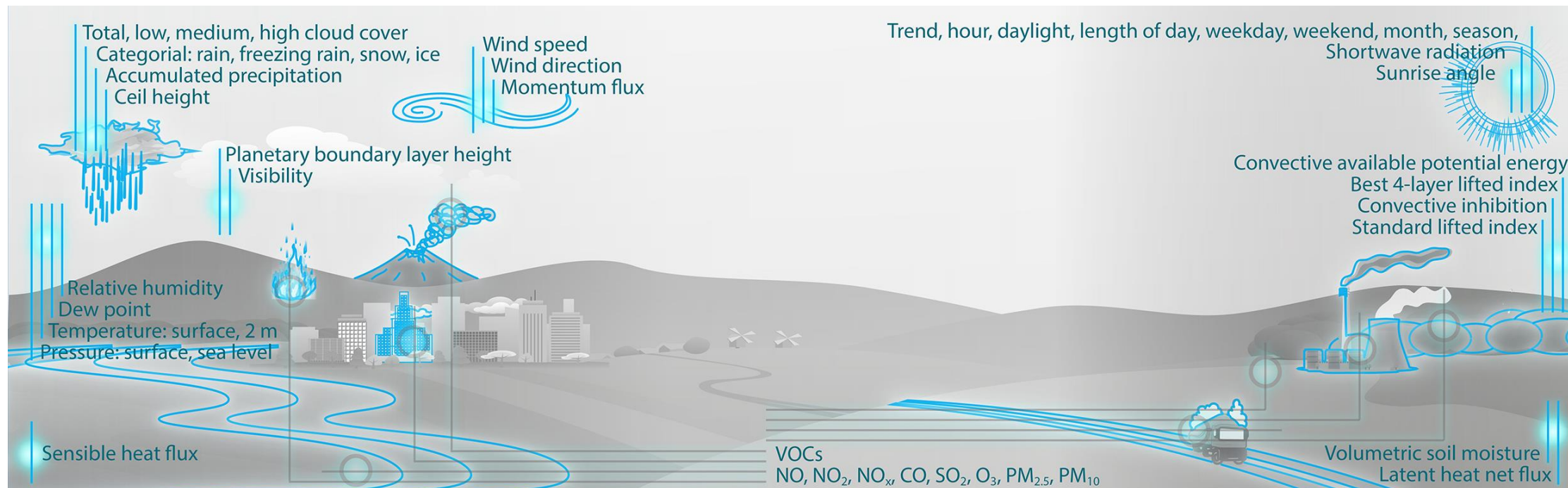




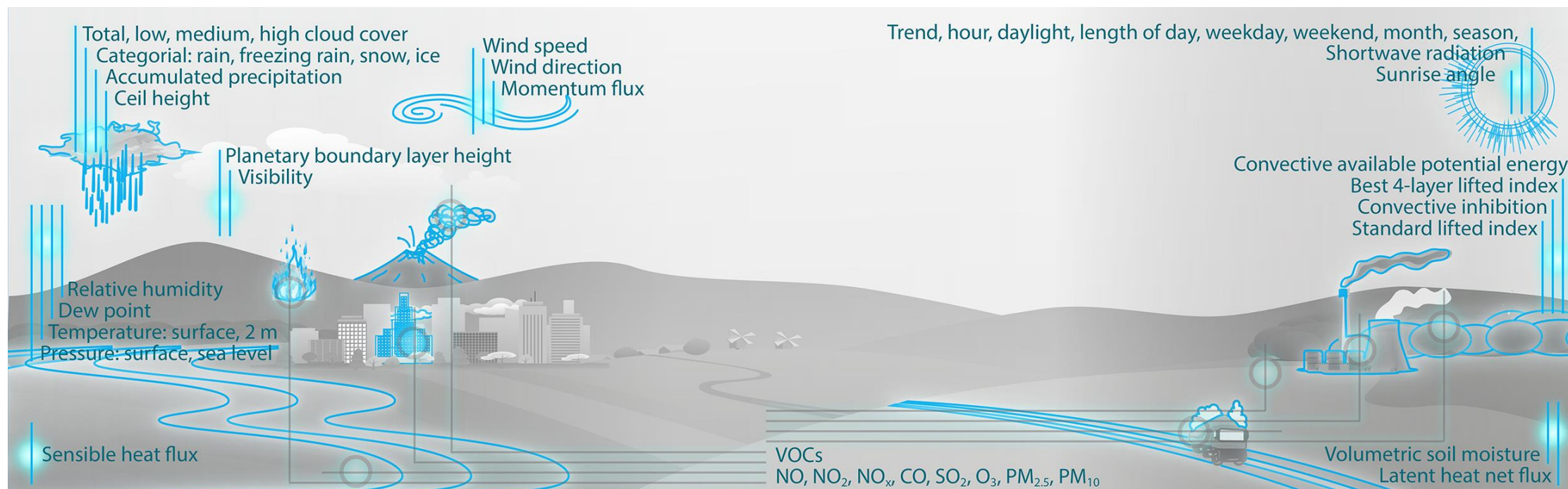
# Environmental complexity recognition



# Environmental complexity recognition



# Environmental complexity recognition



Lightning?

Earthquakes?

Floods?

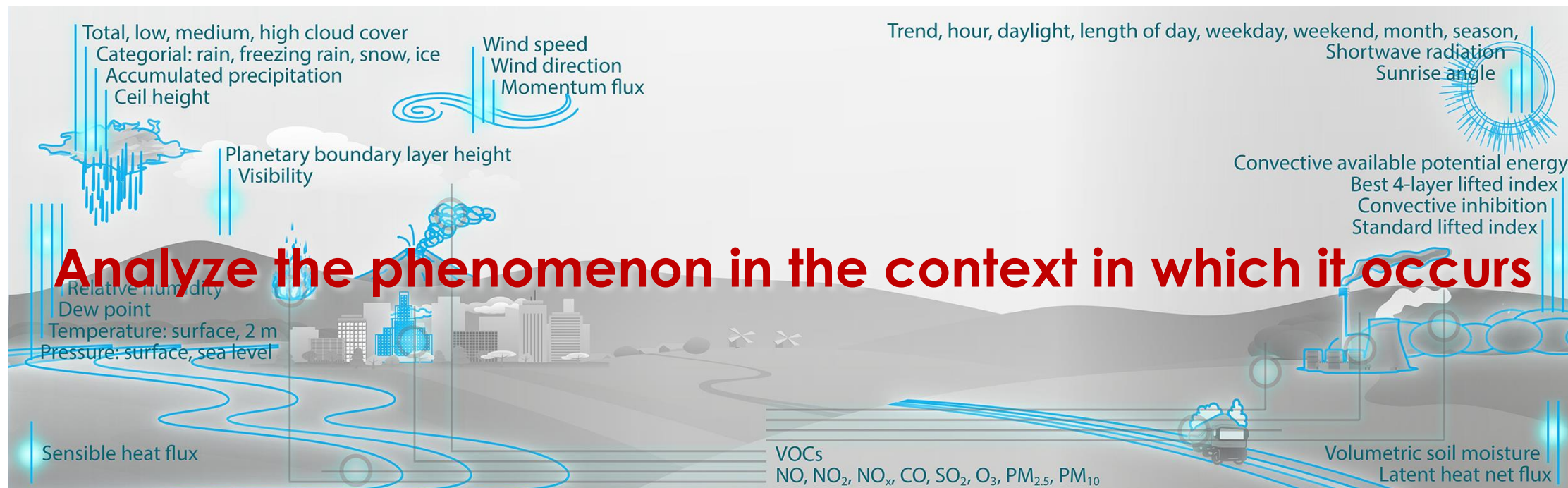
Tsunamis?

Hurricanes?

Tornadoes?



# Environmental complexity recognition



Lightning?

Earthquakes?

Floods?

Tsunamis?

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Tornadoes?



# Environmental complexity recognition

The complexity of the environmental phenomenon and the depth of its interpretation determine the complexity of the methods needed to be applied to represent the phenomenon and to formalize the principles being analyzed



# Environmental complexity recognition

## Platform

Easy access to raw data

Data transformations

Pollution models creation, execution, and explanation

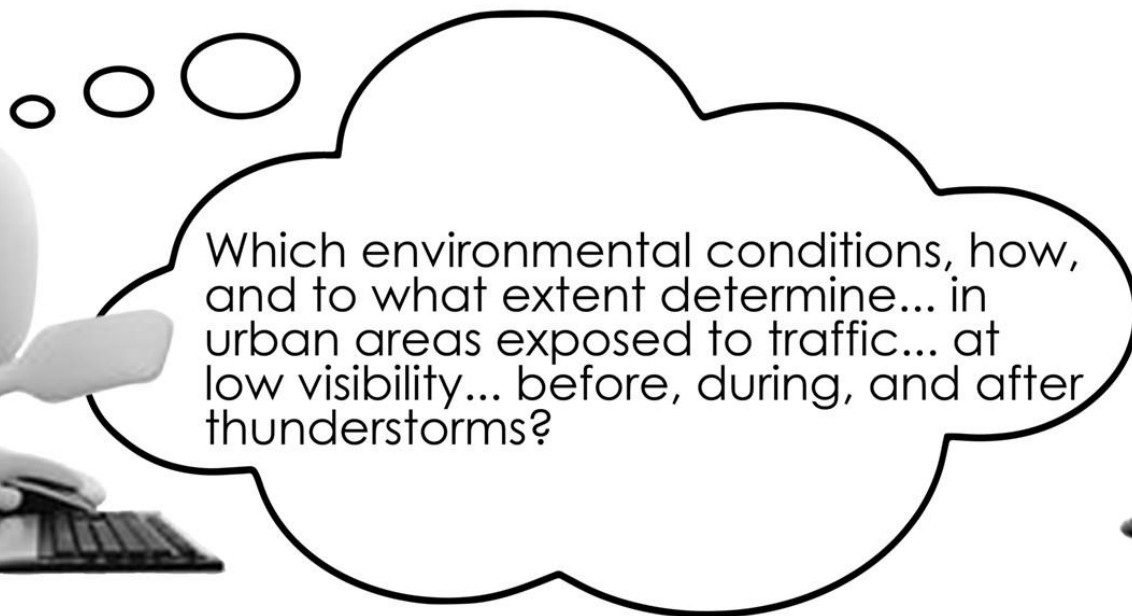
Rich visualizations

Reporting tools for exploration and exploitation

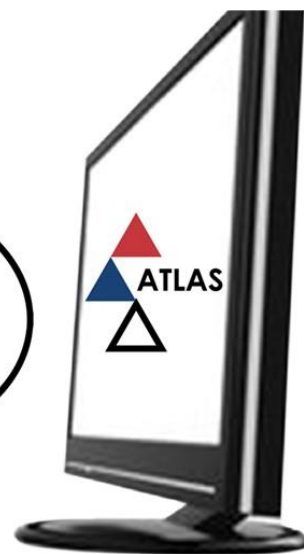
# Environmental complexity recognition



Idea



Question



ATLAS platform



Answer



# Conclusions

Shift in methodology and current approaches

Enhance the understanding of the global environmental fate

Thoughtful environmental protection practices, policies, and strategies

Facilitate

Access to environmental data

Data analysis

Exploration of the results

Increase efficiency, creativity, and productivity

Scale up data analysis

Support transdisciplinary





Thank you!