



ASP 2016 Summer Colloquium GT[®]

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Outline

aircrafts

data assimilation

global models English
EPA theory welfare
community

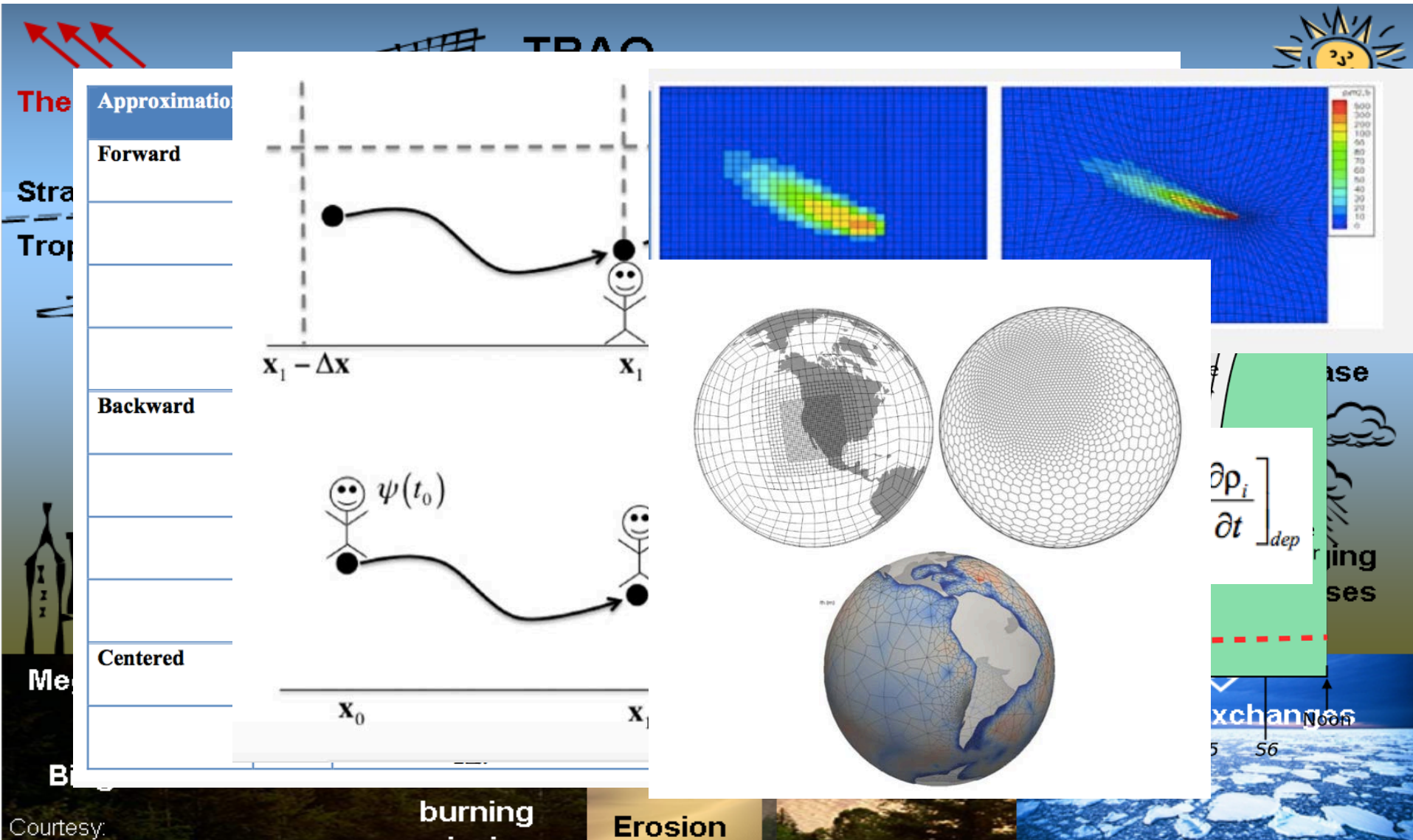
emission inventory

satellites

interaction of measurement&modeling



Atmospheric Chemistry Modelling



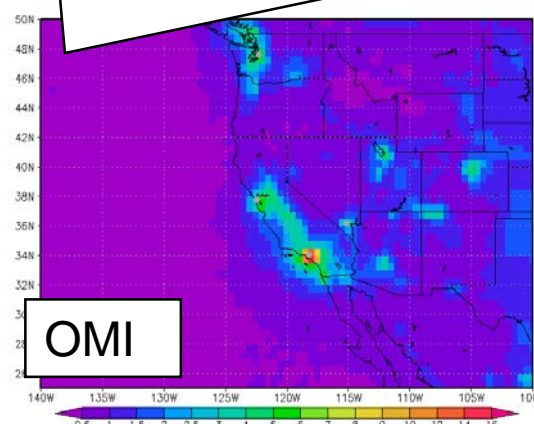
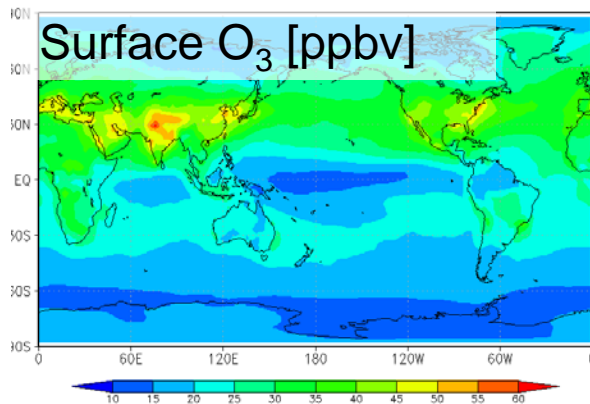
Global modeling & DA

- What role do global model and DA play in AQ science?

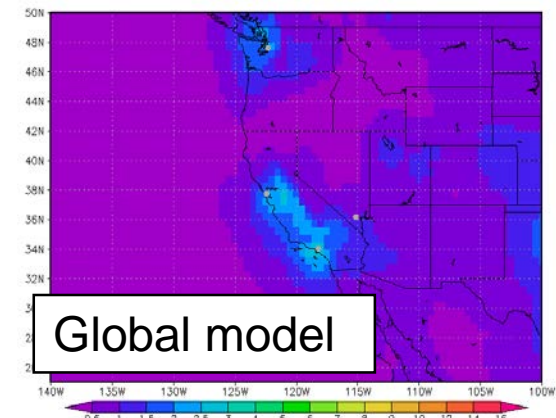
Before the colloquium...

- ✓ I develop global CTM as a component of earth system model

The grid resolution is coarser than scales of observations and urban.



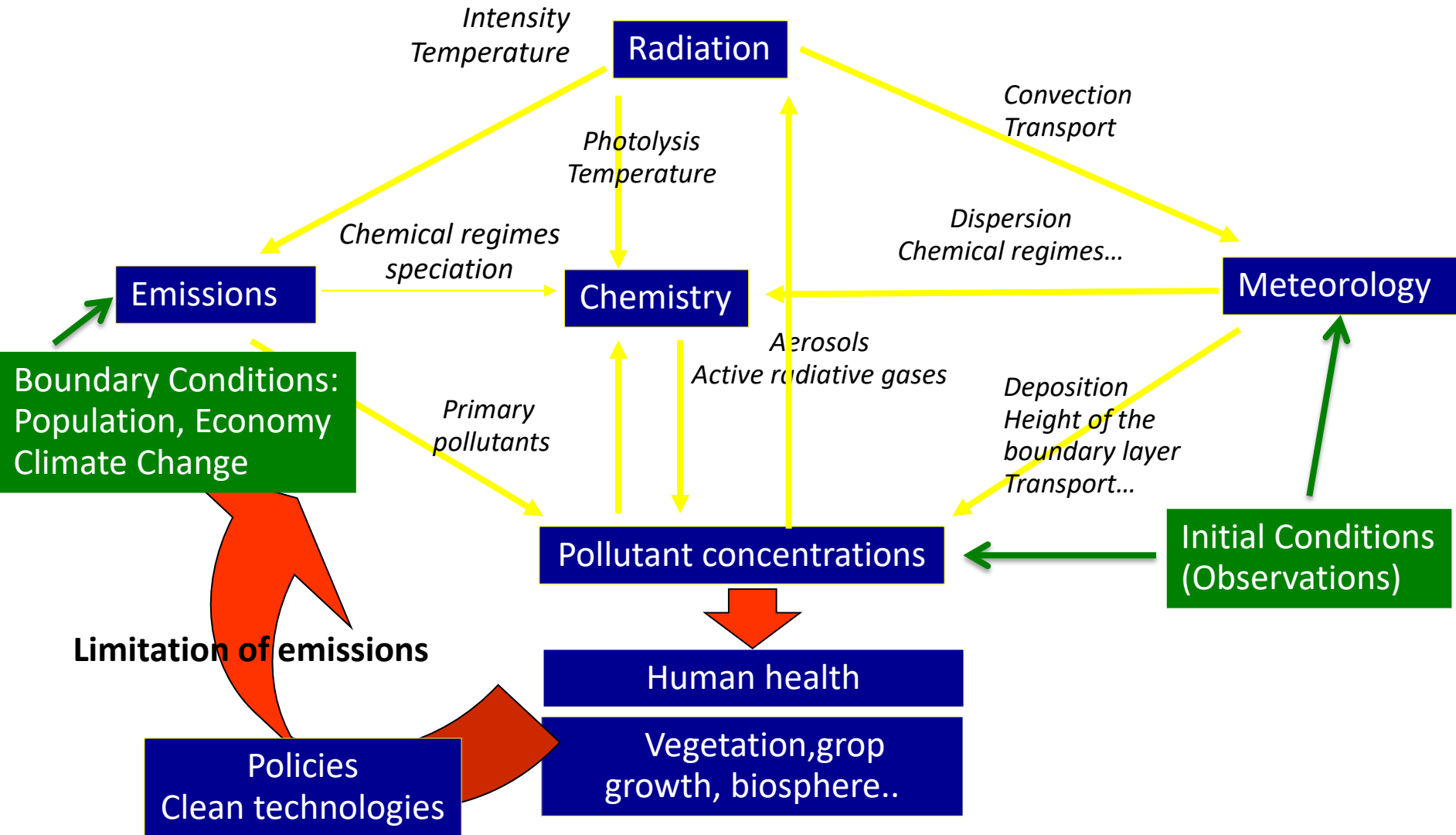
Tropospheric NO₂ column [molec./cm³]



After the colloquium...

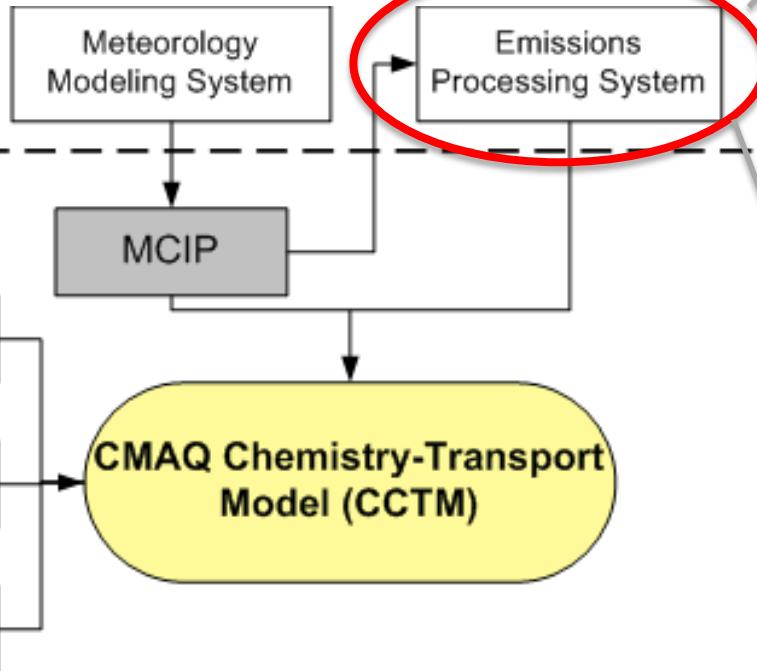
- ✓ Quantify contributions from local and background O₃ more accurately
- ✓ Provide lateral boundary conditions for accurate AQ forecast

The Community of Atmospheric Science



Emissions

PM_{2.5} pollution episode simulation
for Yangtze River Delta Region



BEFORE—inventory from SAES
spatial allocation
temporal variability
temporal extrapolation

NOW
Bottom-up emission inventory
$$E_x = \sum_S [EF_{x,S} \cdot A_S \cdot (1 - CE_{x,S})]$$

- emission factor
- activity of source S
- effectiveness of control



Advanced Study Program

Perfect observation (?)



Assimilation Window

True ?

Assimilation Window

Pablo's achievements

- English: My first challenge (survive and adaptation).
- Satellites (not only for watch Tv and meteorology)
- Ship and Aircraft measurements.
- And all the policies are focused to the welfare of the people, but is difficult make something equal for people and “industries”

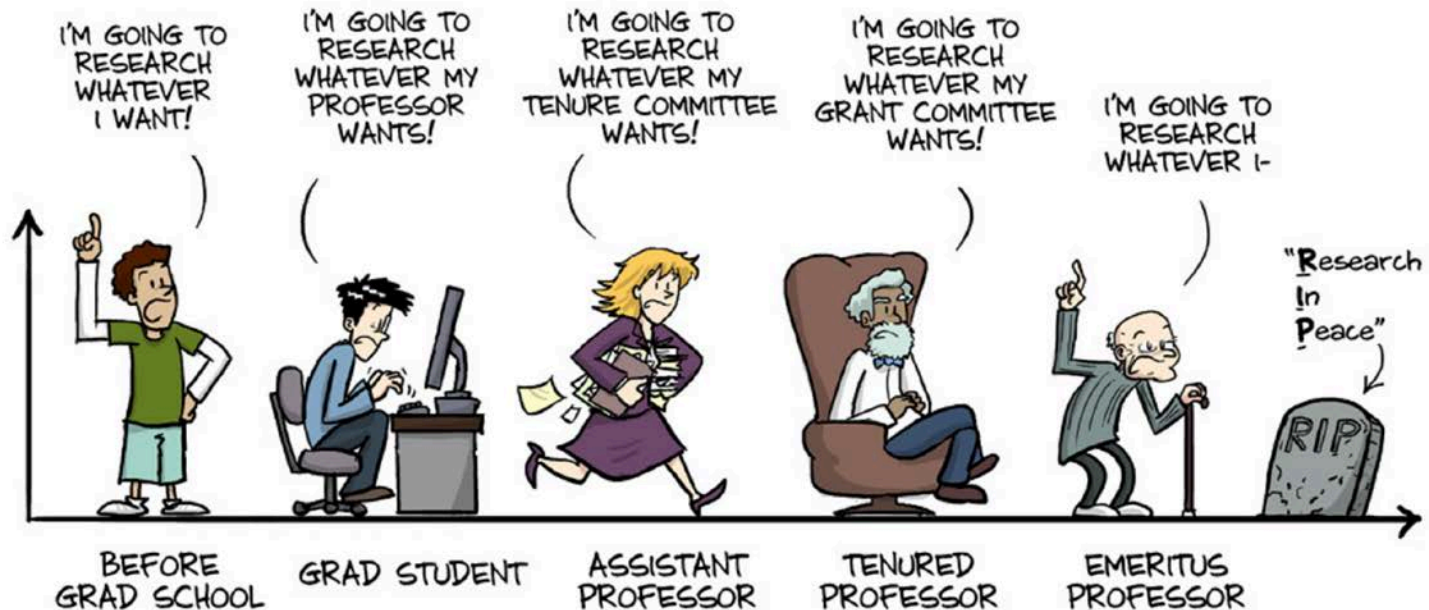
Interaction and Relationship



Policy, Science, and Public may predominant individually on a certain stage, but these are interaction with each other in general.

What drives science ?

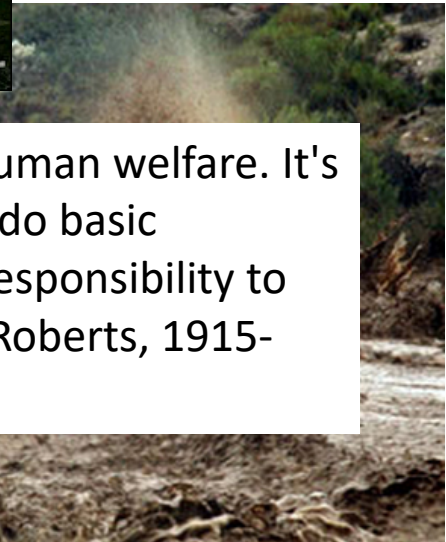
THE EVOLUTION OF INTELLECTUAL FREEDOM



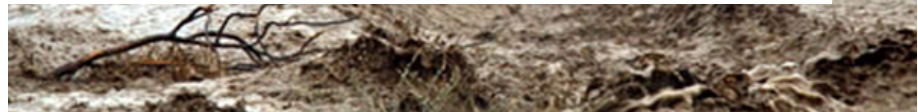
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What drives science ?



"I have a very strong feeling that science exists to serve human welfare. It's wonderful to have the opportunity given us by society to do basic research, but in return, we have a very important moral responsibility to apply that research to benefiting humanity." (Walter Orr Roberts, 1915-1990)



What drives science ?

You Are Here!

All I've done is try to help humanity reach a more profound understanding of the world we live in.



What drives science ?

- Policy?

**Applying
research to
benefiting
humanity.**

**help humanity
reach a more
profound
understanding
of the world
we live in.**

Humanity

谢
Thank you 谢 köszönöm 감사합니다 Danke
多謝 ありがとうございました **GRACIAS**



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