

Anderson et al., Science, 300 (5622): 1103-1104 **Climate Forcing by Aerosols--a Hazy Picture**

- Explain the differences between “forward calculations”, “inverse calculations” and “applications” when talking about climate forcing.
- What is meant by “a Hazy Picture” in the title of this paper ?
- How will climate forcing evolve in the future (2030, 2050, 2100) ?

Koch et al., Atmos. Chem. Phys., 9, 9001–9026, 2009, **Evaluation of black carbon estimations in global aerosol models**

- How does black carbon differ from the other aerosols such as sulphate, nitrate and sea-salt ?.
- Why is Absorption Optical Depth (AAOD) such an important quantity?
- Where do model differ most,
- Could you think of improvements that can be included in the models to better represent the properties of Black Carbon ?

Dlugokencky et al., Phil. Trans. R. Soc. A 2011 369, 2058-2072doi: 10.1098/rsta.2010.034, **Global atmospheric methane: budget, changes and dangers**

- Define the indirect forcing by methane, explain which species are affected.
- Why can CH<sub>4</sub> emissions be estimated with more accuracy than the emissions from a given sector?
- How will accurate estimates from given sectors influence policy making in the future?

Bousquet et al., Vol 443|28 September 2006|doi:10.1038/nature05132, **Contribution of anthropogenic and natural source to atmospheric methane variability**

- Why are the authors interested in studying methane growth rates?
- Can you think of processes that will affect anthropogenic/natural sources of methane ?
- Discuss the merits and flaws of the inversion technique(s)

Shindell et al., Science, 335, 183-189, **Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security**

Why choose CH<sub>4</sub> and BC for mitigation, how does their respective radiative forcings compare with the one of CO<sub>2</sub>?

What are the significant effects of reducing CH<sub>4</sub> and BC concurrently?

Which are the most important emission controls that can be applied?