How can AEROCOM can contribute to IPCC AR5?

Olivier Boucher, LMD, CNRS/UPMC
Gunnar Myhre, CICERO

Chapter 7: Clouds and aerosols

CLA: Olivier Boucher / David Randall

LA: Paulo Artaxo, Chris Bretherton, Graham Feingold, Piers Forster, Veli-Matti Kerminen, Yutaka Kondo, Hong Liao, Ulrike Lohmann, Philip Rasch, S K Sateesh, Steven Sherwood, Bjorn Stevens, Xiao-Ye Zhang

RE: Sandro Fuzzi, Joyce Penner, V Ramaswamy, Claudia Stubenrauch

Chapter 8:Anthropogenic and Natural Radiative Forcing

CLA: Gunnar Myhre / Drew Shindell

LA: Francois-Marie Bréon, William Collins, Jan Fuglestvedt, Jianping Huang, Dorothy Koch, Jean-Francois Lamarque, David Lee, Blanca Mendoza, Teruyuki Nakajima, Alan Robock, Graeme Stephens, Toshihiko Takemura, Hua Zhang

RE: Daniel Jacob, A.R. Ravishankara, Keith Shine

Chapter 7

Aerosol physics & chemistry

Dust & sea-salt

Direct aerosol RF by species for present-day

Direct and indirect aerosol adjusted forcing, not speciated for present-day

BC on snow forcing

Chapter 8

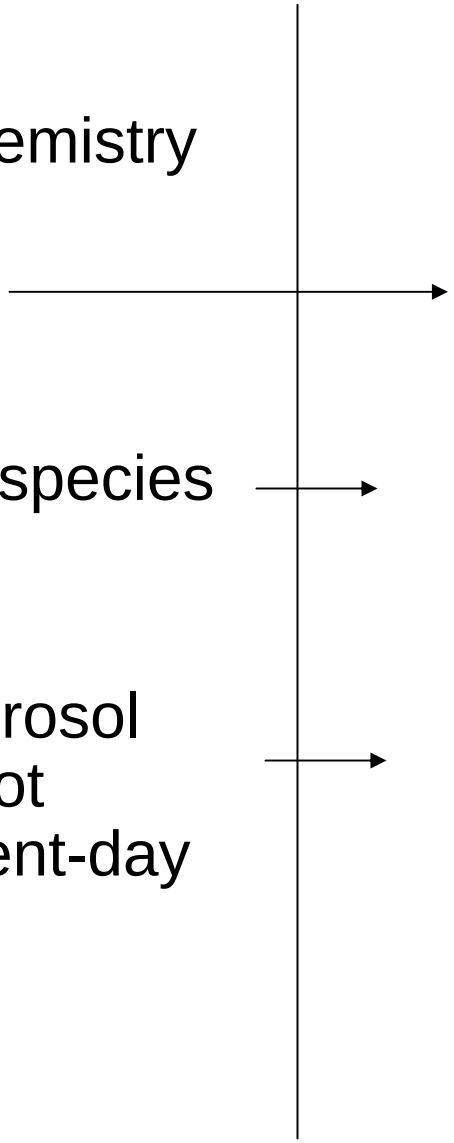
Volcanic aerosols

Anthropogenic dust

Summary and time evolution

Summary and time evolution

Future forcings



Chapter 7: Clouds and aerosols

- Aerosols
  - –Advance in our understanding of cloud processes and cloud properties based on new observations and models
  - –Aerosol direct effect / semi-direct effect
  - –Estimates of direct radiative forcing / adjusted forcing
  - –Direct radiative forcing by species
  - –Aerosol feedbacks
- Aerosols and clouds
  - –Advance in our understanding of aerosol-cloud processes
  - –Estimates of the first indirect radiative forcing
  - –Estimates of the total indirect adjusted forcing
  - –Cosmic rays

Chapter 8: Anthropogenic and Natural Radiative Forcing

- Anthropogenic RF agents
  - –Aerosols will be compared to the greenhouse gases and other RF agents in terms of RF/AF but also confidence level
  - –The chapter will have much more focus on time evolution of all RF agents than earlier IPCC forcing chapters
  - –Historical and future time evolution

- Natural RF agents
  - –Update the knowledge on stratospheric aerosols

Knowledge gaps

- Estimates of the aerosol semi-direct effect
- Anthropogenic dust?
- Uncertainty in RT estimates for the direct effect
- Uncertainty in the aerosol direct effect, incl wrt the vertical structure of absorption, OA, and nitrate
- What about the RF estimates in CMIP5?
- Estimates of AF are needed for more forcing agents.
- Estimates of indirect aerosol effects and their time evolution

M. Prather coordinates an appendix for WGI report that details the RCP scenarios: emissions, concentrations, forcings and uncertainties.

IPCC AR5 timeline

- Nov 2010: First WG1 LA meeting
- Mar 2011: ZOD due
- July 2011: Second WG1 LA meeting
- Nov 2011: FOD due
- Dec 2011 – Feb 2012: FOD review (Open registration at https://fod.ipcc.unibe.ch/registration/)
- Apr 2012: Third WG1 LA meeting
- Jul 2012: Cut-off for submitted papers
- Aug 2012: SOD due
- Oct 2012 – Nov 2012: SOD review
- Jan 2013: Fourth WG1 LA meeting
- March 2013: cut off for accepted papers