ISSI team meeting

Are we doing the right satellite observations and analyses for quantifying cloud-mediated aerosol climate forcing?

Bern, March 4-8, 2019

Monday, March 4, 2019

Introduction and presentation of the challenges to be addressed

10:00-10:15 Welcome and introduction to ISSI (M. Falanga)

10:15-10:45 Introduction (A. Kokhanovsky and D. Rosenfeld)

Theme 1: Exploiting the optical signals of aerosols – possibilities and limitations

1. *10:45-11:15 Satellite constrains on aerosol-cloud interactions – where we are, where we are heading (R. Kahn)*

11:15-11:45 Discussions and Break

2. *11:45-12:15 Uncertainties of aerosol and cloud retrievals over snow and ice (A. Kokhanovsky)*
3. *12:15-12:45 Cloud contamination in satellite products enhances the aerosol indirect forcing estimate (M. Christiansen)*

12:45-13:00 Discussion

13:00-14:30 Lunch

4. *14:30-15:00 Aerosol retrievals using GRASP (P. Litvinov)*
5. *15:00-15:30 Aerosol/cloud measurements from the NASA PACE mission (O. Hasekamp)*

15:30-16:00Discussion and Break

6. *16:00-16:45 NASA progress in generating multi-instrument imager cloud data records for climate analysis and aerosol interaction studies (S. Platnick)*

16:45-17:00 Discussion

Tuesday, March 5, 2019

09:00-10:00 Discussing Challenge #1:

What ACI-important aerosol properties do we still miss with the optically based instruments?

7. *10:00-10:30 The indirect effect as seen by POLDER (O. Hasekamp)*

10:30-11:00 Discussion and break

8. *11:00-11:45 Towards a strategy for addressing aerosol indirect effects using current and next generation satellite remote sensing (D. Winker)*

11:45-13:00 Discussing Challenge #2:

How far can we still improve the optical measurements and what are their inherent limitations?

13:00-14:30 Lunch

Theme 2:Satellite inferences of the invisible aerosols and their ACI for shallow clouds – possibilities and limitations

9. *14:30-15:15 Retrieving CCN and resultant ACI by retrieving drop concentrations and updrafts at the base of boundary layer water clouds (D. Rosenfeld)*

15:15-15:45 Discussion and Break

10. *15:45-16:15 Determining causality in observations of aerosol-cloud interactions (E. Gryspeerdt)*
11. *16:15-16:45 Surprises and limitations to what can be learned from satellite remote sensing of aerosol – cloud-precipitation interactions (G. Feingold)*

16:45-17:00 Discussions

17:00-17:30 Welcome drink offered by ISSI

Wednesday, March 6, 2019

09:30-10:30 Discussing Challenge #3:

Possibilities and limitations of addressing ACI for shallow clouds with poor direct aerosol retrievals

10:30-11:00 Discussion and break

Theme 3: Inference of ACI by combining the aerosol optical signal and cloud properties for deep and ice clouds – possibilities and limitations

12. *11:00-11:45: ACI in deep convective clouds (D. Rosenfeld)*

11:45-12:00 Discussions

12:00 - 17:00 Lunch and excursion

Thursday, March 7, 2019

13. *09:30-10:00: Satellite inference of the effects of CCN and CN on deep tropical convective clouds (Avichay Efraim)*
14. *10:00-10:30 Three-dimensional atmospheric remote sensing via multi-view images (A. Levis)*

10:30-11:00 Discussions and Break

11:00-13:00 Discussing Challenge #4:

What can be achieved by combining cloud updrafts, microphysics and aerosol measurement?

13:00-14:30 Lunch

15. *14:30-15:00 The impacts of aerosols on the spatial organization of deep convection (W. Jones)*
16. *15:00-15:30 Radiative forcing of aerosol impact on cirrus (J. Quaas)*

15:30-16:00 Discussion and Break

16:00-17:00 Discussing Challenge #5:
Possibilities and limitations of addressing ACI for deep clouds with added information of sub-visible aerosols and updrafts

Friday, March 8, 2019

Theme 4: Combining optical and cloud inferences for a comprehensive ACI
9:30-10:30 Discussing Challenge #6:
Did we identify the information content required for quantifying ACI for a useful forward calculation of forcing?

10:30-11:00 Discussions and Break

11:00-12:15 Discussing Challenge #7:
Initiating a road map towards full measurements of ACI by retrieving simultaneously updrafts, microphysics and aerosols
12:15-13:00 Discussing writing plans (Review of Geophysics? or and ISSI publication?) and next meeting

13:00: Adjourn