

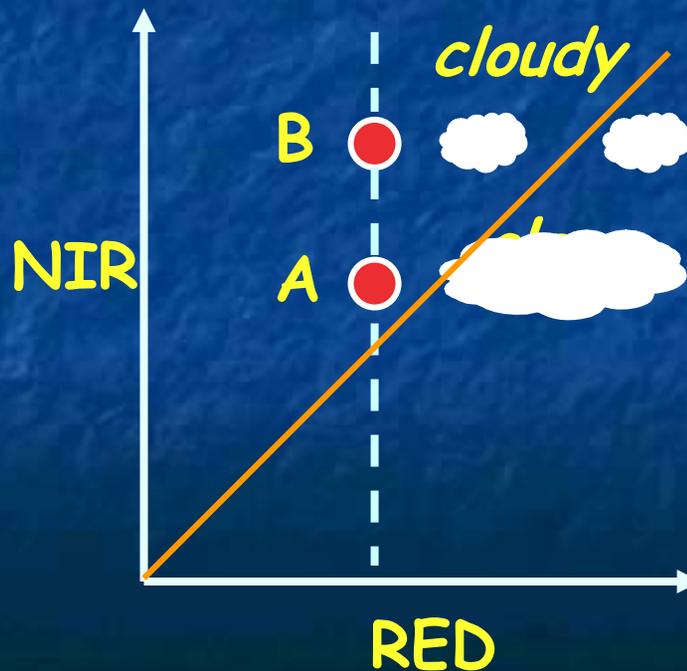
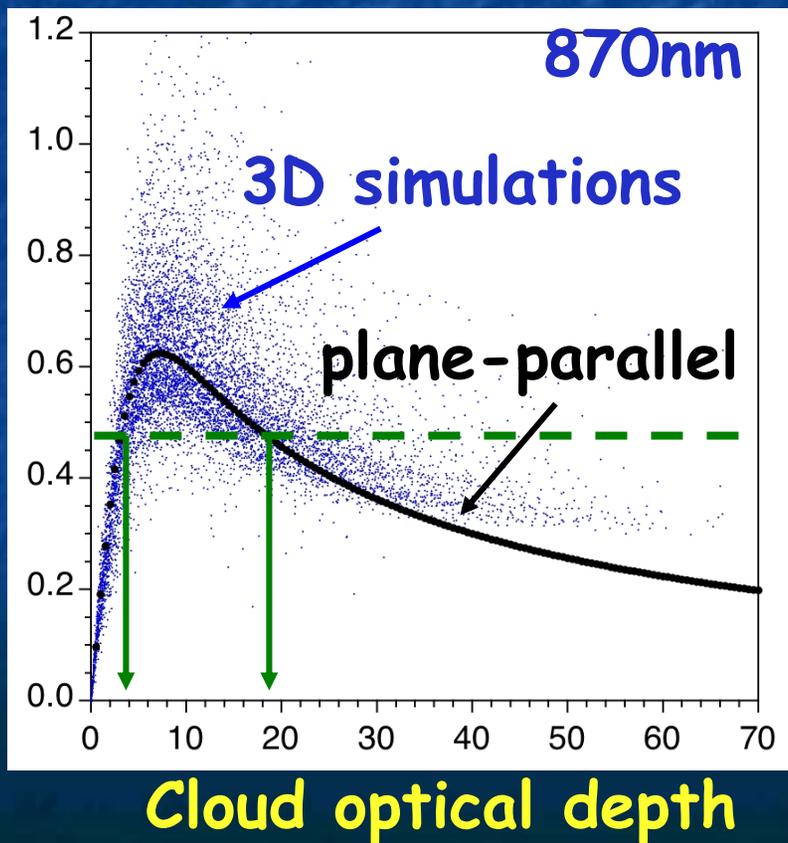
Extending our knowledge of two-channel zenith radiance observations from Pt. Reyes to the Black Forest

Christine Chiu, UMBC/JCET
Alexander Marshak, GSFC
Warren Wiscombe, GSFC

2-channel **N**arrow-**F**ield-**O**f-**V**iew radiometer:
1.2°FOV
673 (RED) & 870 (NIR) nm

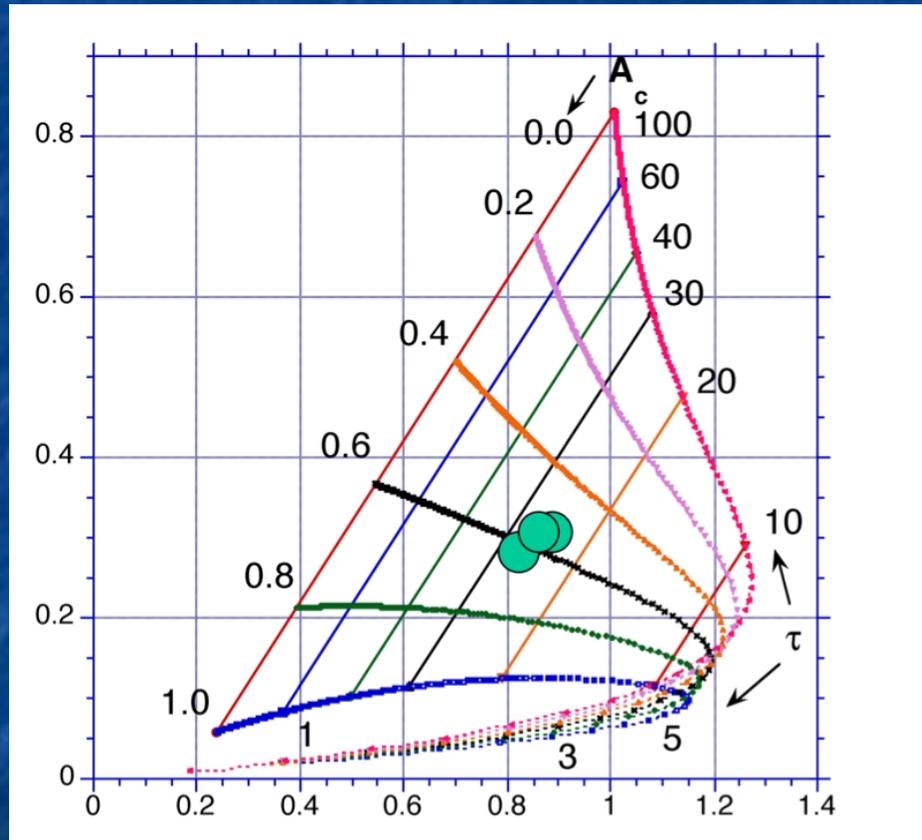


Radiance



Retrieval method (REDvsNIR)

NIR-RED



NIR+RED

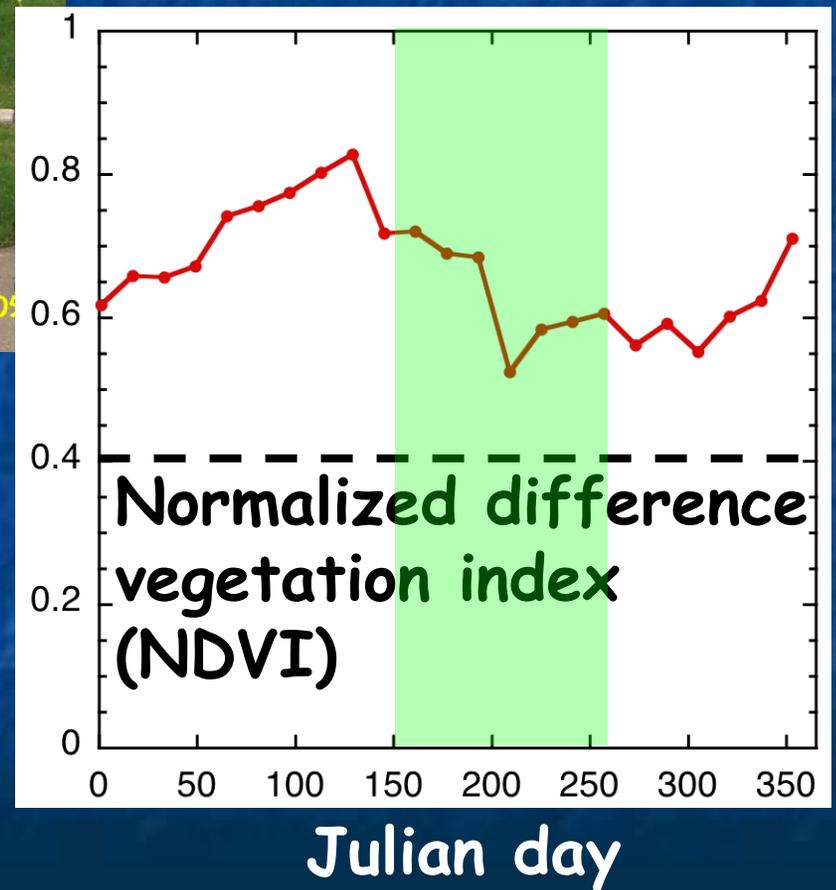


From W. Wiscombe

5/8/2005



Pt. Reyes, California



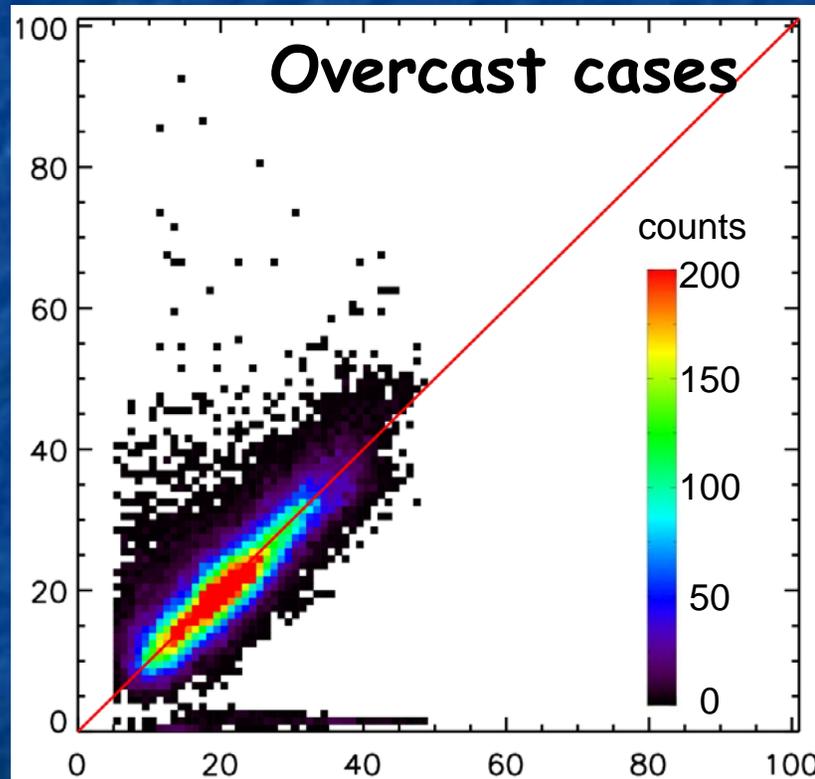
Advantage of Pt. Reyes

- Stratocumulus/stratus are prevalent.
- The retrieval method using fluxes works best for overcast cases.



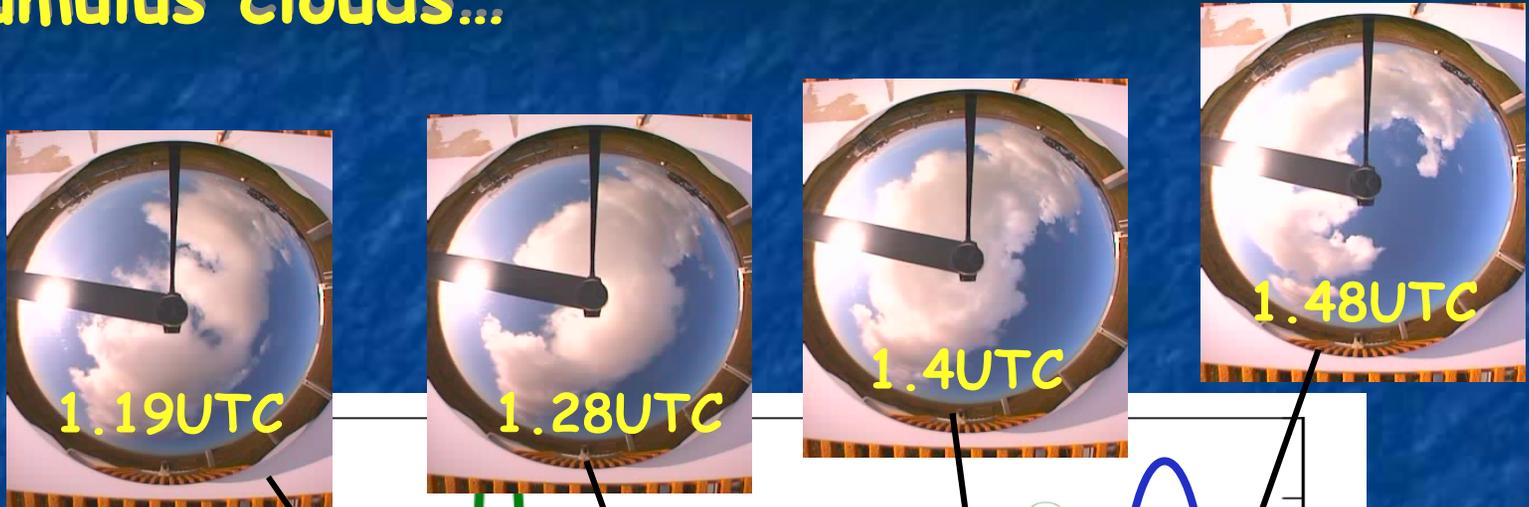
What did we learn from the Pt. Reyes experiment?

Retrievals
from **2NFOV**

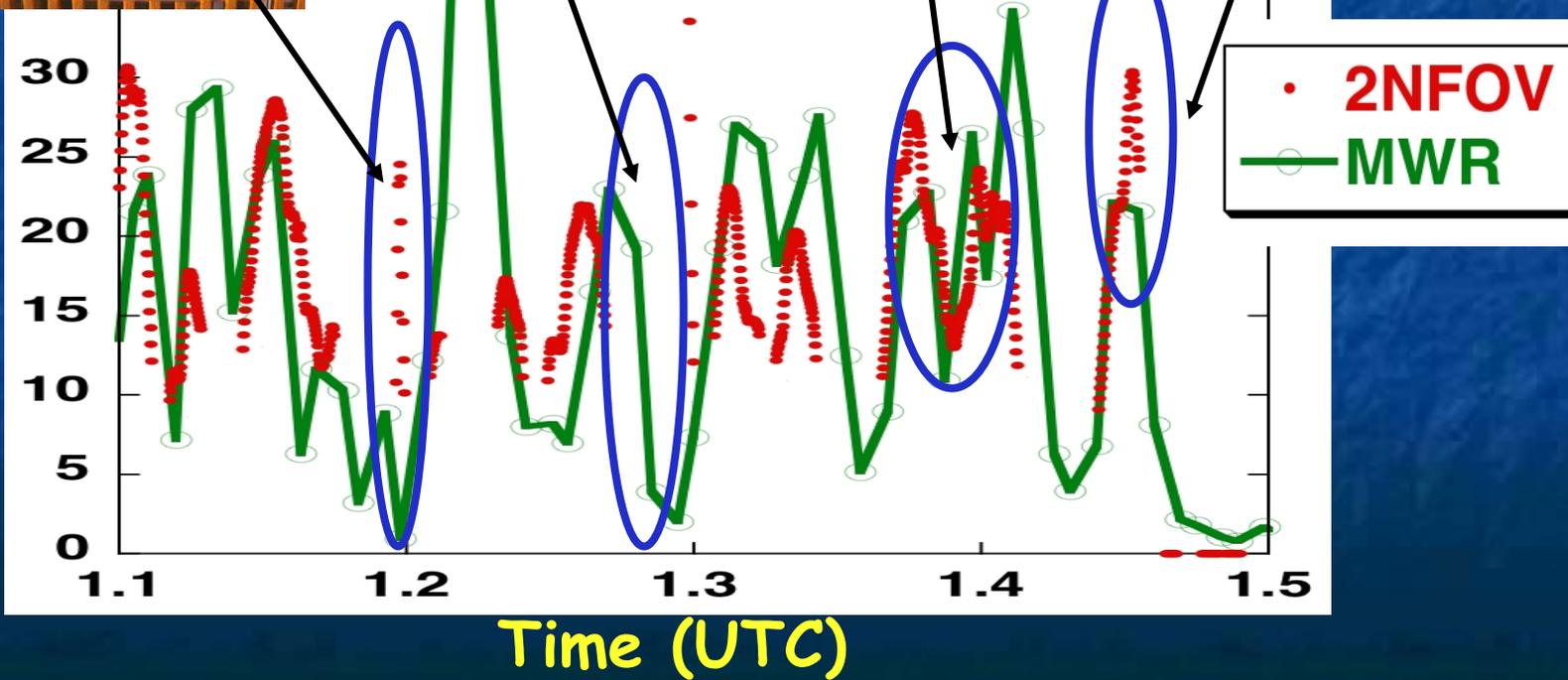


Retrieved cloud optical depth
from **MFRSR**

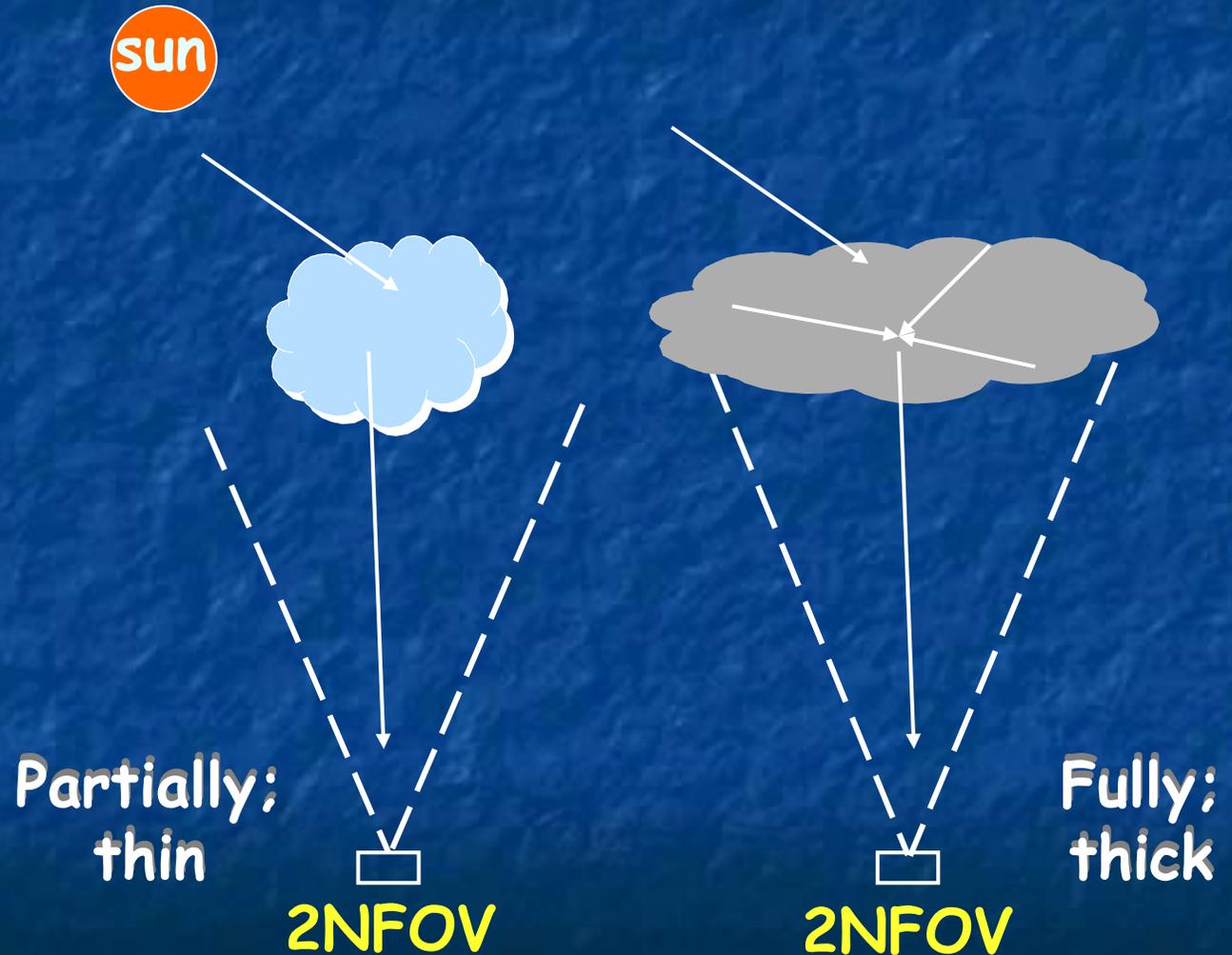
Comparison between 2NFOV and MWR retrievals for cumulus clouds...



Cloud optical depth



Problem: when the FOV is not entirely filled with clouds...



Convective and Orographically-induced Precipitation Study (COPS)



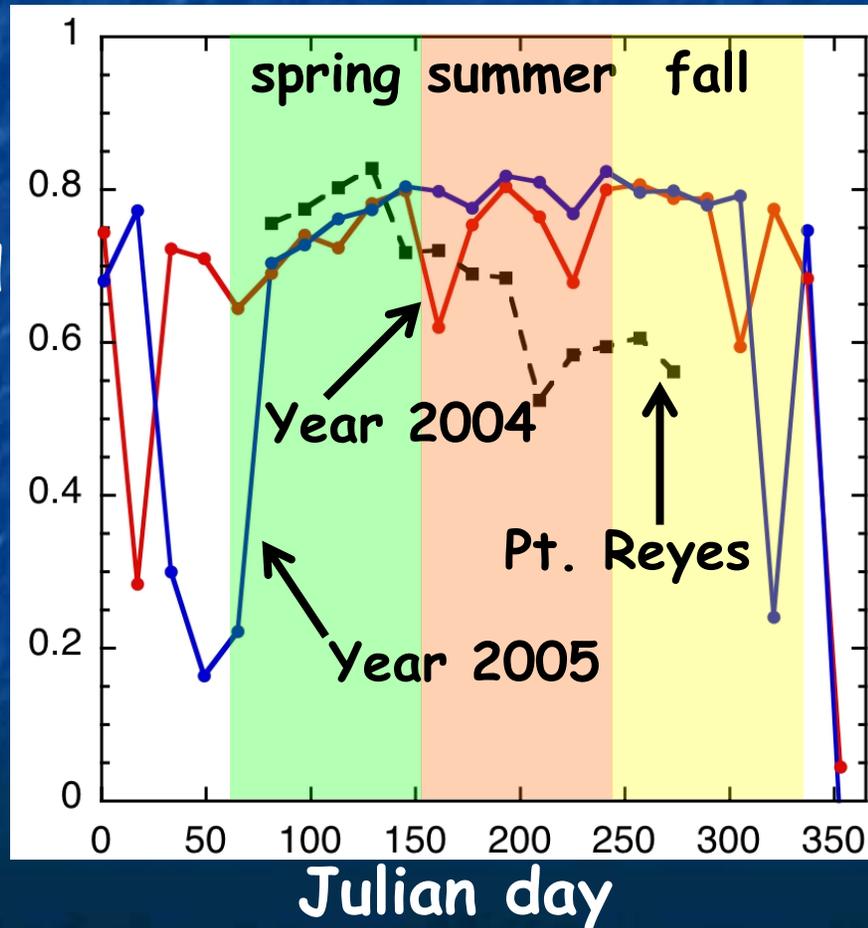
- Spectral contrast in surface reflectance
- Cloud types

What is the Black Forest area like?



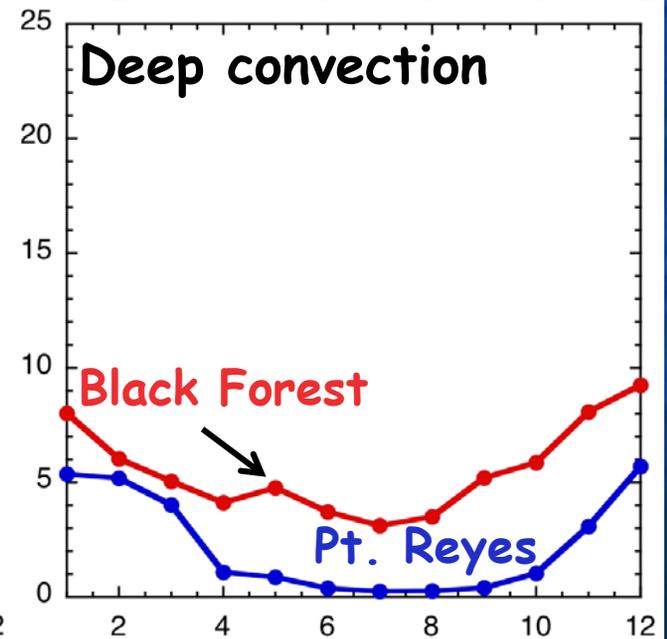
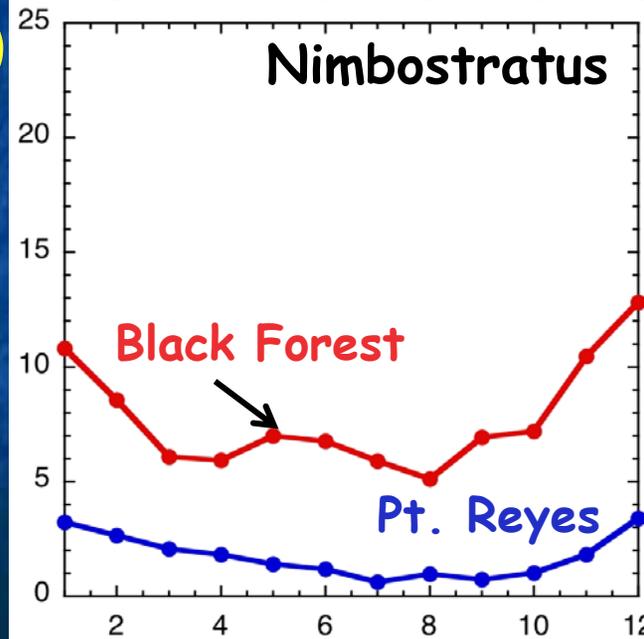
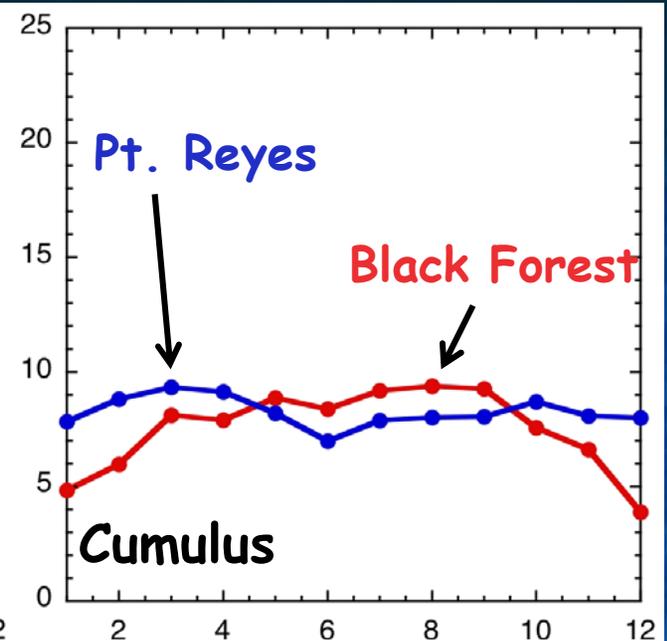
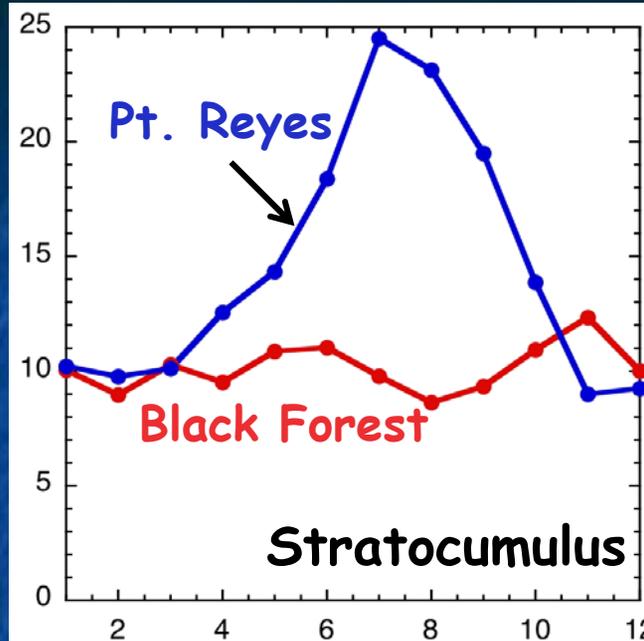
Is the difference in spectral surface reflectances in RED and NIR strong in the Black Forest?

Normalized
difference
vegetation
index
(NDVI)



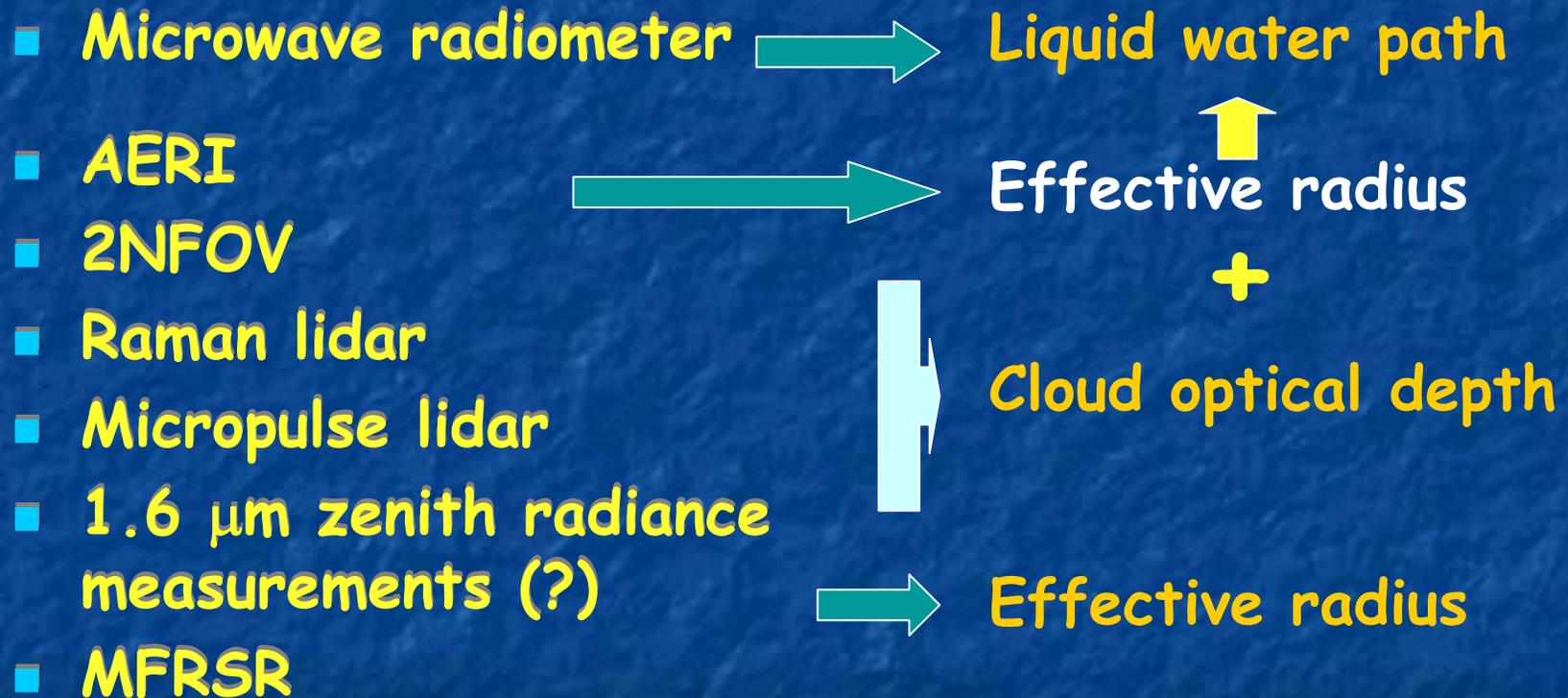
Cloud statistics from ISCCP

Cloud amount (%)



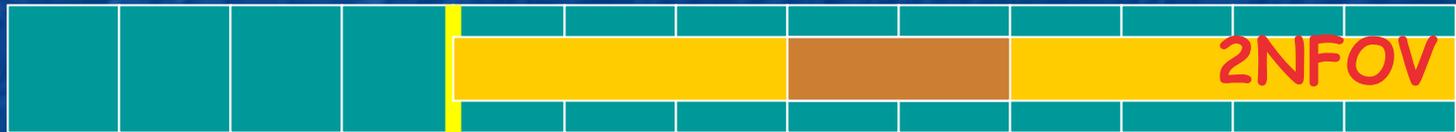
Month

What can 2NFOV provide to the COPS experiment?



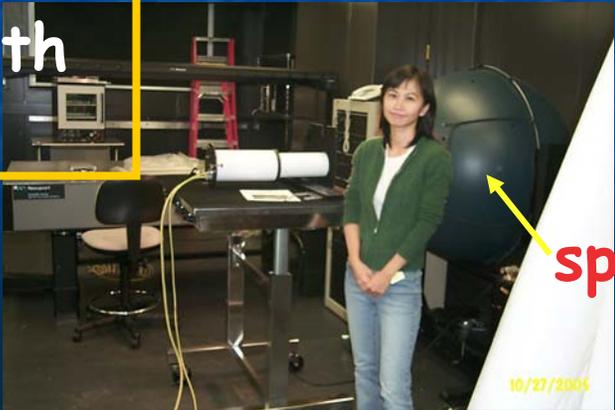
Plans for COPS

11 01 03 05 07 09 11



- Calibrate 2NFOV using GSFC's sphere
- Compare data with CIMEL

- CLOUD Mini-IOP



sphere

10/27/2005

Summary

- We learned about the strengths and limitations of our REDvsNIR retrieval method from the Pt. Reyes experiment.
- The spectral contrast in surface reflectance is sufficient in the Black Forest for our retrieval method.
- The Black forest is a logical area to continue our validations for broken clouds.
- We are looking forward to this COPS field campaign.