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Global Observations for Climate Model Evaluation

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New initiative to include observations in CMIP process

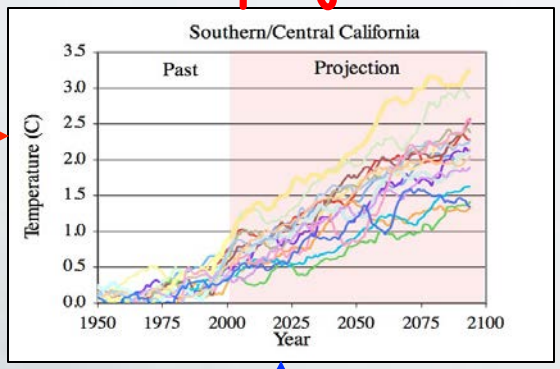
Traditional model comparison path

International working groups (e.g. WGCM)

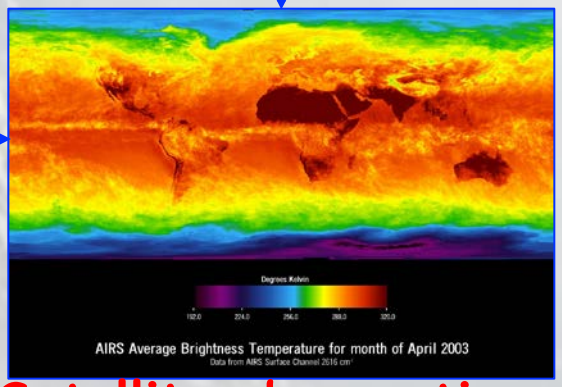
New path to insert observations

Climate models

Model projections



Climate satellites



Satellite observations

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Observations for CMIP5 Simulations

- Objective: to provide climate community observational data analogous to CMIP5 model data – same periods, variables, output frequency, formats
- Key: CMIP5 protocol document (Taylor et al., 2008) is followed strictly
- Carried out in close coordination with PCMDI/DOE and ESG
- Directly engages NASA mission and instrument science teams
- Variety of NASA observations are now available at CMIP5 websites

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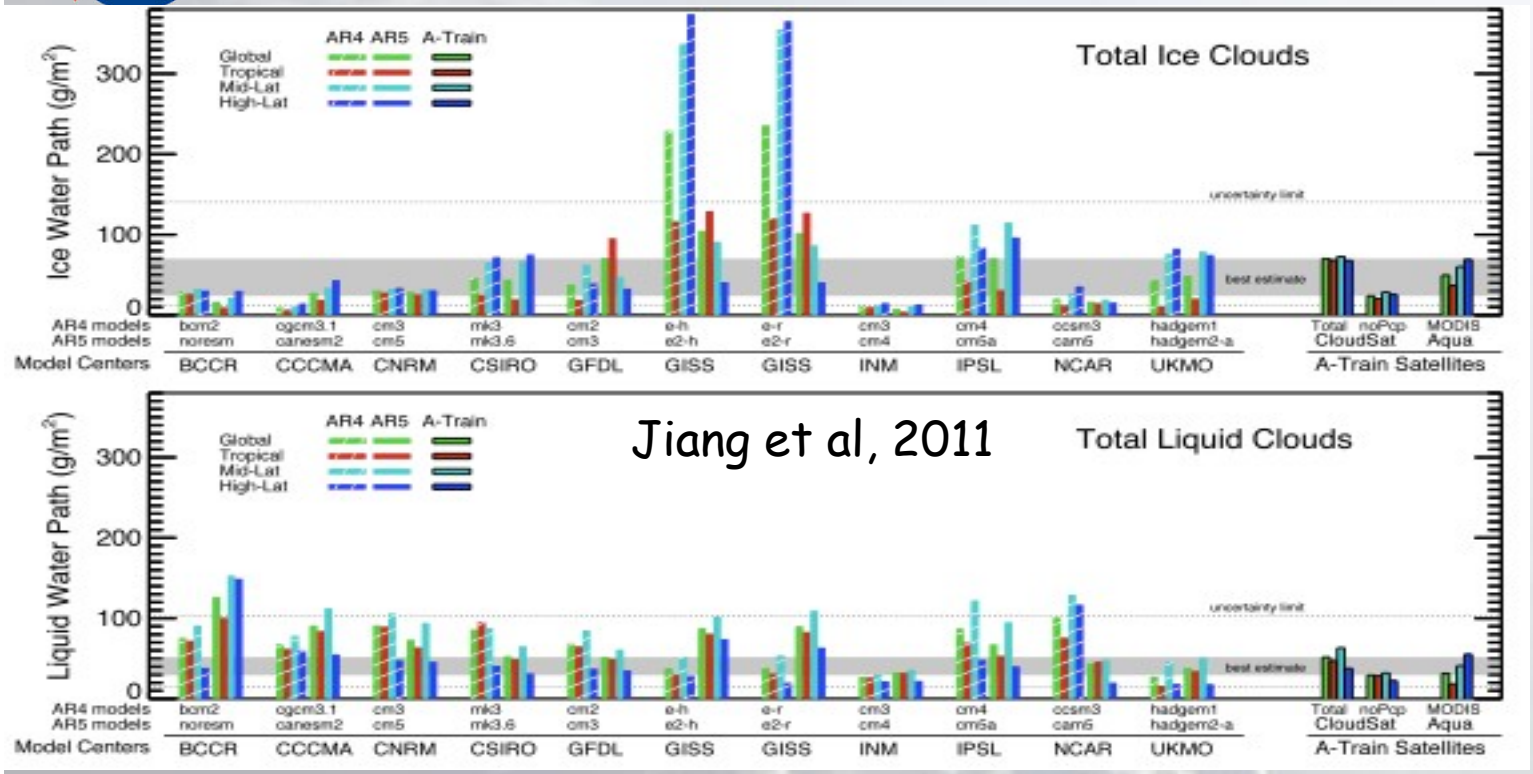
CMIP3 versus CMIP5: Models and Observations



Significant uncertainty in cloud water …

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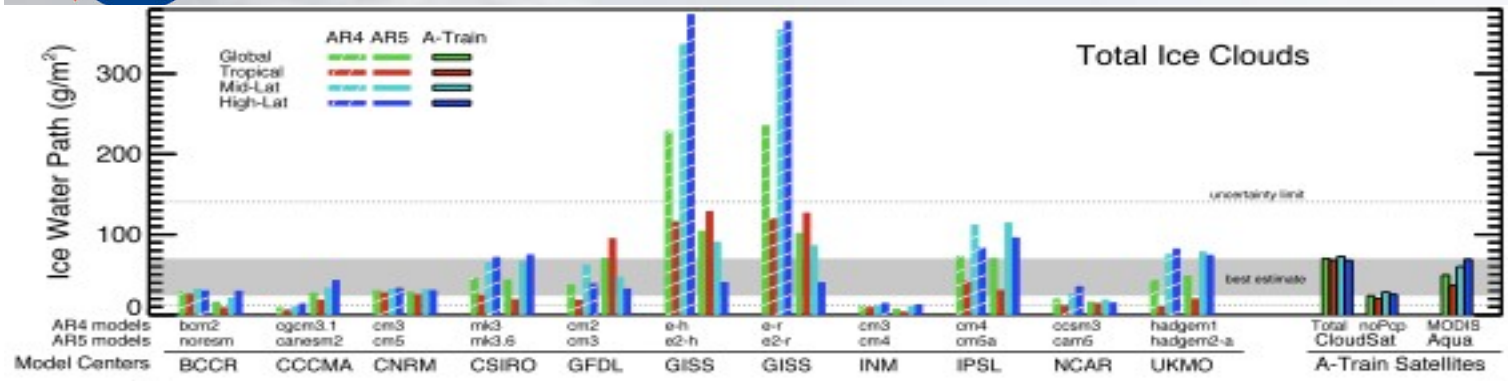
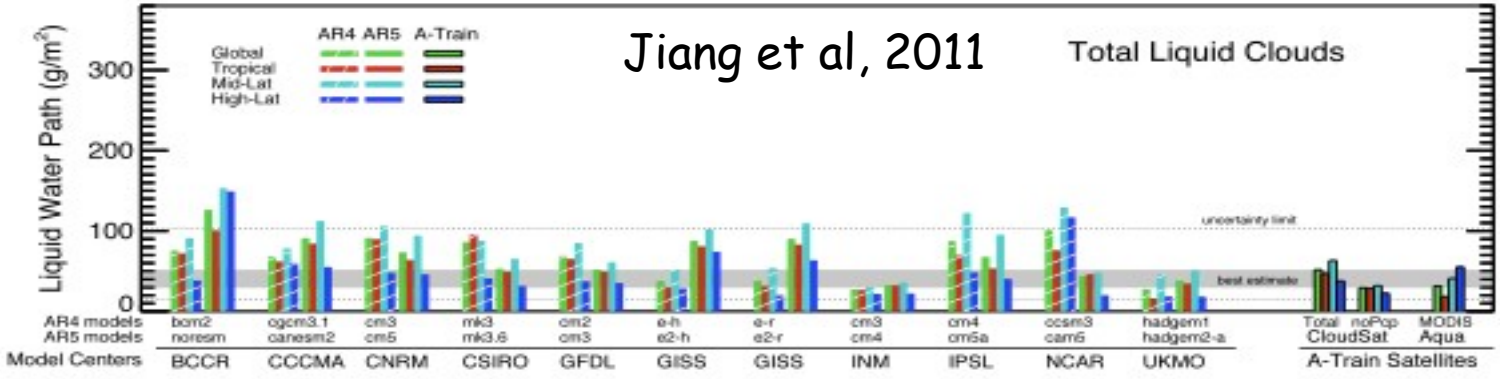
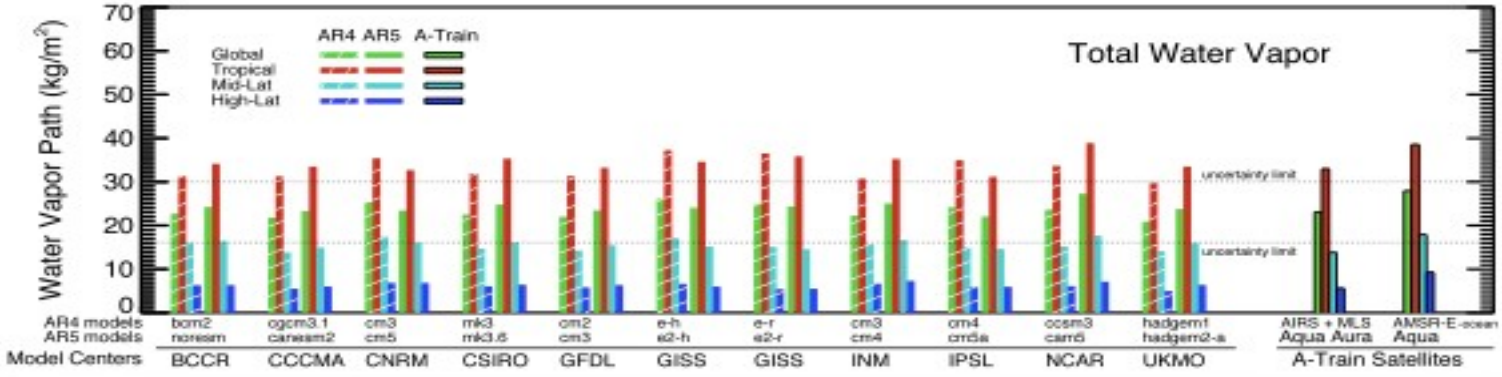
CMIP3 versus CMIP5: Models and Observations







Significant uncertainty in cloud water …

But large uncertainty in water vapor

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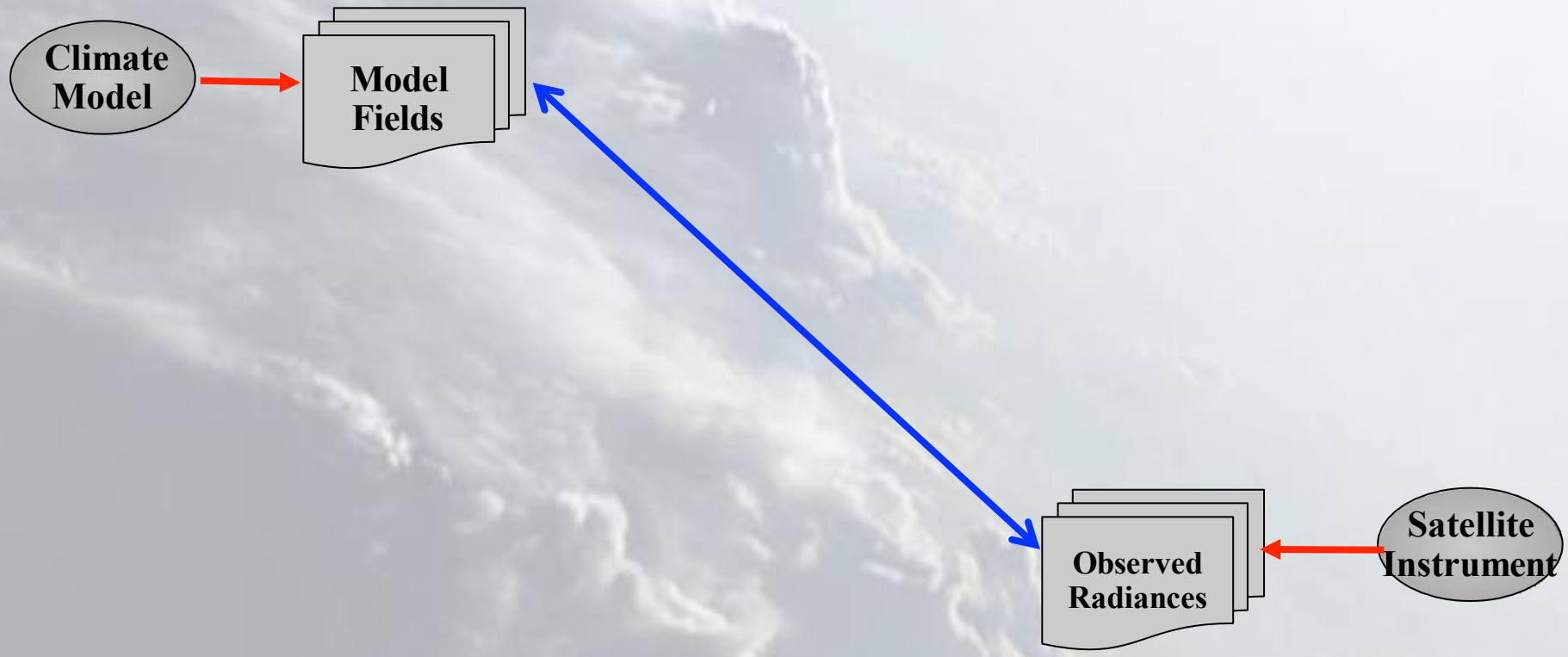
Climate Models versus Satellite Observations: Stage 1



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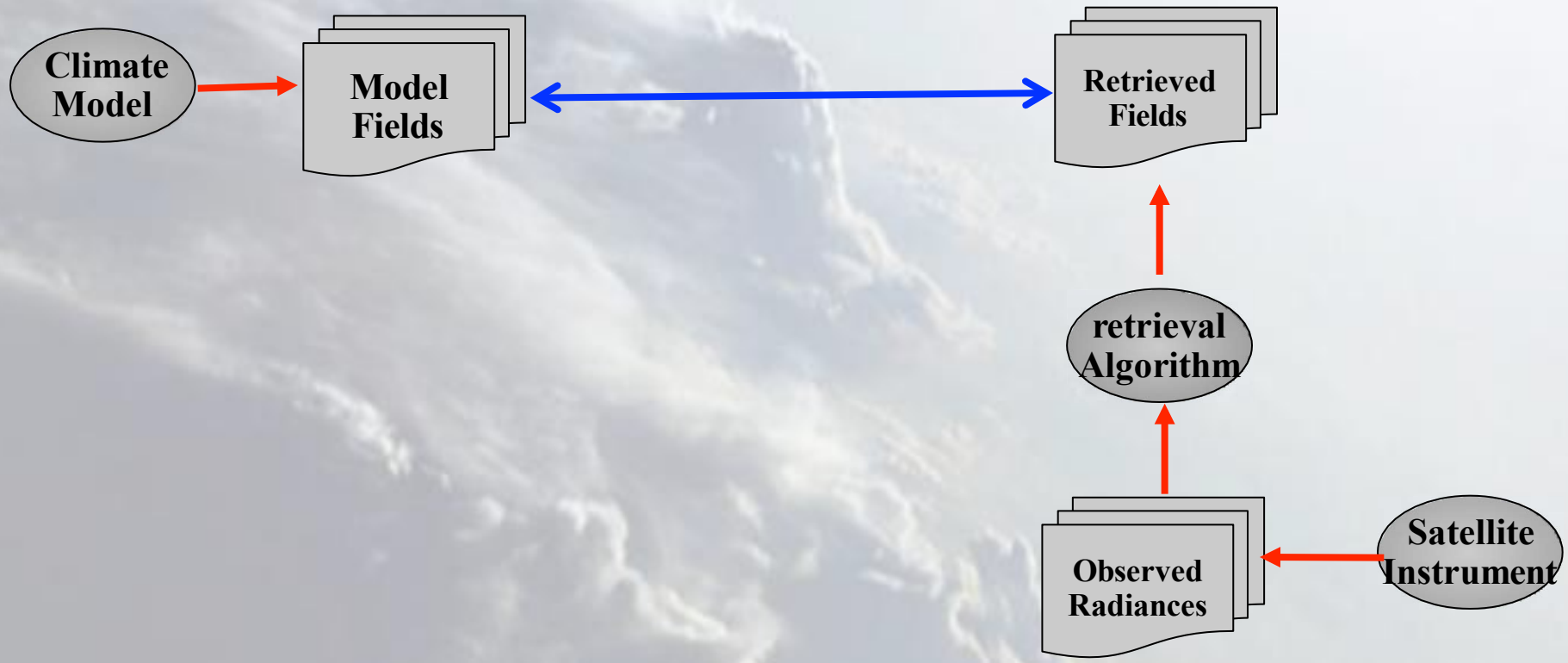
Climate Models versus Satellite Observations: Stage 2



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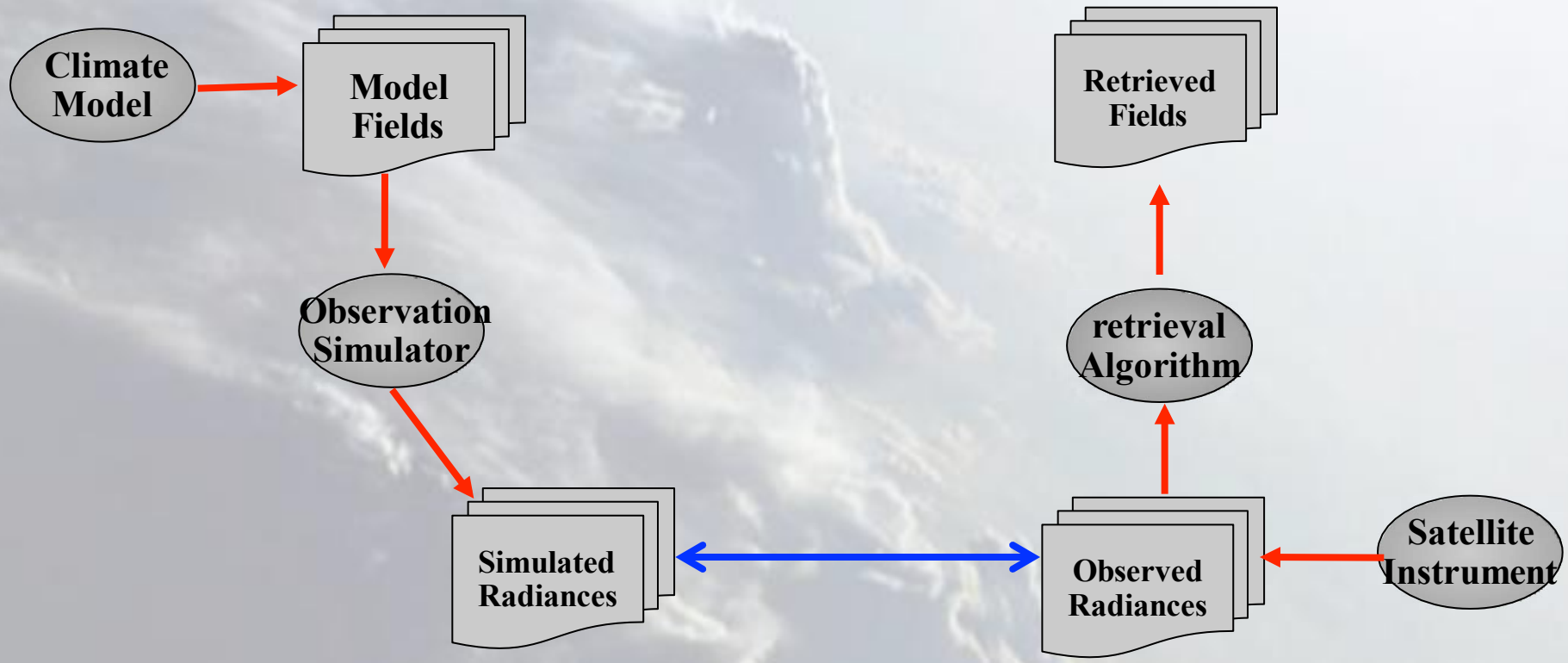
Climate Models versus Satellite Observations: Stage 3



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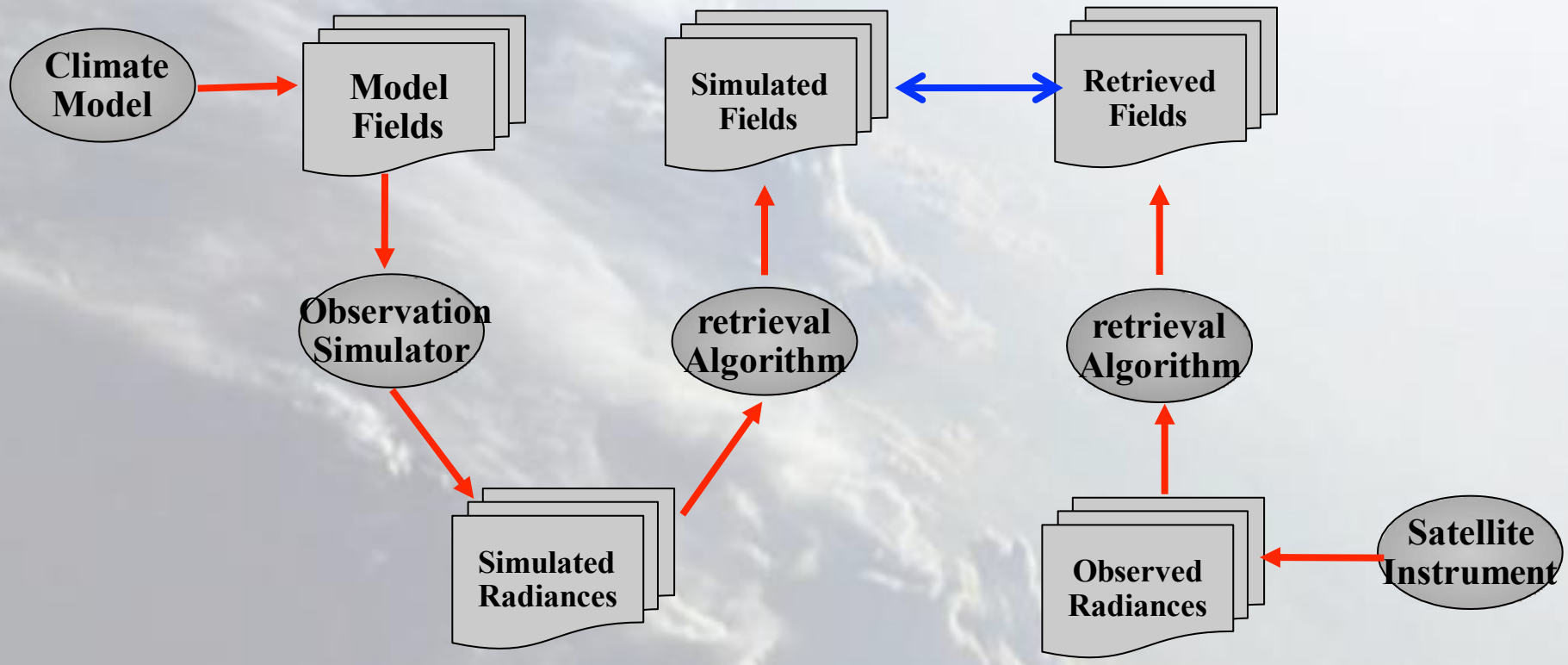
Climate Models versus Satellite Observations: Stage 4



In stage 4: retrieval issues are taken into account and models/ observations are compared in geophysical variables

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Summary

- How to provide observations to CMIP?
  Effort is underway to provide access to observations for CMIP5

- How to compare models and satellite observations?
  Satellite simulators and beyond …

- New observations and satellite missions - Model evaluation/development can play key role in designing future missions

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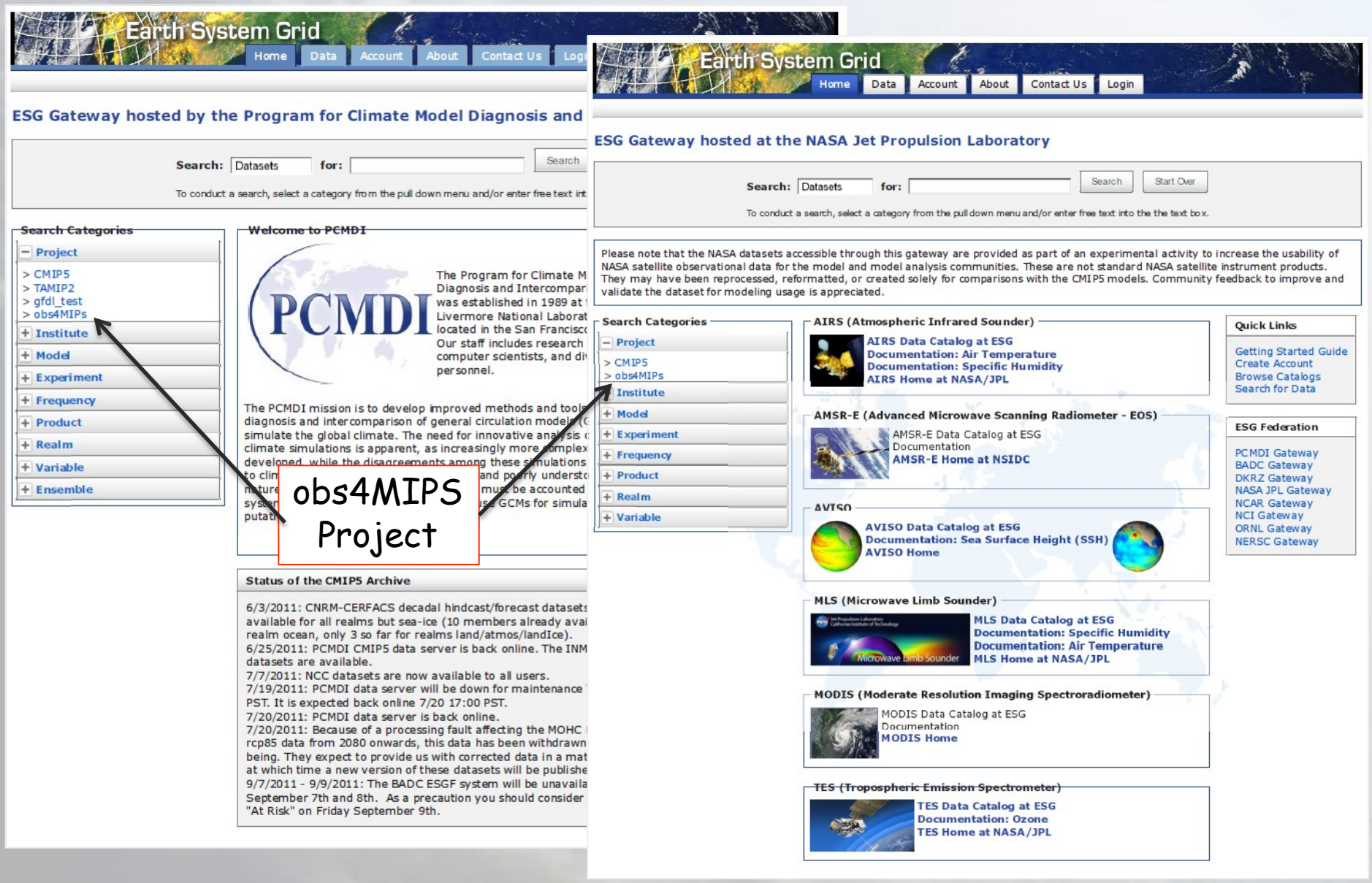
Satellite Observations for CMIP5 Simulations

ESG-JPL Gateway : Side by Side Archive



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This afternoon's session ….

Session 3: Climate Model Evaluation & Invited Climate Modeling Presentations (Chair: Joao Teixeira)			
Joao Teixeira	JPL	Satellite Observations for CMIP5/IPCC	1:30 PM
Jerry Potter	GSFC	A perspective on CMIP5: from the simple beginning of model intercomparison to an international efffort	1:50 PM
Brian Medeiros	NCAR	Evaluating CAM's clouds with satellite simulators	2:20 PM
Claire Radley	GFDL	Comparison of GFDL's atmospheric models with observations during El Nino events	2:50 PM
Hui Su	JPL	Process oriented quantitative assessment of IPCC AR5 model simulations of clouds and water vapor using A-Train observations	3:20 PM
BREAK (Afternoon Light Refreshments)			***3:40 PM***
Baijun Tian	JPL	Evaluting CMIP5 models using AIRS temperature and water vapor profiles	4:00 PM
Amy Braverman	JPL	Likelihood-based evaluation of CMIP5 decadal experiment runs and AIRS water vapor data	4:20 PM