Global Distribution of CO2 in Mid Troposphere from the Atmospheric Infrared Sounder (AIRS) Measurements Reveal Cross Equator Exchange

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Photo: Aqua/AIRS Global Carbon Dioxide
http://svs.gsfc.nasa.gov/vis/a000000/a003400/a003440/index.html
Outline

- Models
- Data
- Transport
Seasonal Cycles

CO₂ Volume mixing ratio (ppmv)

January

April

July

October

Shia, Liang, Miller, Yung, GRL 2006

AIRS Science Team Meeting 2009  Yung et al., CO₂ Exchange Across the Equator
prs = 435.7mb

Title Here

CO₂ ppmv

381
380
379
378

AirS Science Team Meeting 2009

Yung et al., CO₂ Exchange Across the Equator
prs = 168.2 mb

CO₂ ppmv

379.8
379.0
378.2
377.4
Mozart (3D) ➢ Boundary Condition

prs = 964.4 mb

prs = 435.7 mb

prs = 168.2 mb

Title here
prs = 435.7 mb

CO₂ ppmv

Month

AIRS Science Team Meeting 2009

Yung et al., CO₂ Exchange Across the Equator
Outline

- Models
- Data
- Transport
Outline

- Models
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kinetics 2D CO$_2$ (Danie's BC), pres 866mb
kinetics 2D CO$_2$ (Danie's BC), pres 365mb

- Latitude
- Month
- CO$_2$ ppmv

- 378
- 376
- 374
- 372
- 370
TITLE HERE

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Title Here

CO₂ cross equator flux (GT/yr)

Month

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Yung et al., CO₂ Exchange Across the Equator
Summary

- Models show CO$_2$ transport in high troposphere
- Data shows evidence for enhanced transport
- SH appears to be efficient sink
- Transport sensitive to $K_{yy}$
Backup Slides
kinetics 2D CO$_2$ (Danie's BC), pres 365mb