



Samples from the EU QUANTIFY project: comparison of Oslo and UCI CTMs

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Jessica Neu¹, Juno Hsu¹, Xin Zhu¹
Michael Gauss², Ivar S.A. Isaksen²*

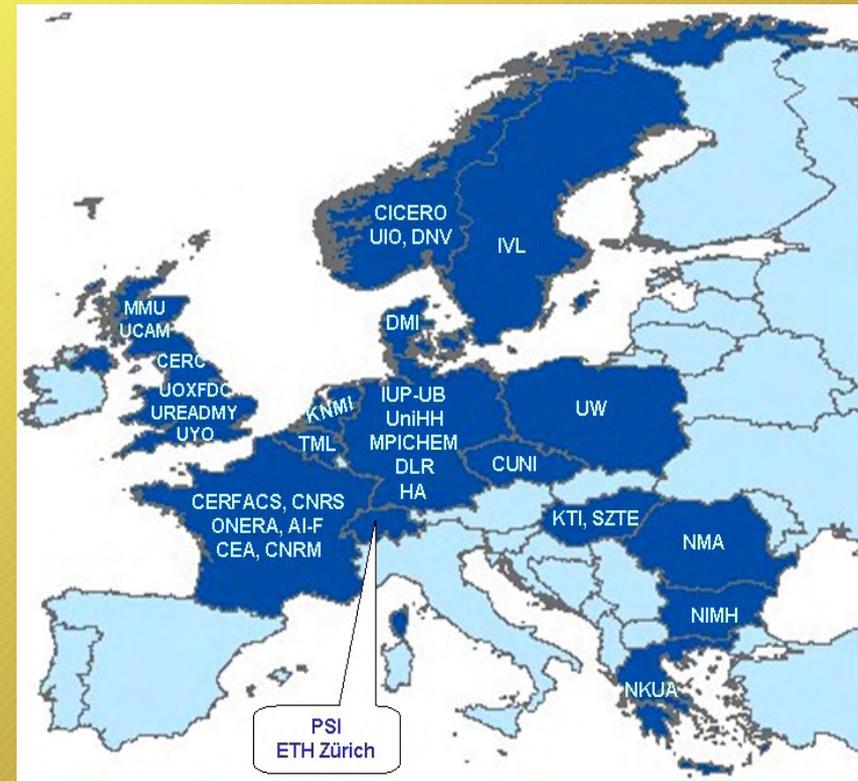
1. University of California, Irvine, USA
2. University of Oslo, Norway



EU QUANTIFY project

Quantifying the Climate Impact of global and European Transport Systems

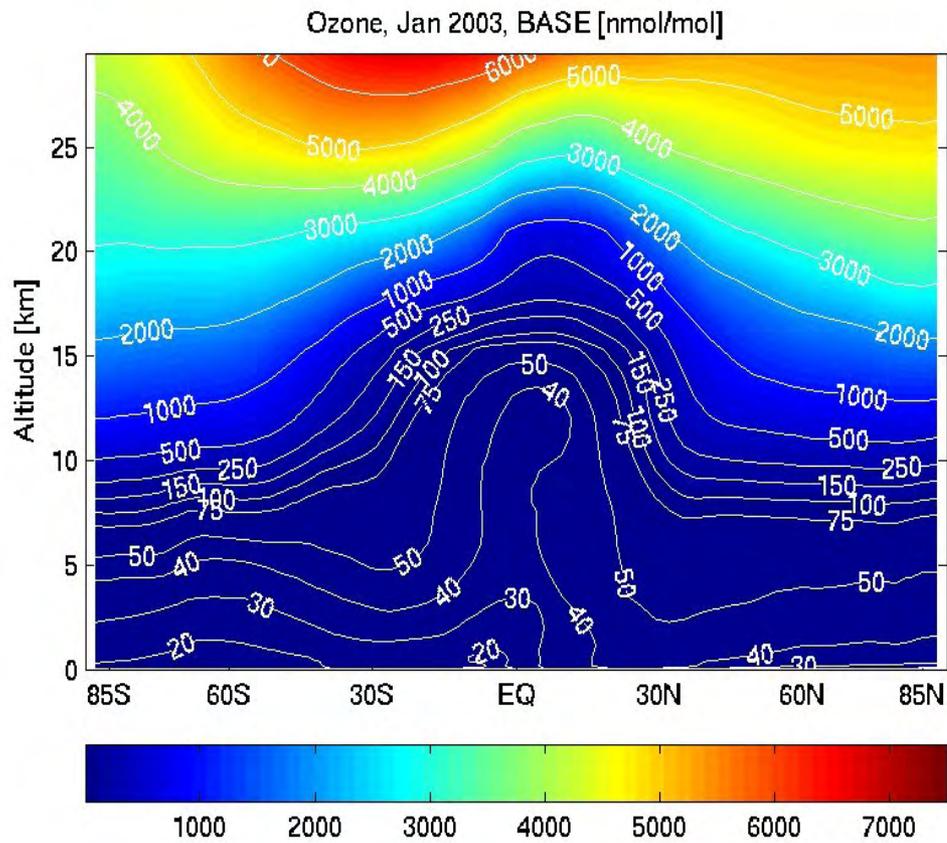
- Objective: To quantify the climate impact of the global and European transport systems for the present situation and for different scenarios of future development.
- Participants: 35 from 16 countries
- Duration: Mar. 2005 ~ Feb. 2010



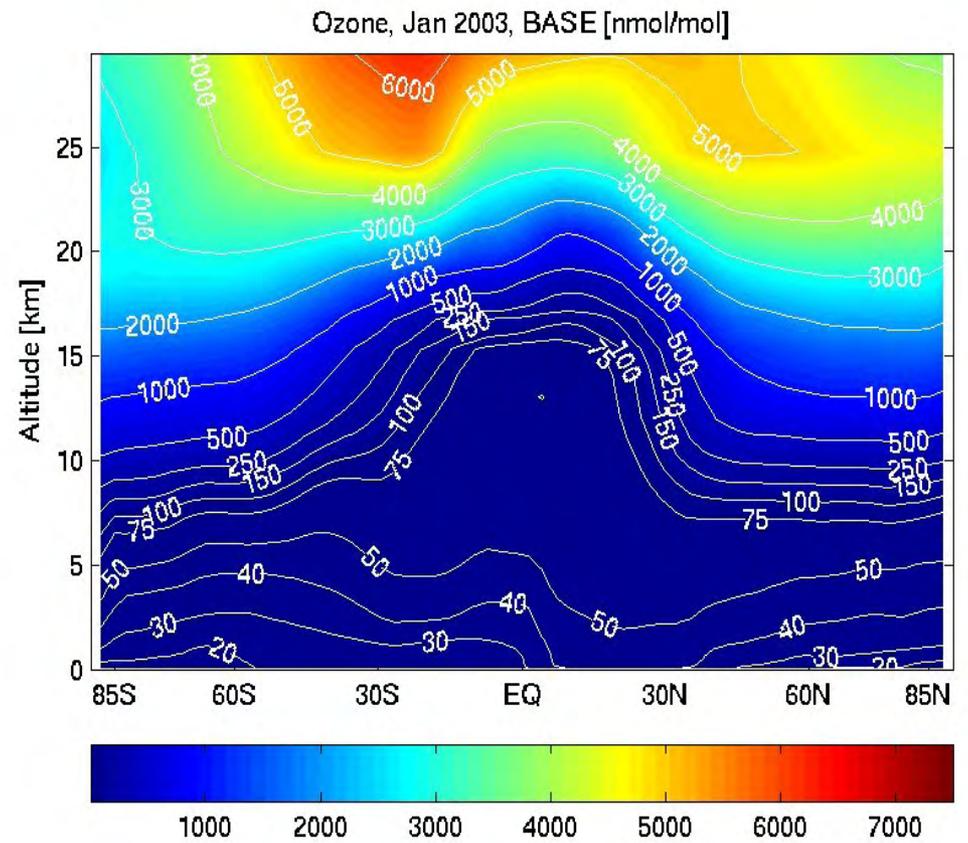
General properties of the two CTMs

MODEL	UCI CTM	Oslo CTM2
Resolution	T42, 37L	T42, 40L
Met-field	ECMWF-IFS	ECMWF-IFS
Advection	S.O.M.	S.O.M.
Emission	QUANTIFY	QUANTIFY
Chemistry	ASAD, Linoz	Full

Zonal mean O3, BASE in Jan.

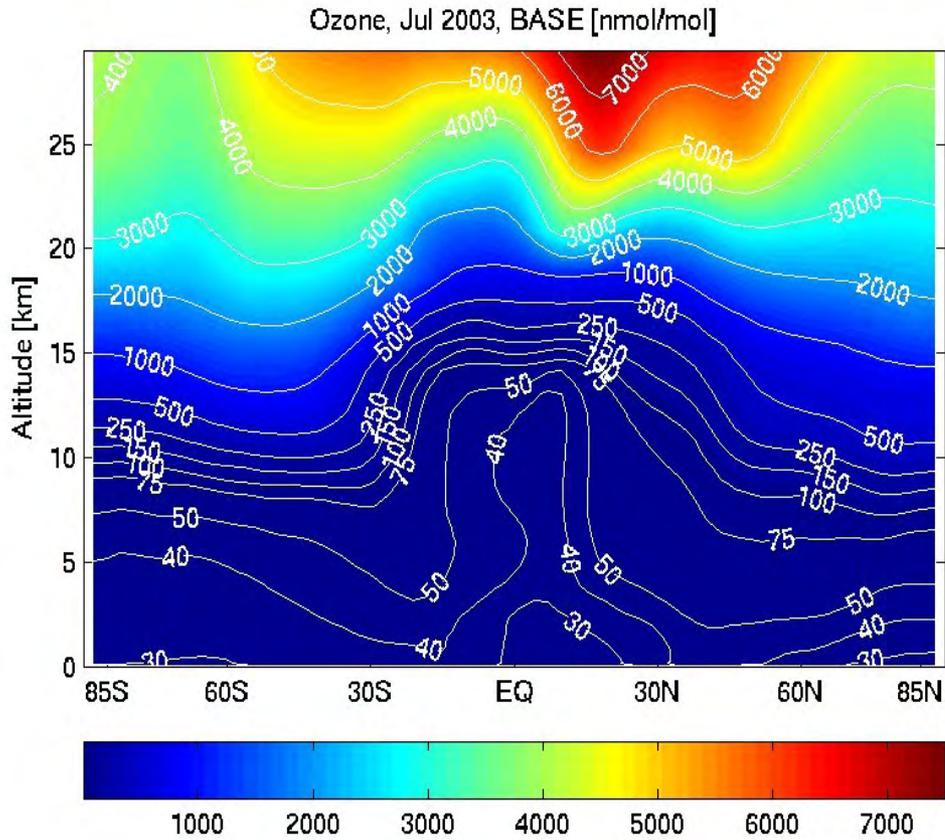


UCI

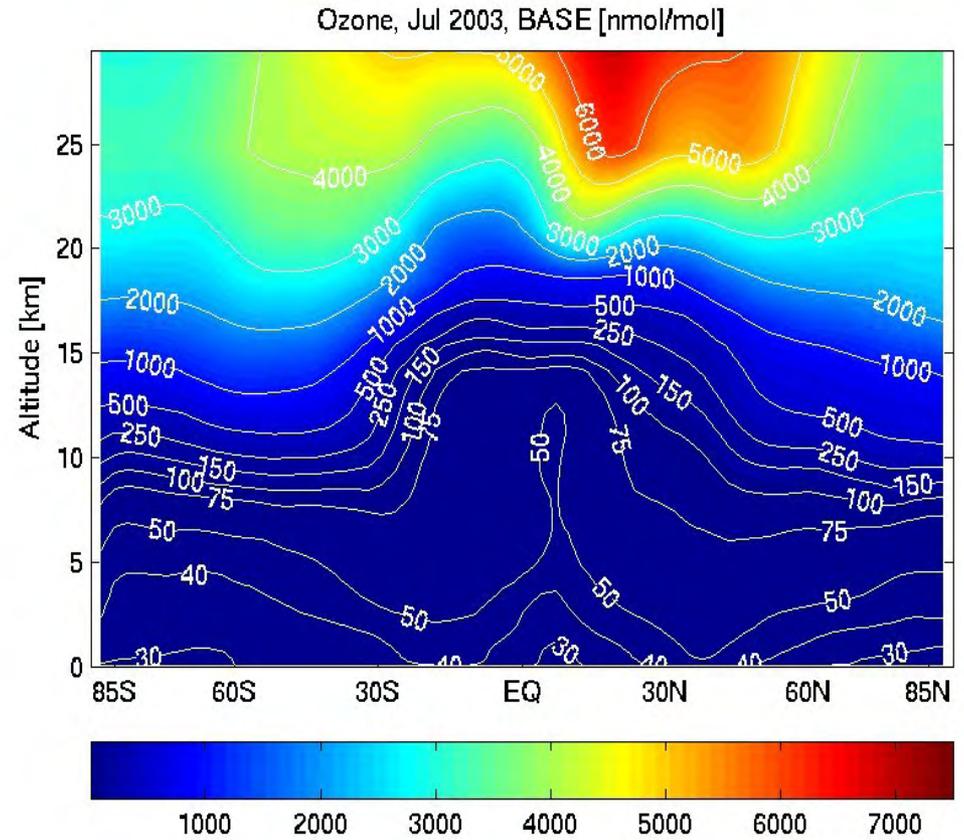


UiO

Zonal mean O₃, BASE in Jul.

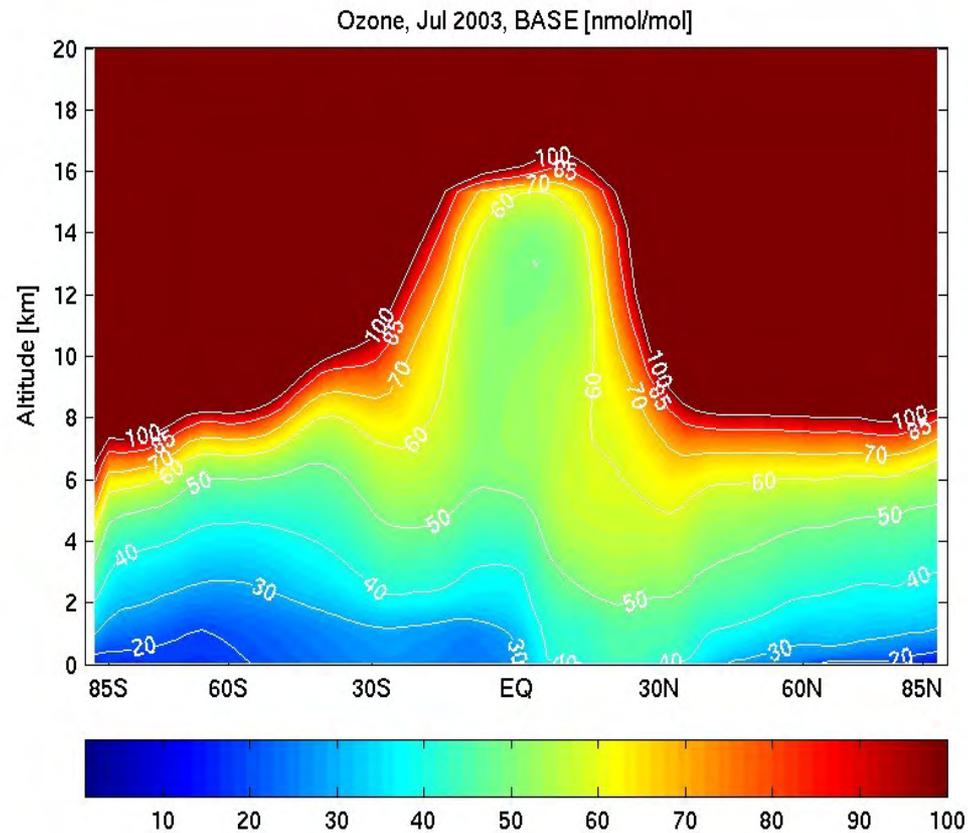
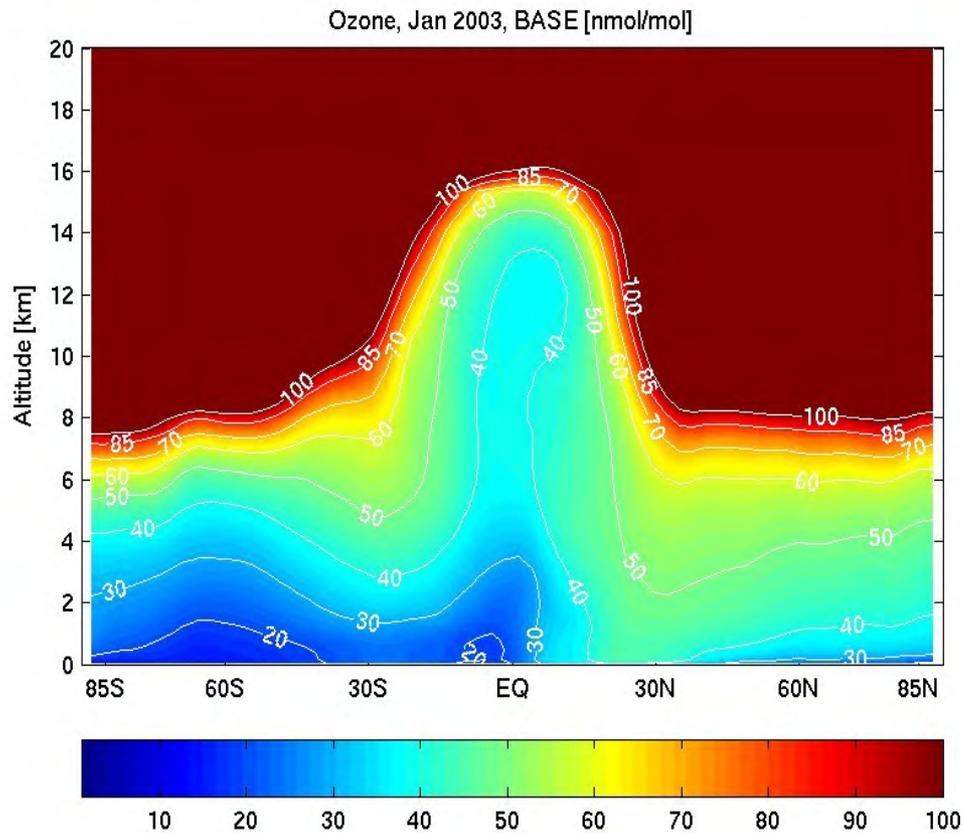


UCI



UiO

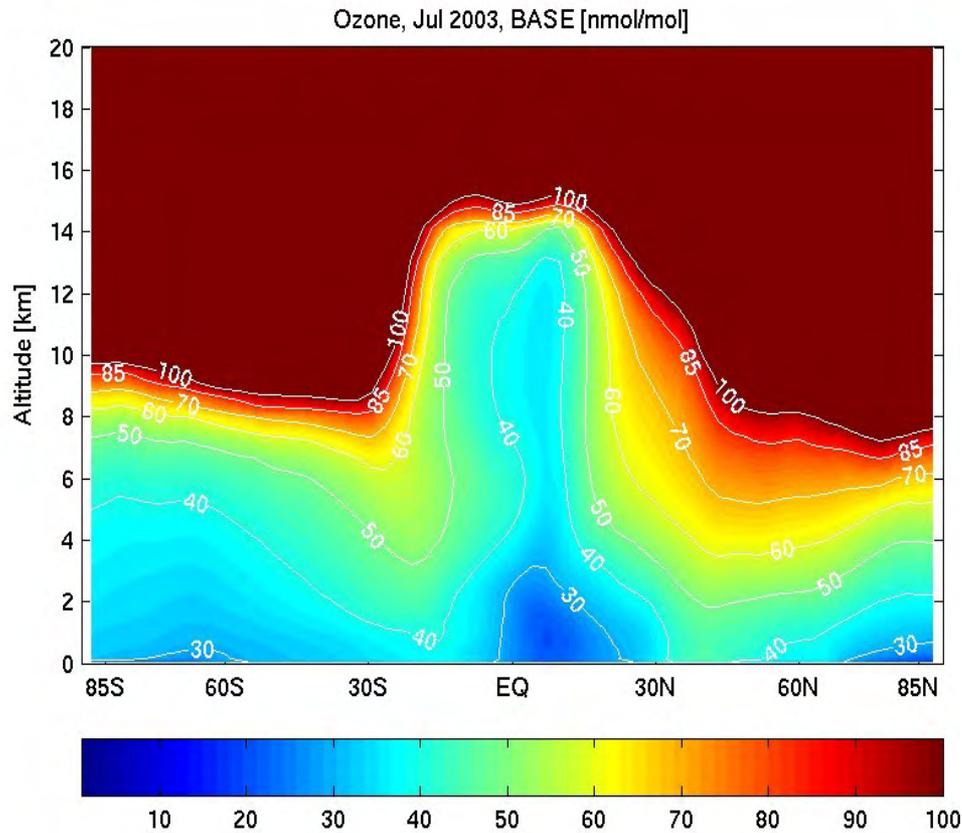
Zonal mean O₃, BASE in Jan.



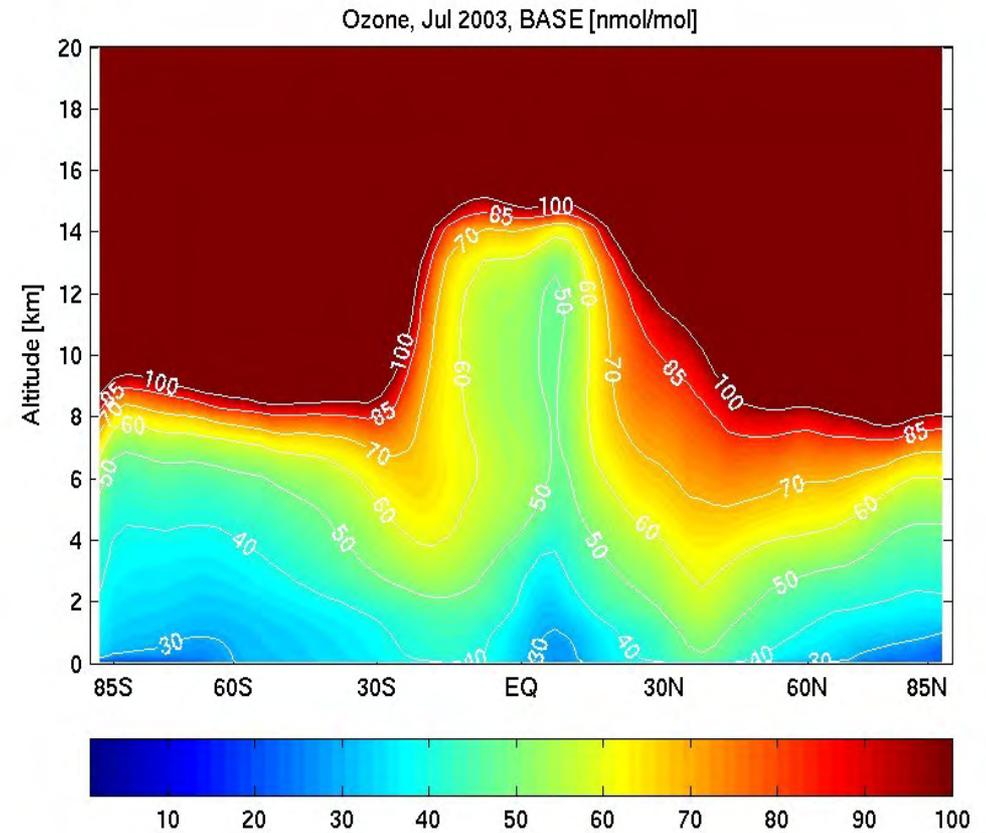
UCI

UiO

Zonal mean O₃, BASE in Jul.



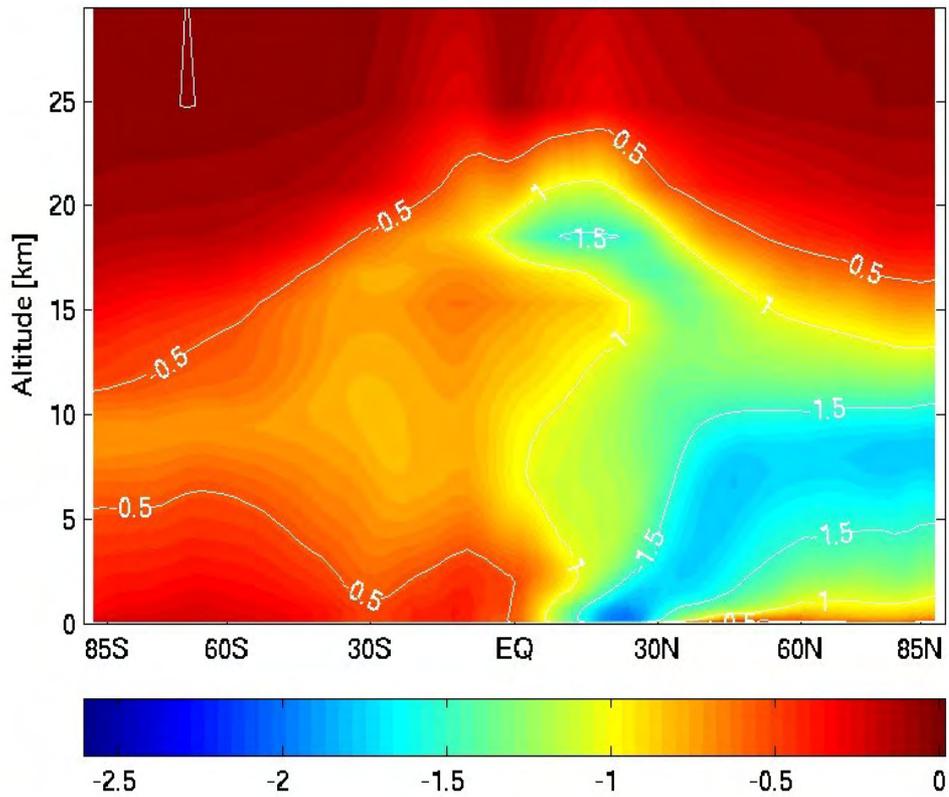
UCI



UiO

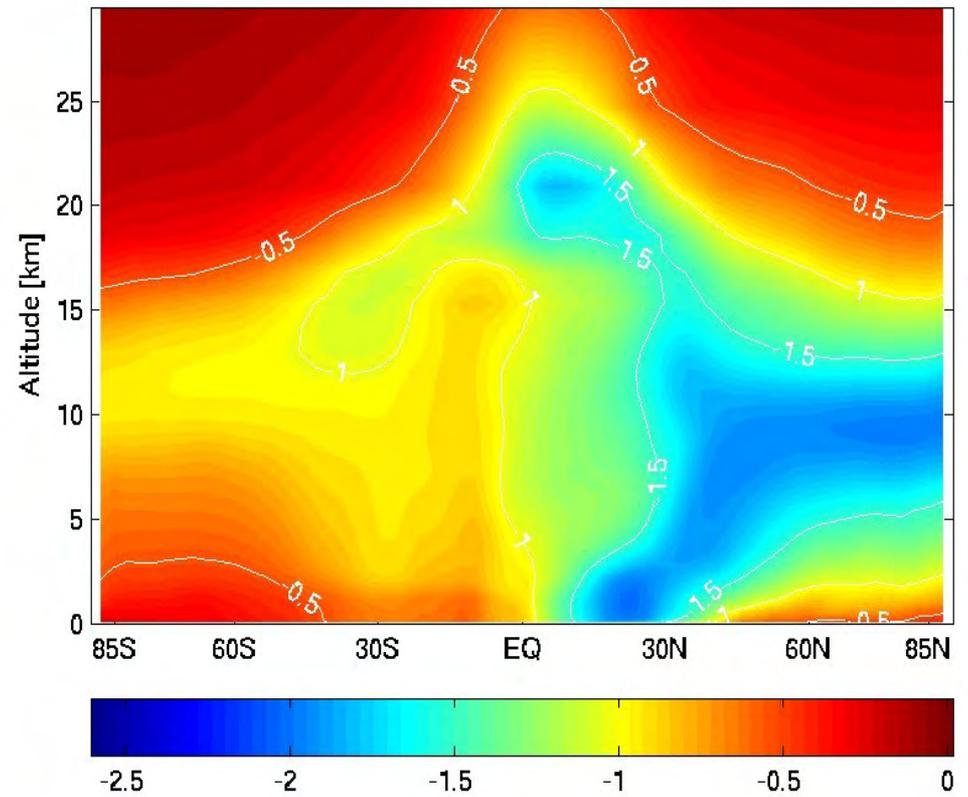
dOzone, ROAD in Jan.

dOzone, road, Jan 2003 [nmol/mol]



UCI

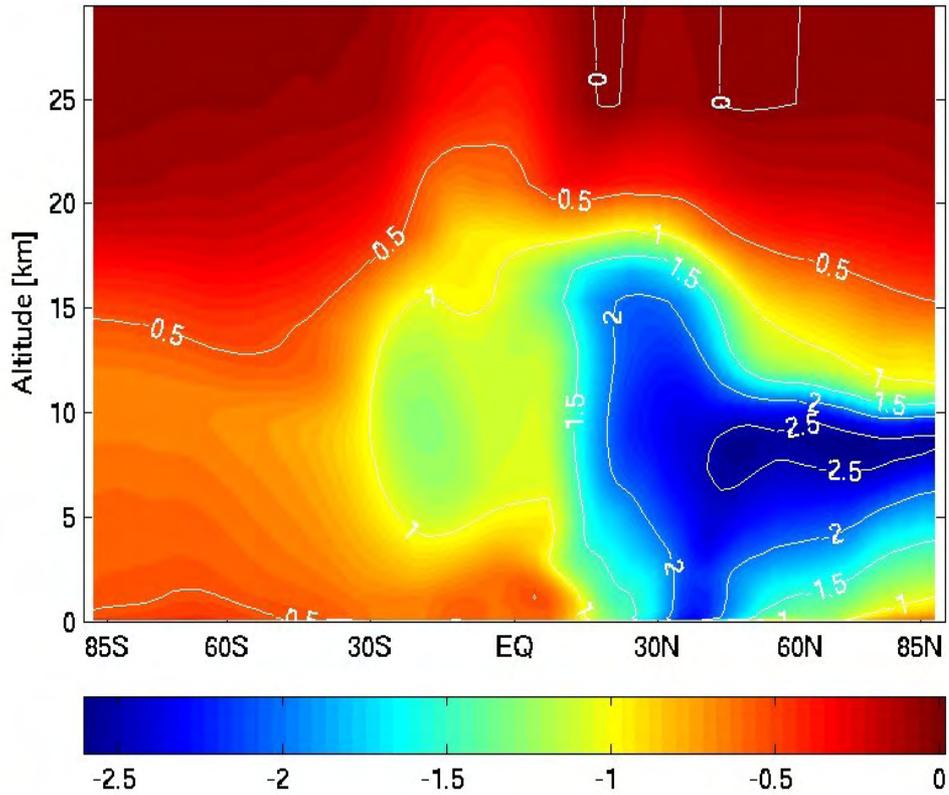
dOzone, road, Jan 2003 [nmol/mol]



UiO

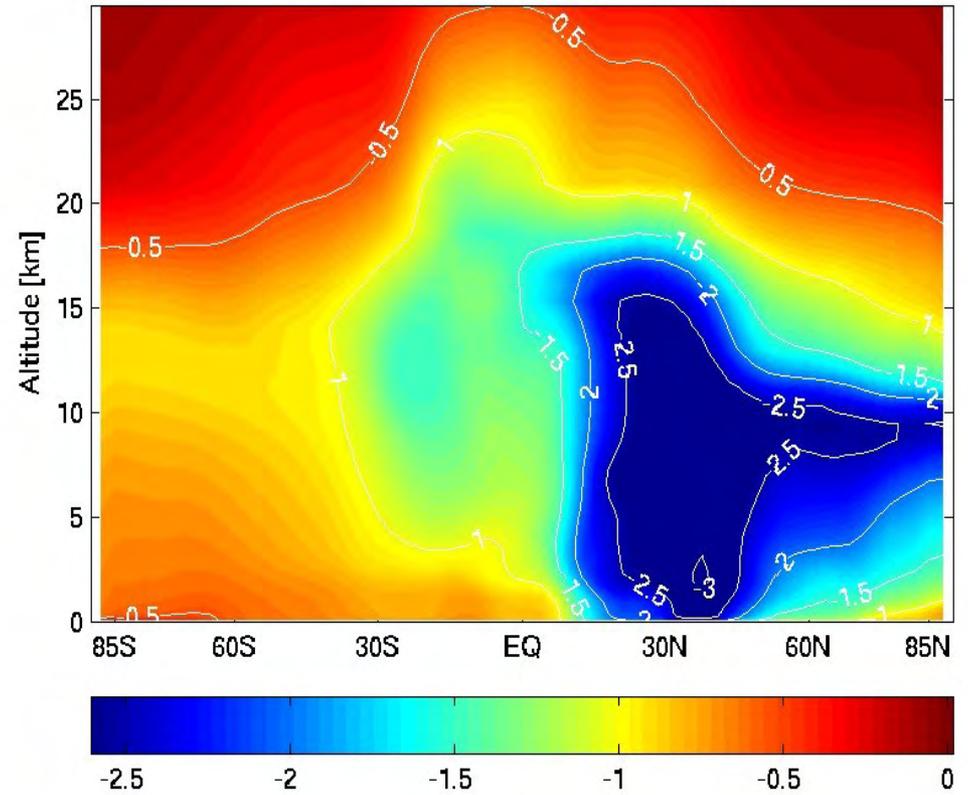
dOzone, ROAD in Jul.

dOzone, road, Jul 2003 [nmol/mol]



UCI

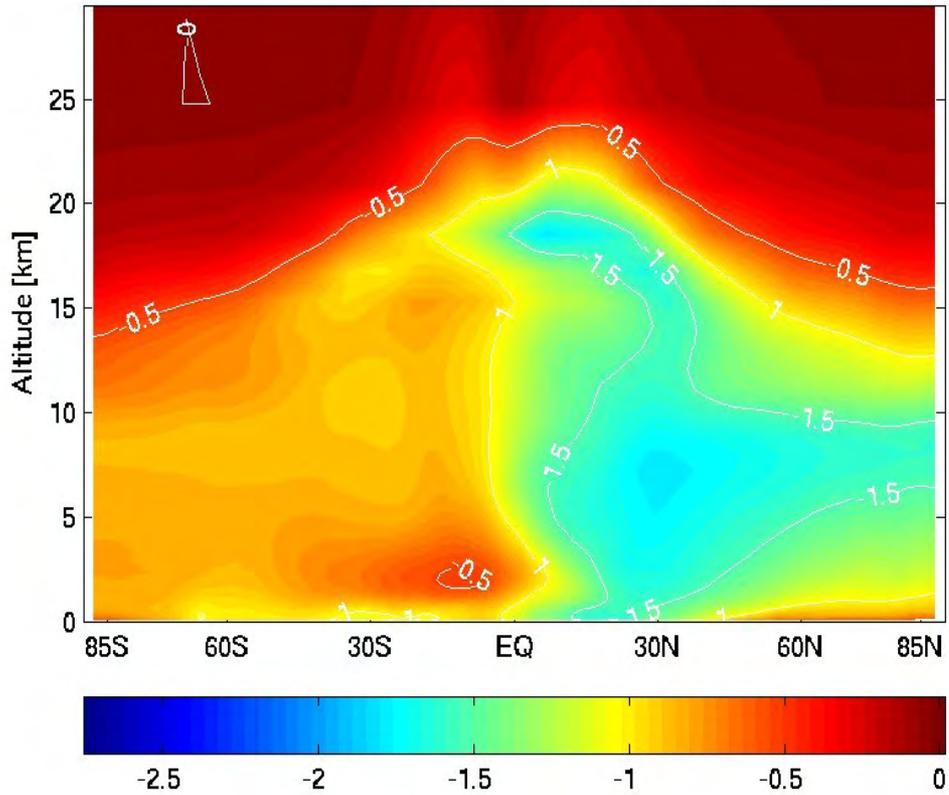
dOzone, road, Jul 2003 [nmol/mol]



UiO

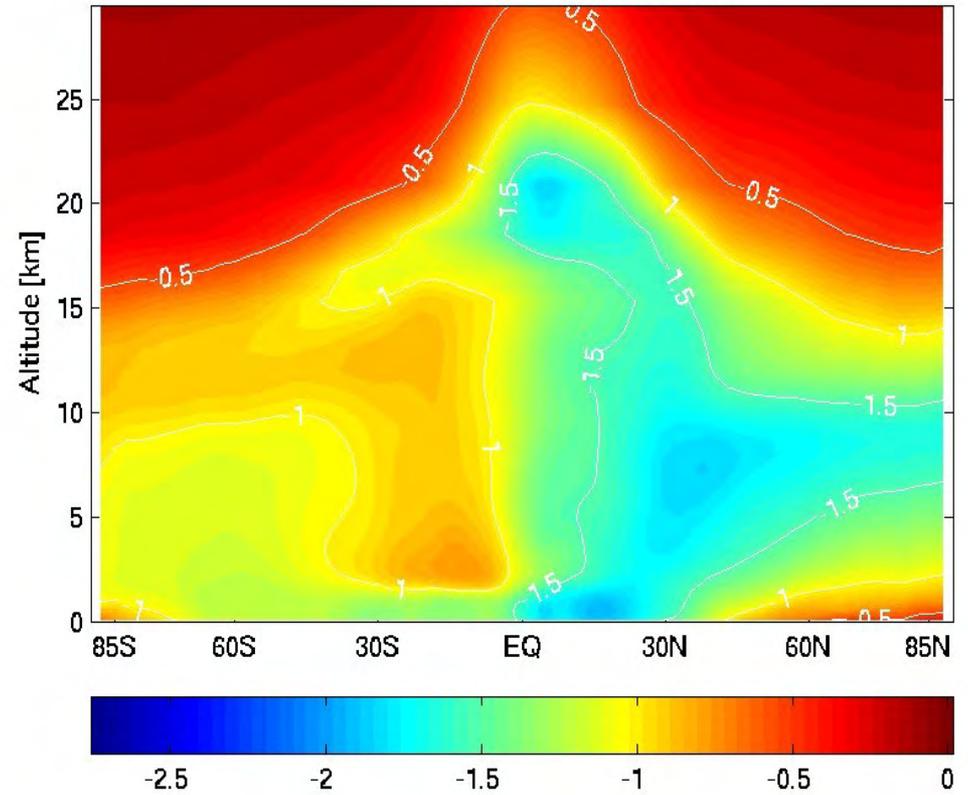
dOzone, SHIP in Jan.

dOzone, ship, Jan 2003 [nmol/mol]



UCI

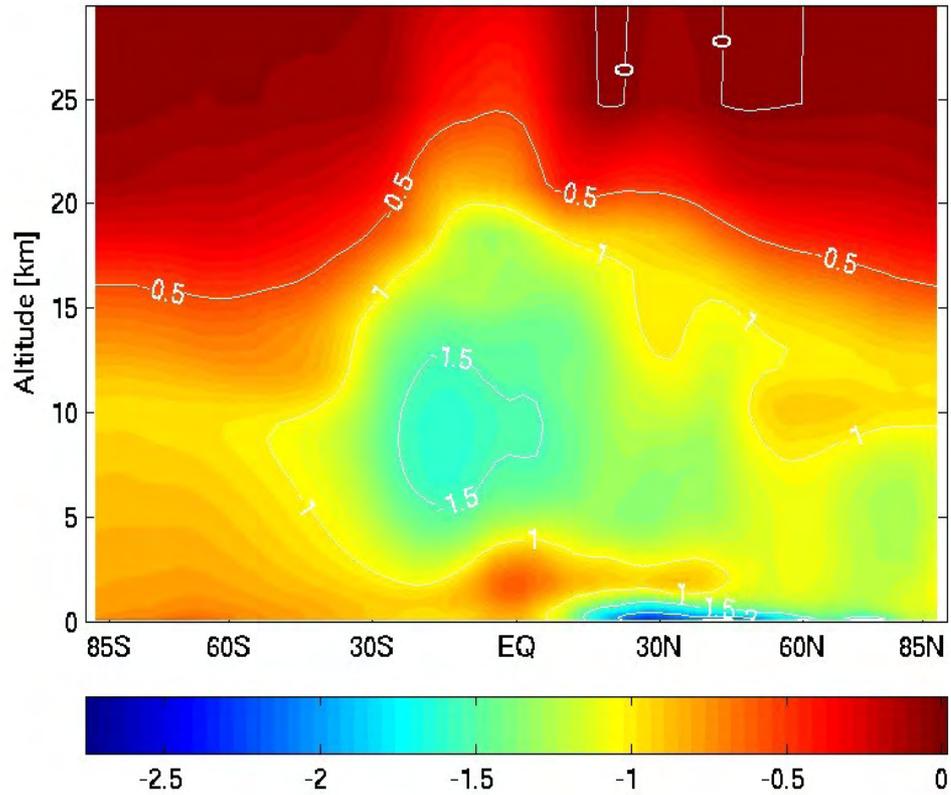
dOzone, ship, Jan 2003 [nmol/mol]



UiO

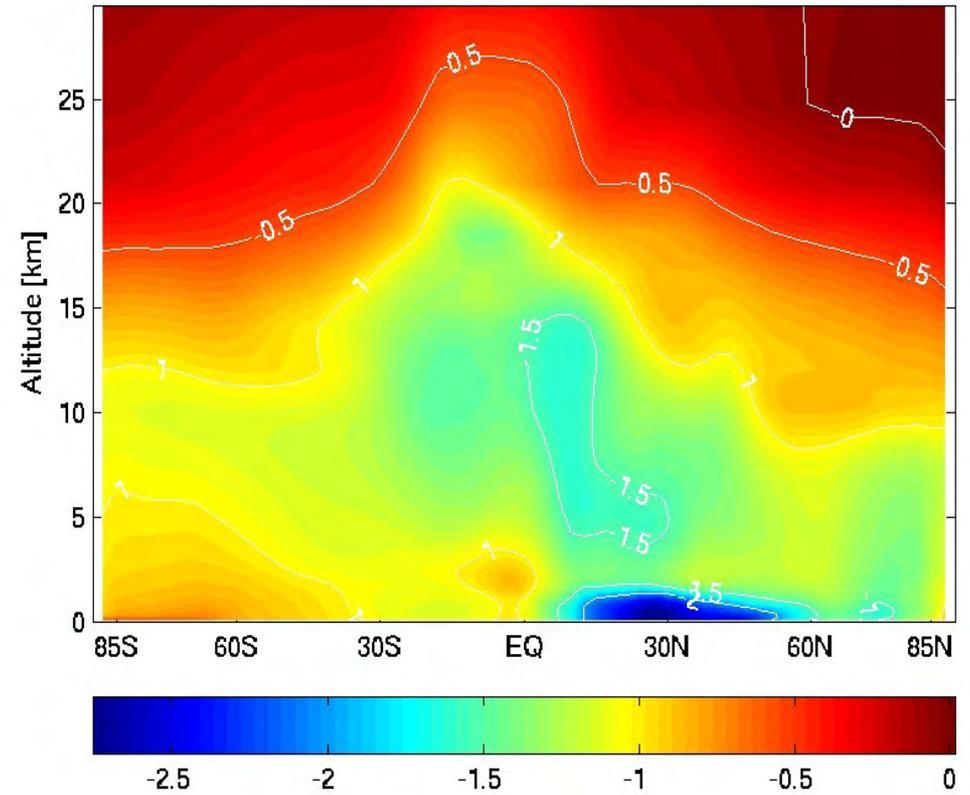
dOzone, SHIP in Jul.

dOzone, ship, Jul 2003 [nmol/mol]



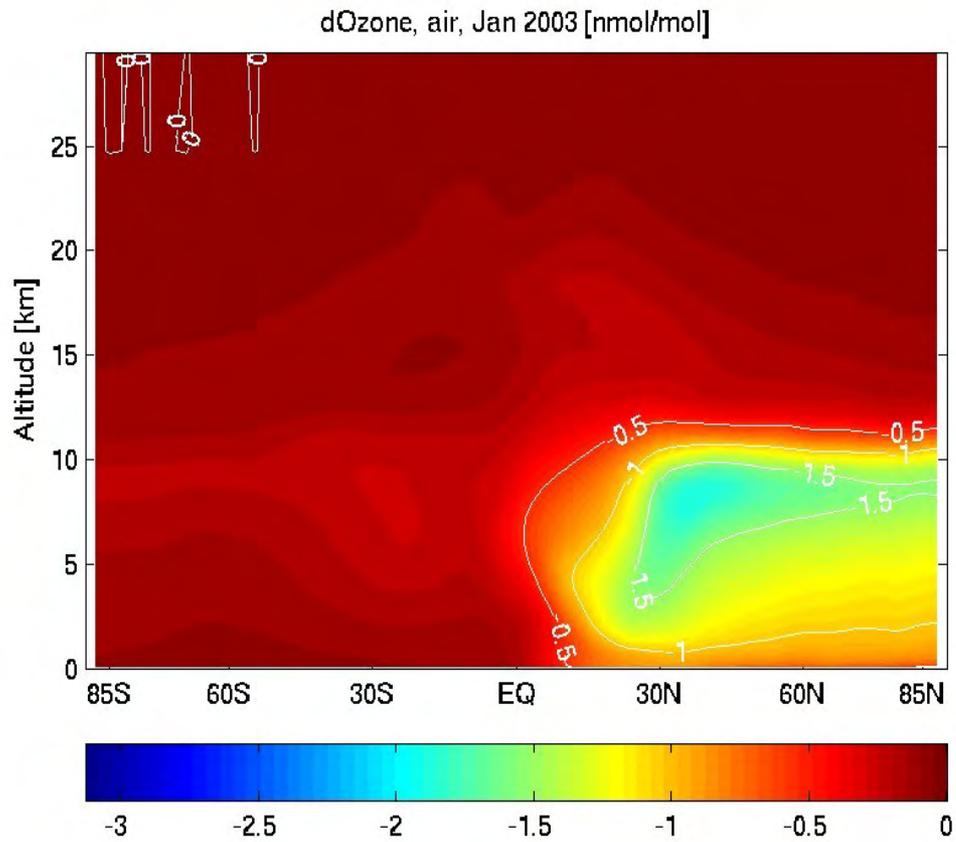
UCI

dOzone, ship, Jul 2003 [nmol/mol]

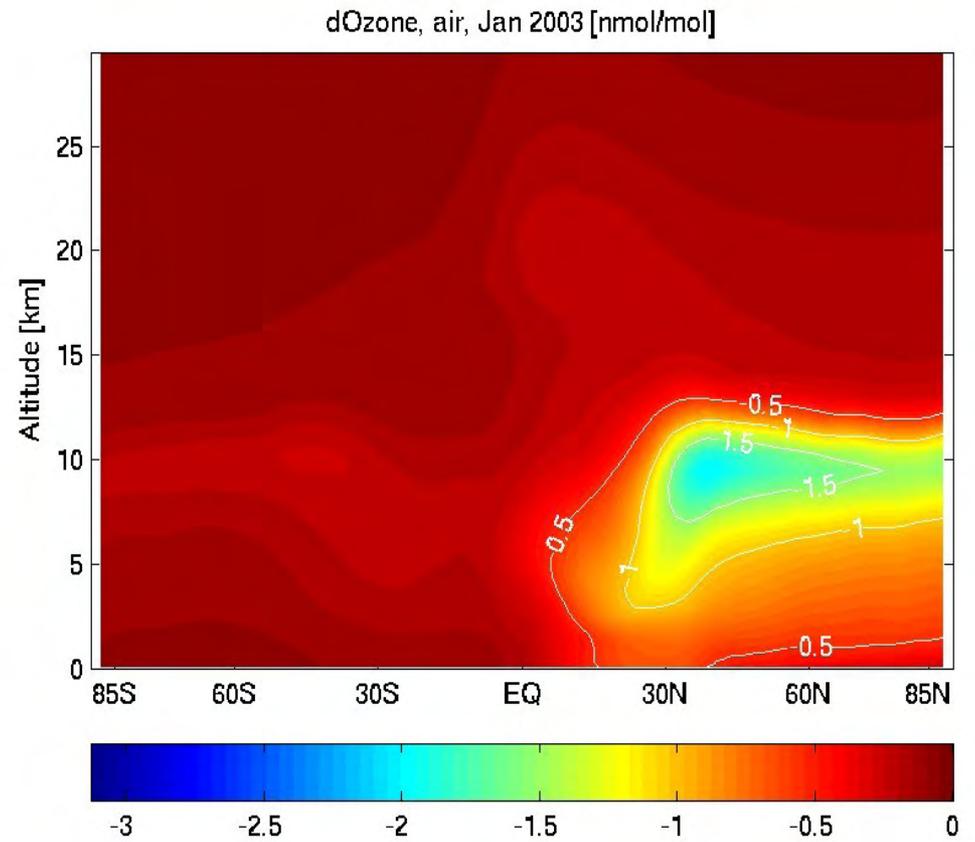


UiO

dOzone, AIR in Jan.

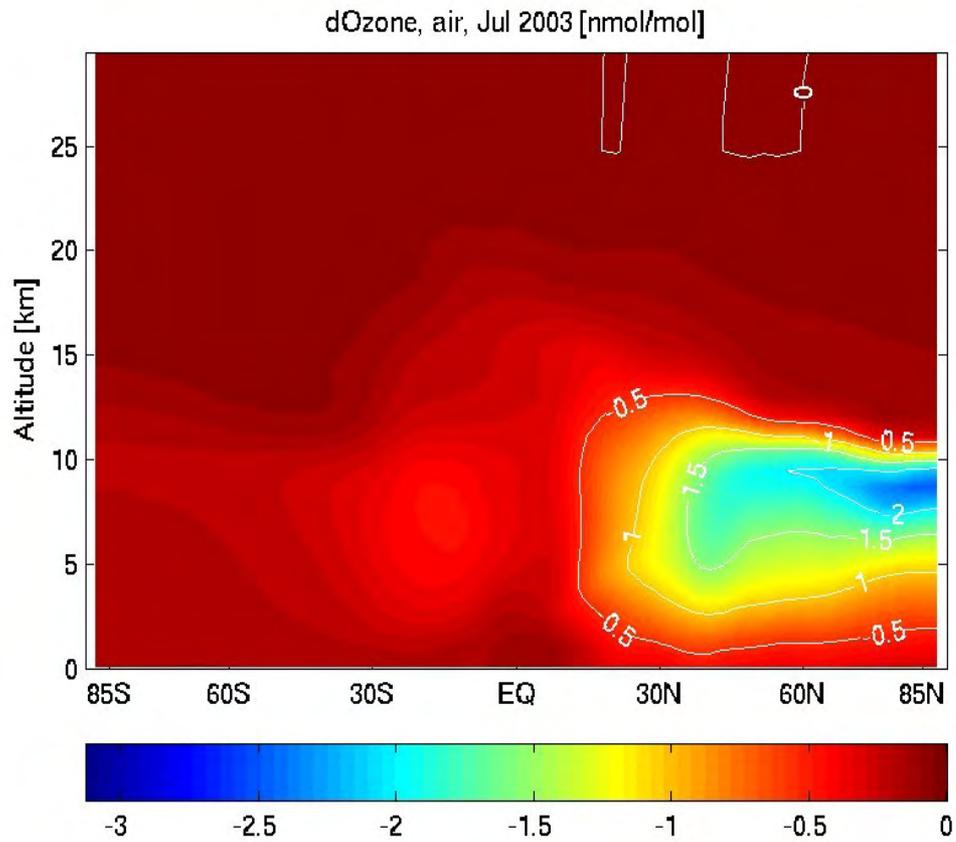


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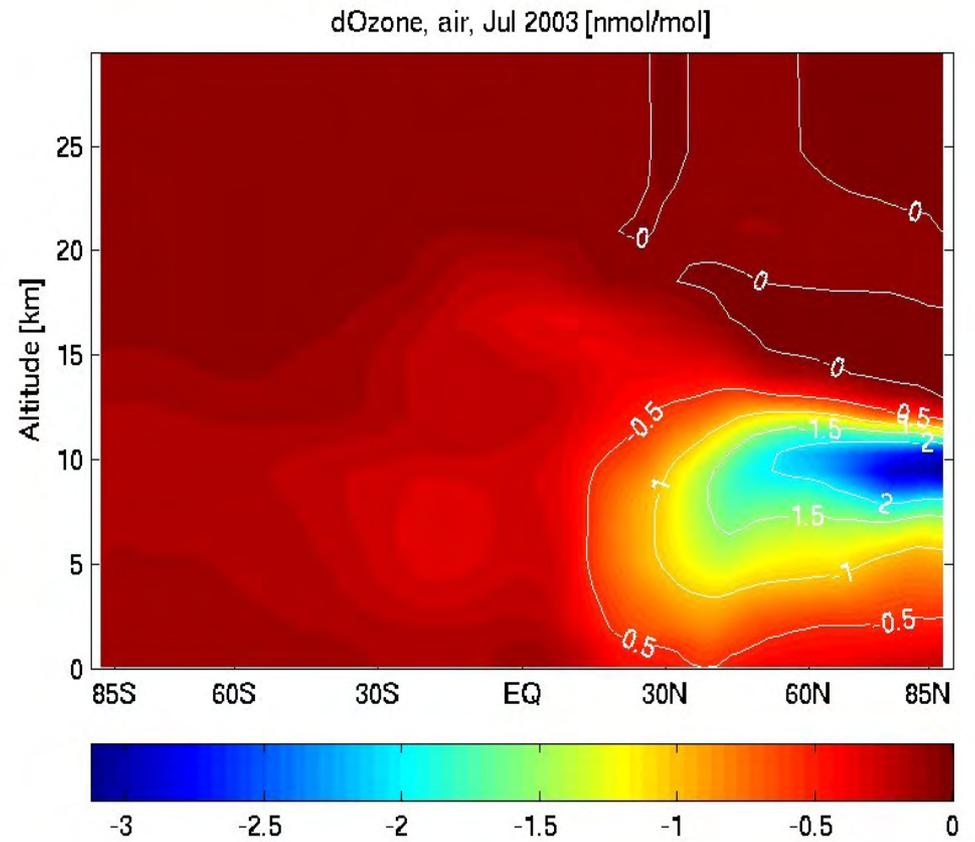


UiO

dOzone, AIR in Jul.

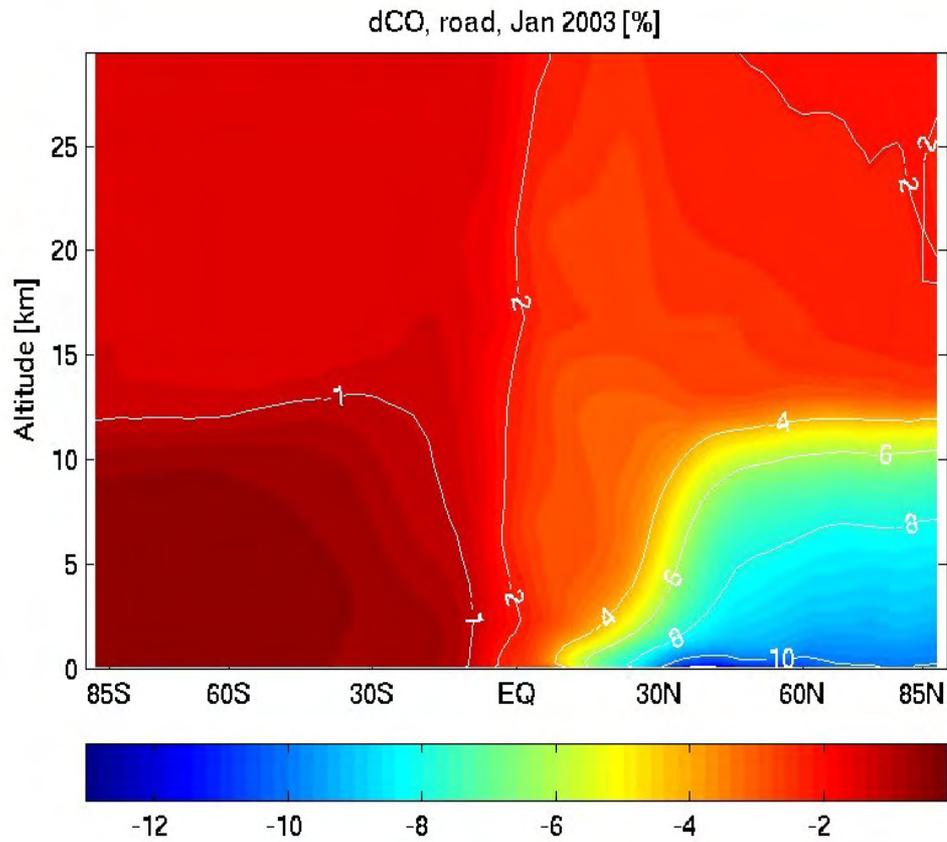


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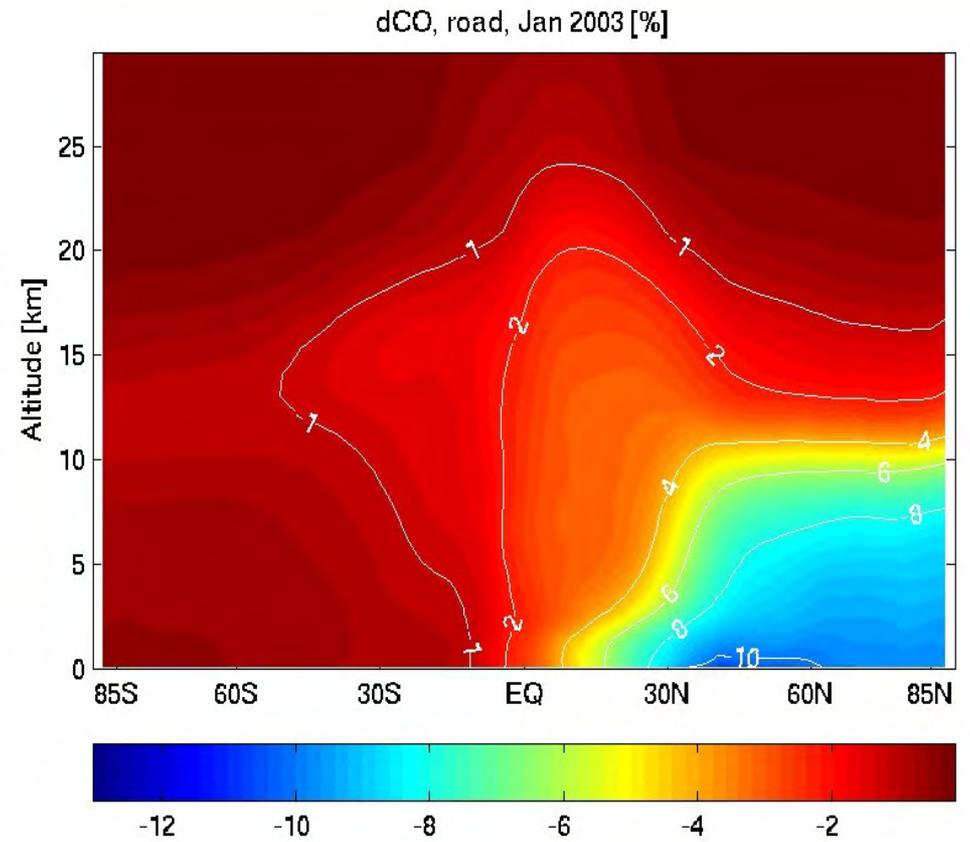


UiO

dCO, ROAD in Jan.

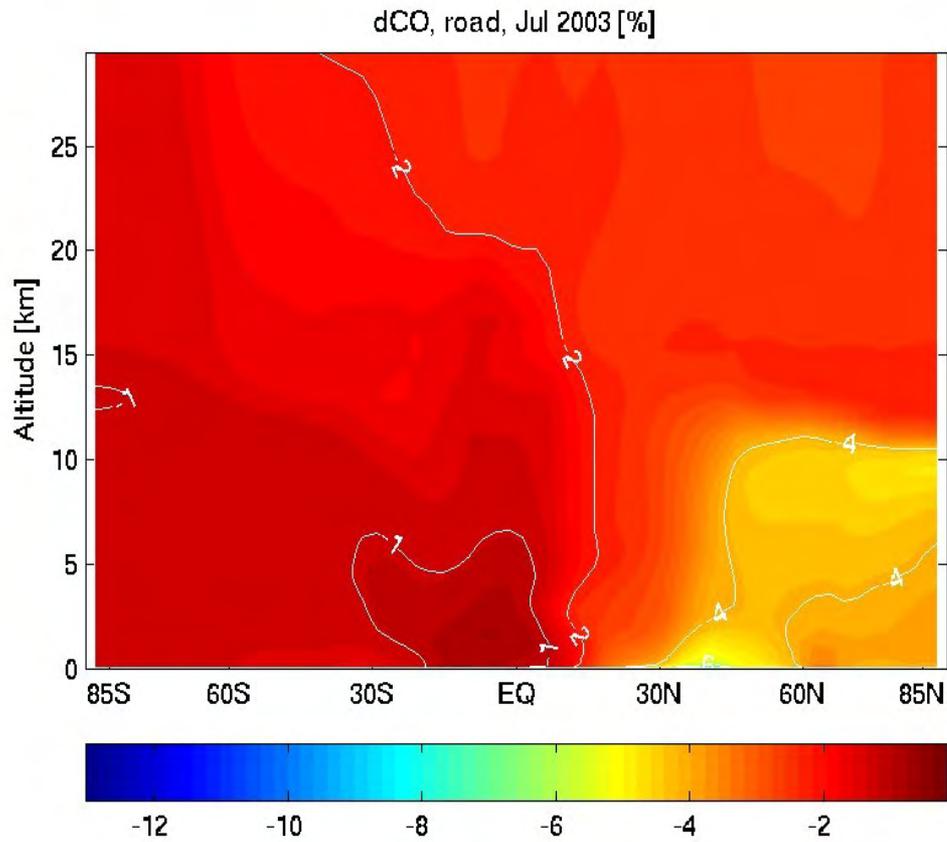


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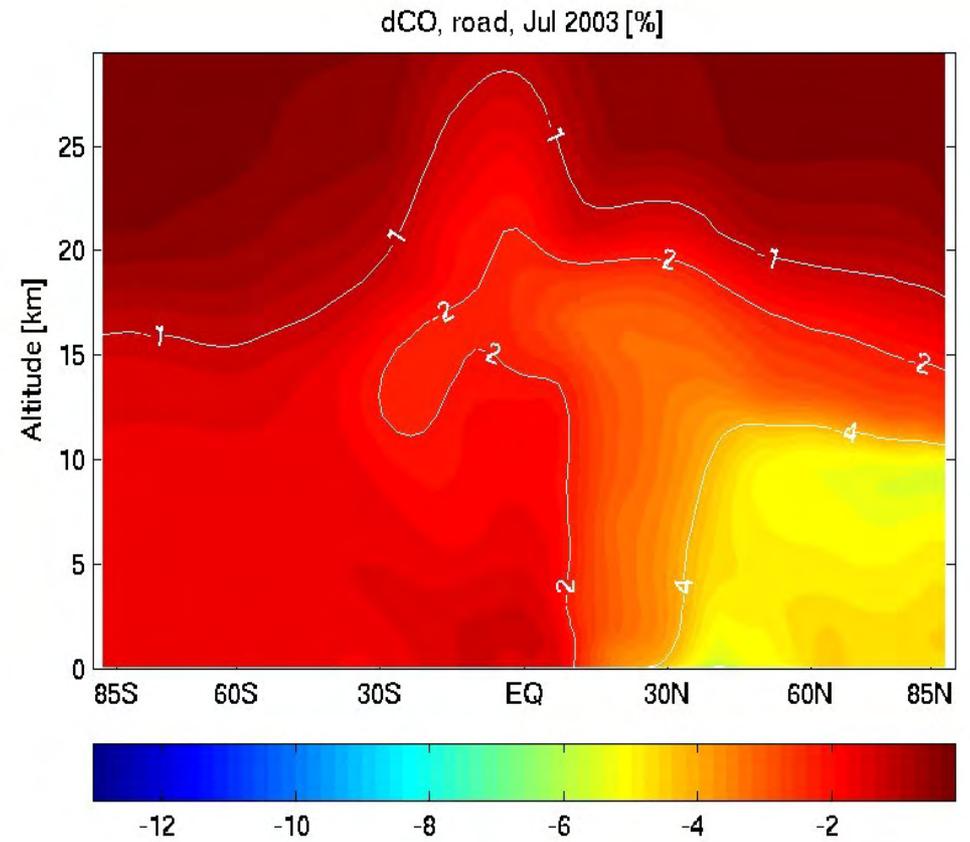


UiO

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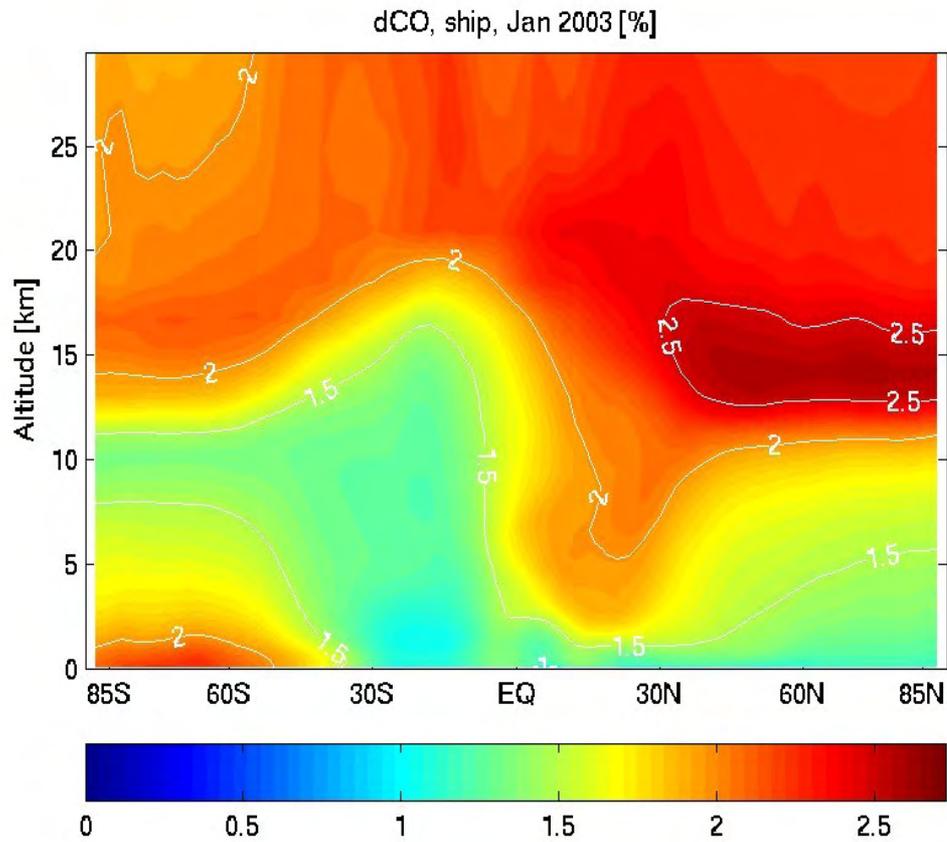


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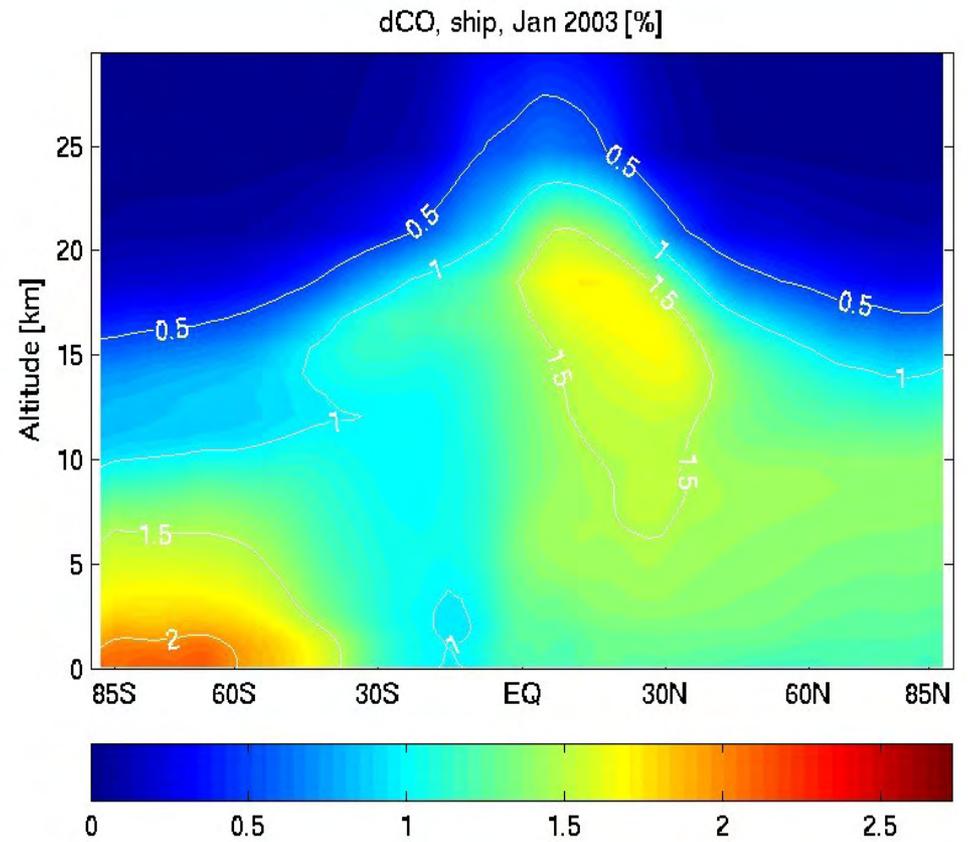


UiO

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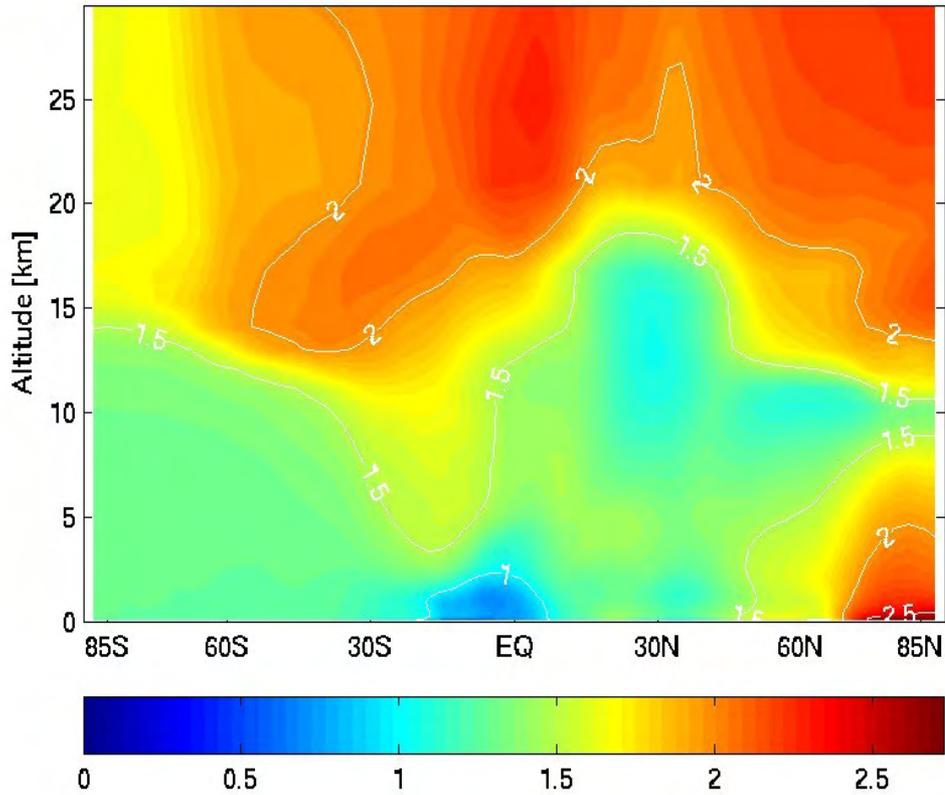
UCI



UiO

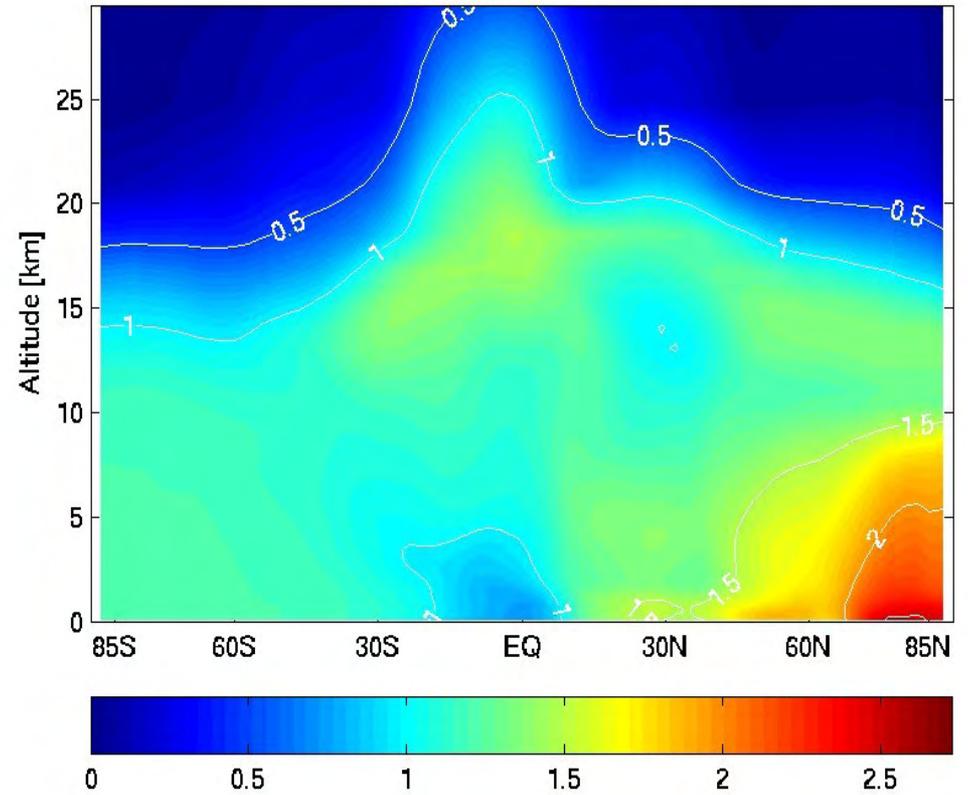
dCO, SHIP in Jul.

dCO, ship, Jul 2003 [%]



UCI

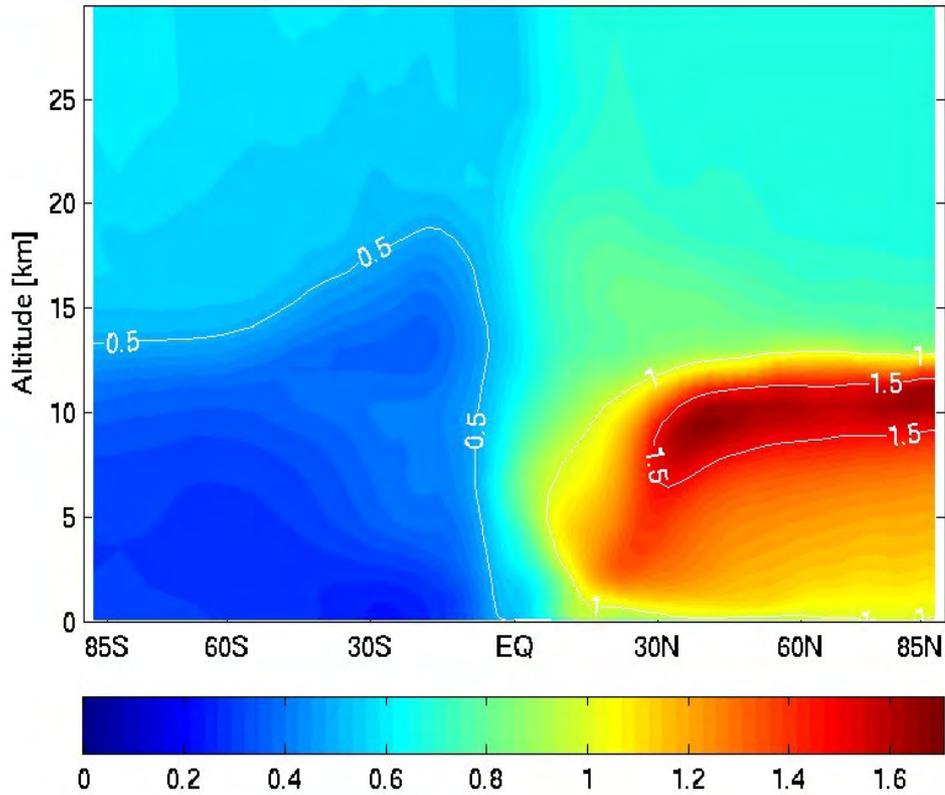
dCO, ship, Jul 2003 [%]



UiO

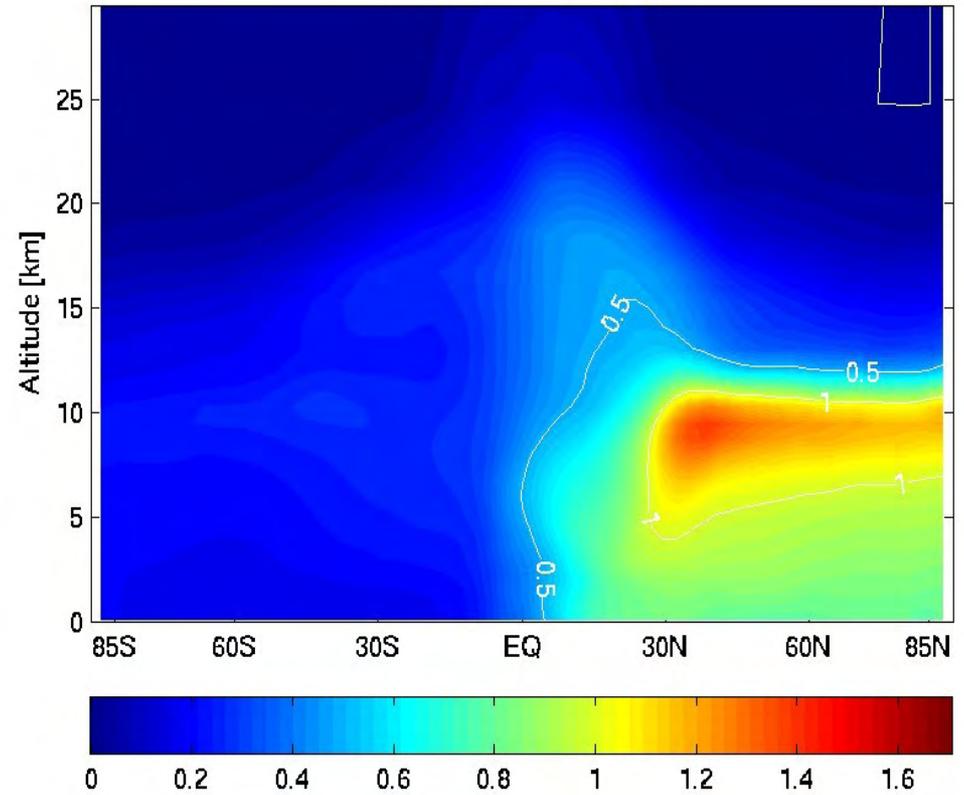
dCO, AIR in Jan.

dCO, air, Jan 2003 [%]



UCI

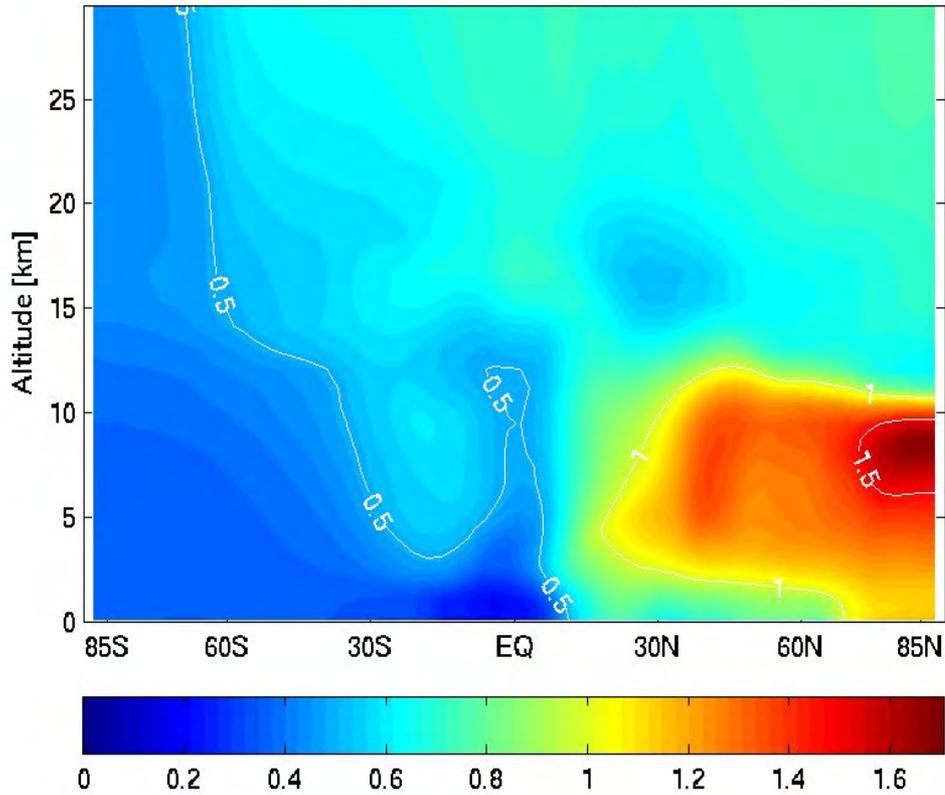
dCO, air, Jan 2003 [%]



UiO

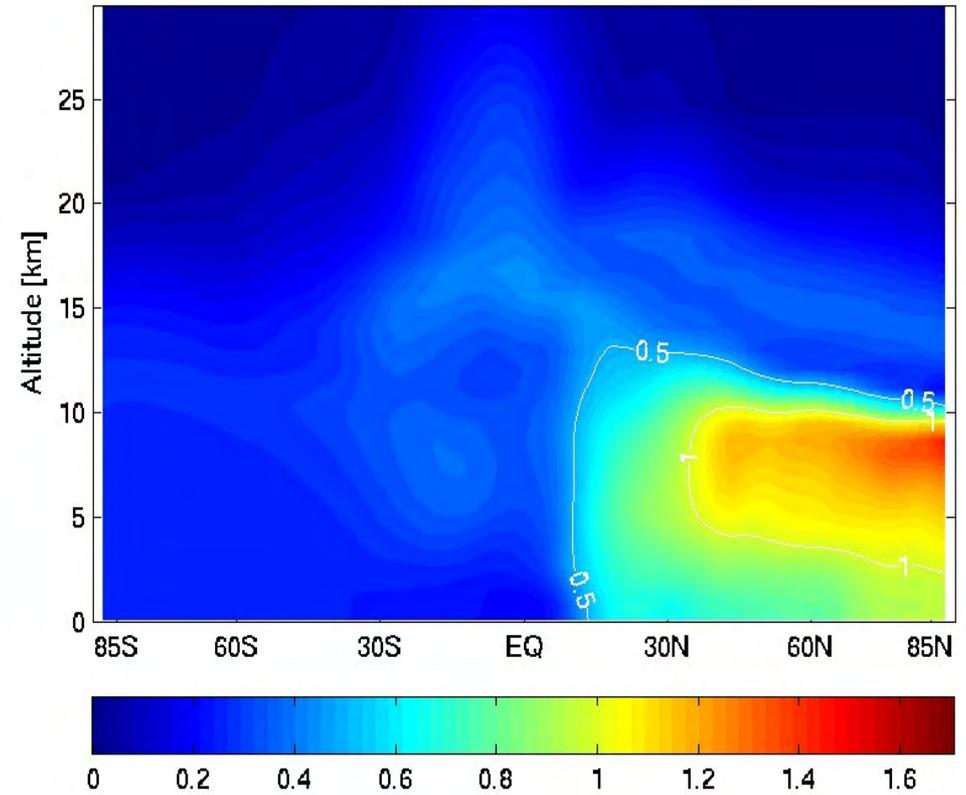
dCO, AIR in Jul.

dCO, air, Jul 2003 [%]



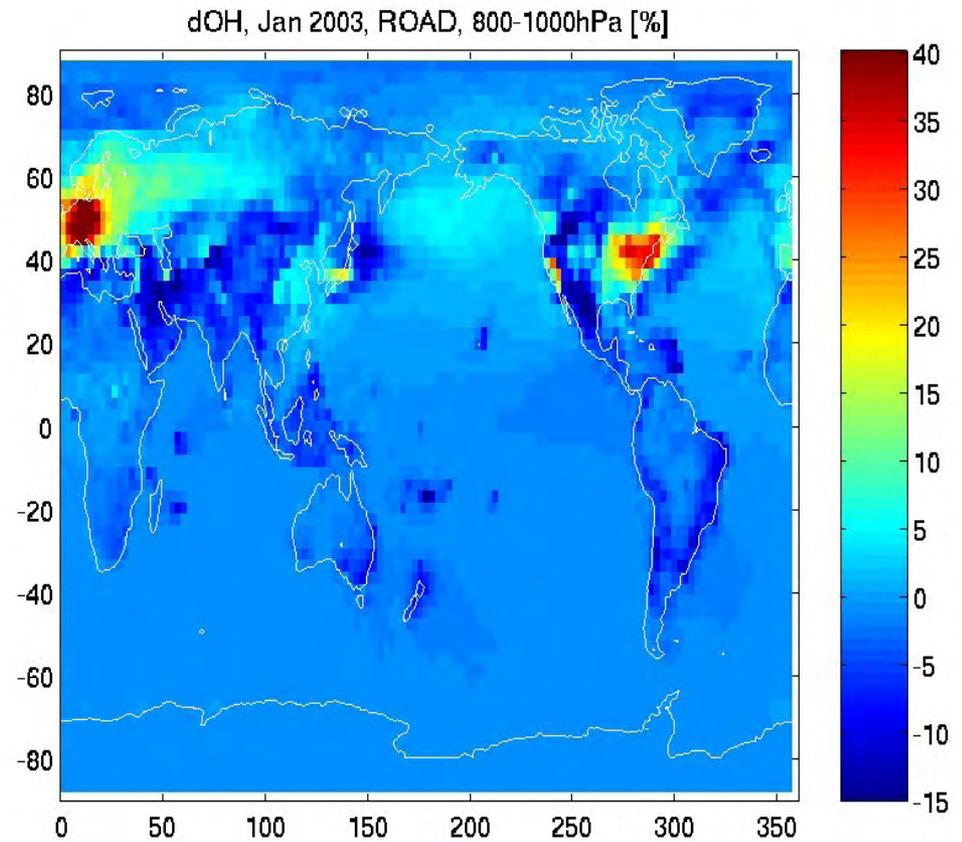
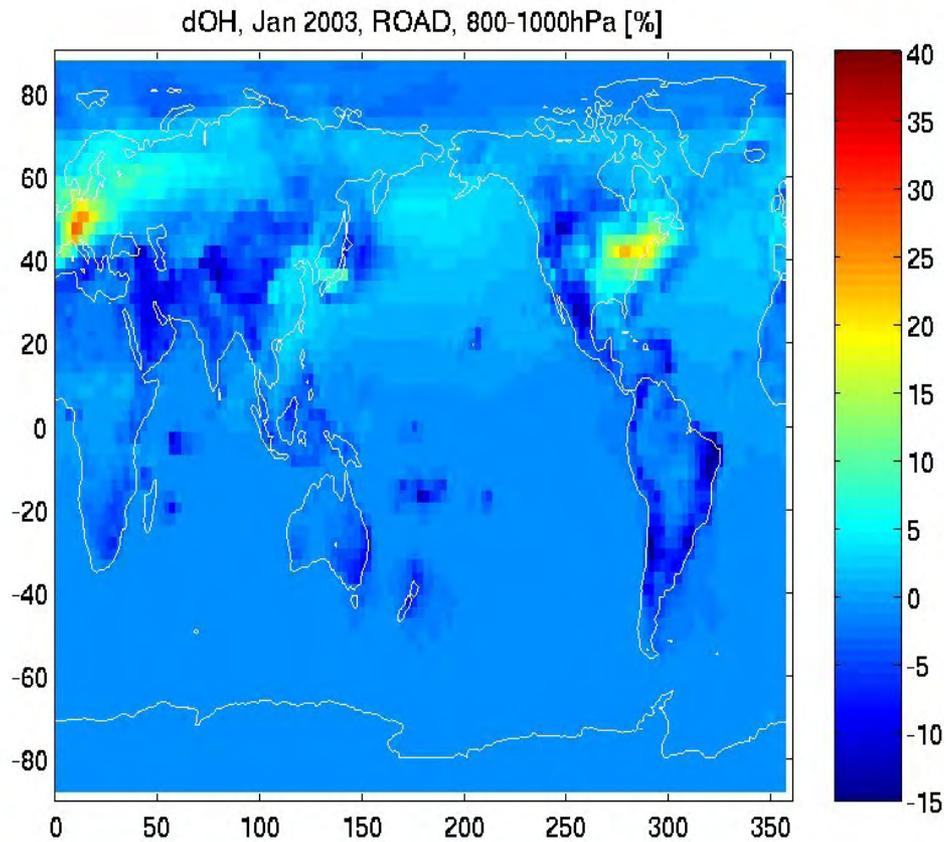
UCI

dCO, air, Jul 2003 [%]



UiO

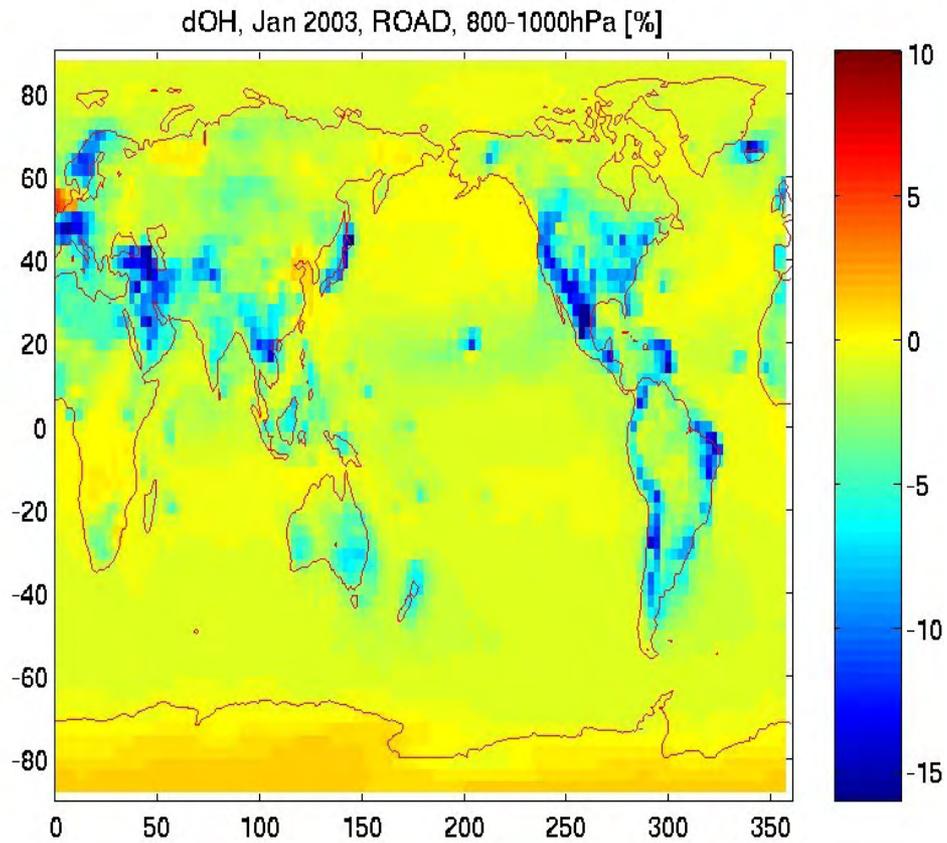
dOH, ROAD in Jan.



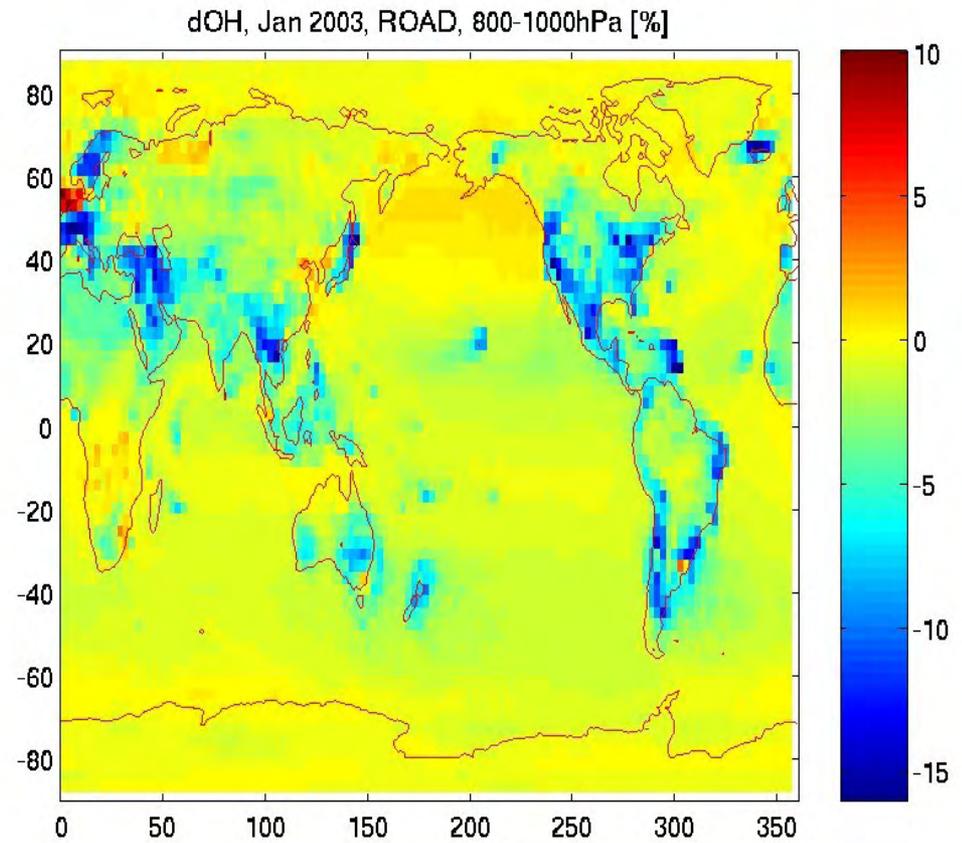
UCI

UiO

dOH, ROAD in Jul.

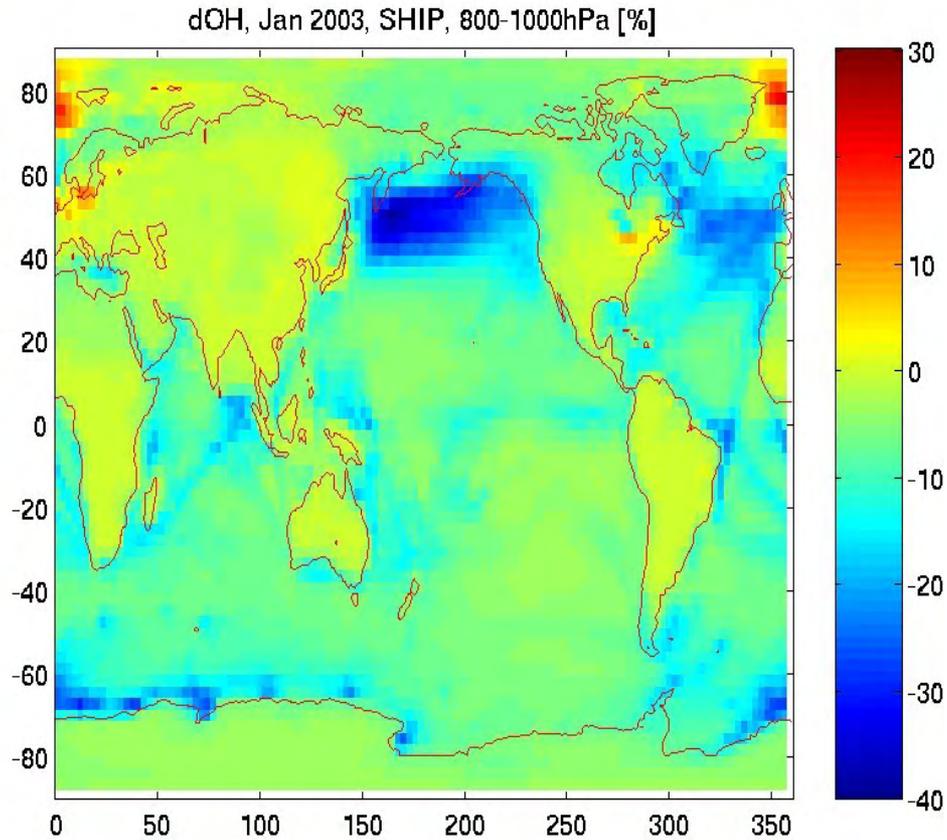


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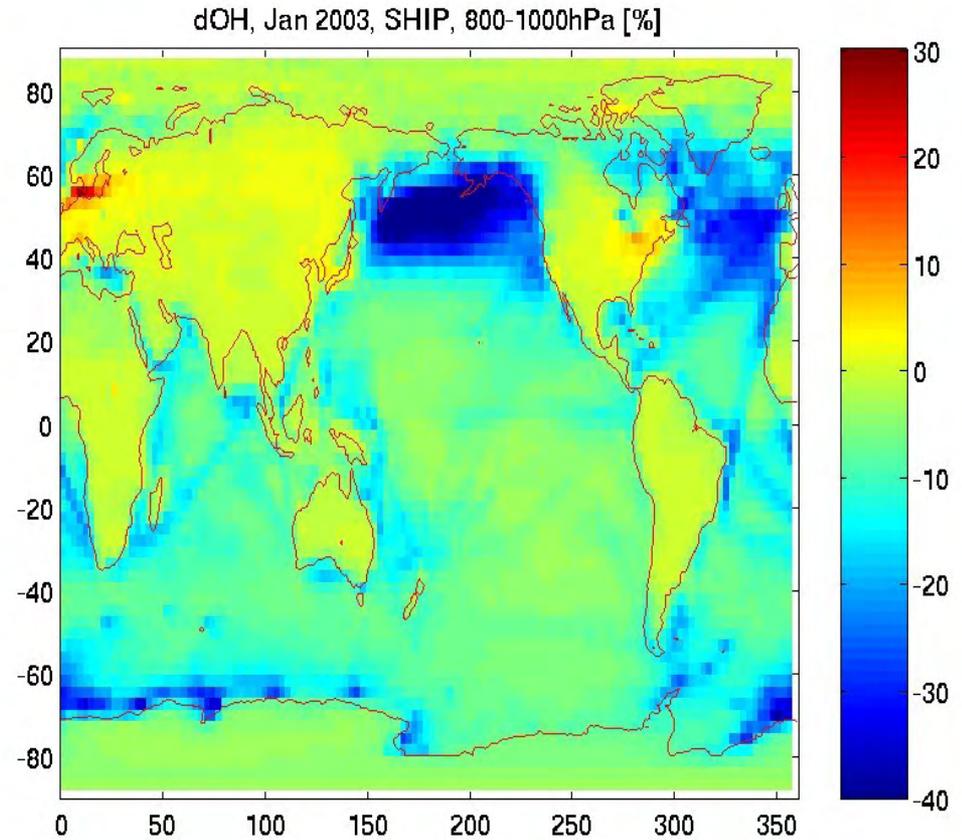


UiO

dOH, SHIP in Jan.

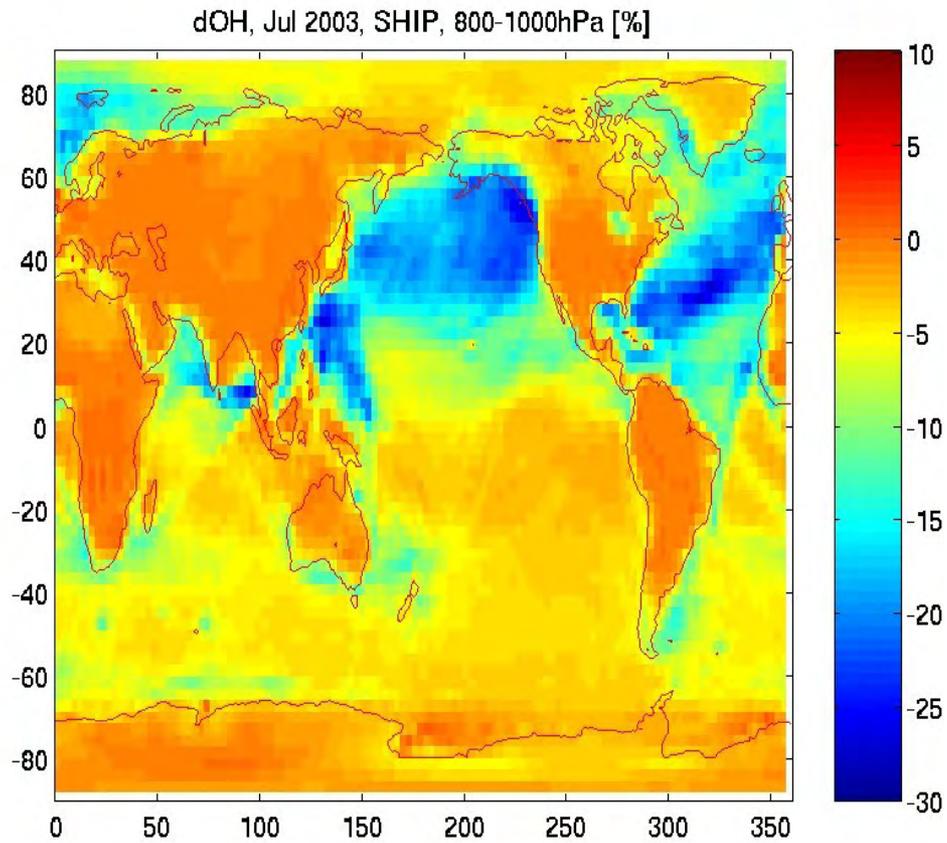


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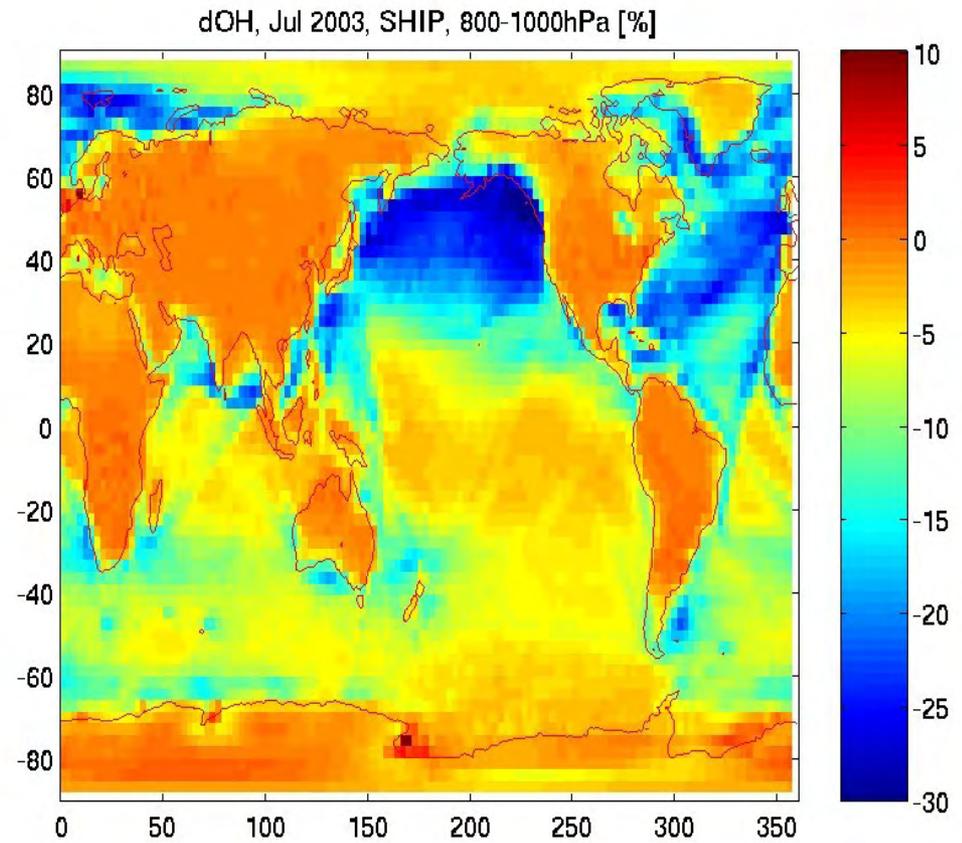


UiO

dOH, SHIP in Jul.

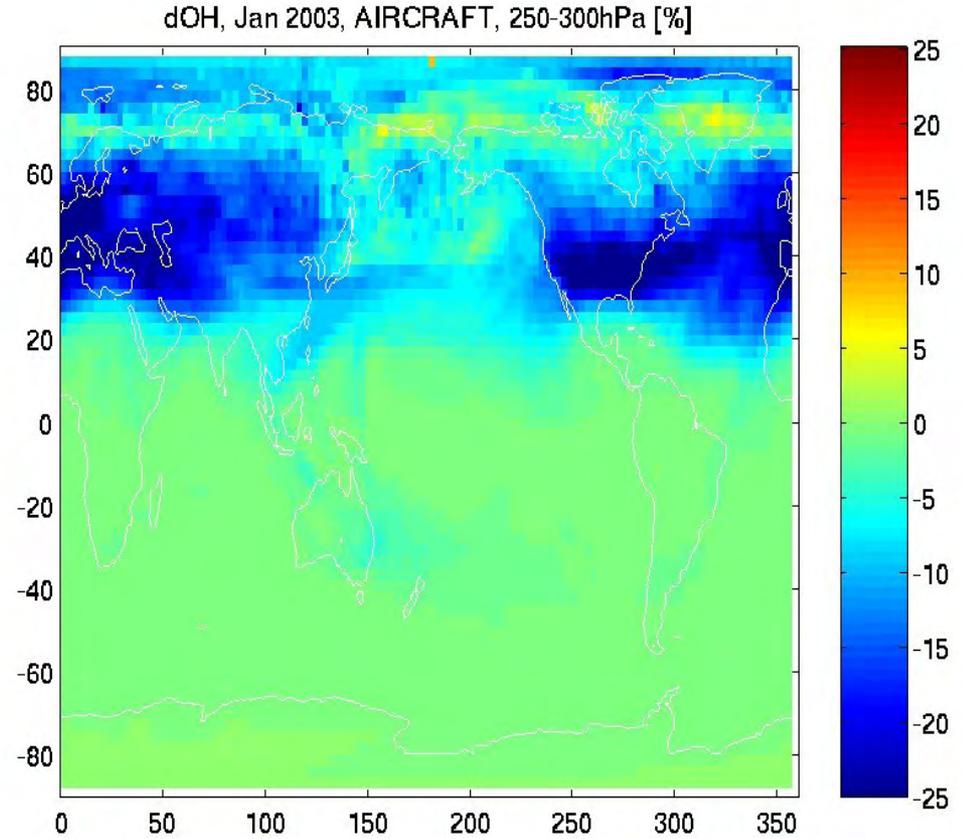
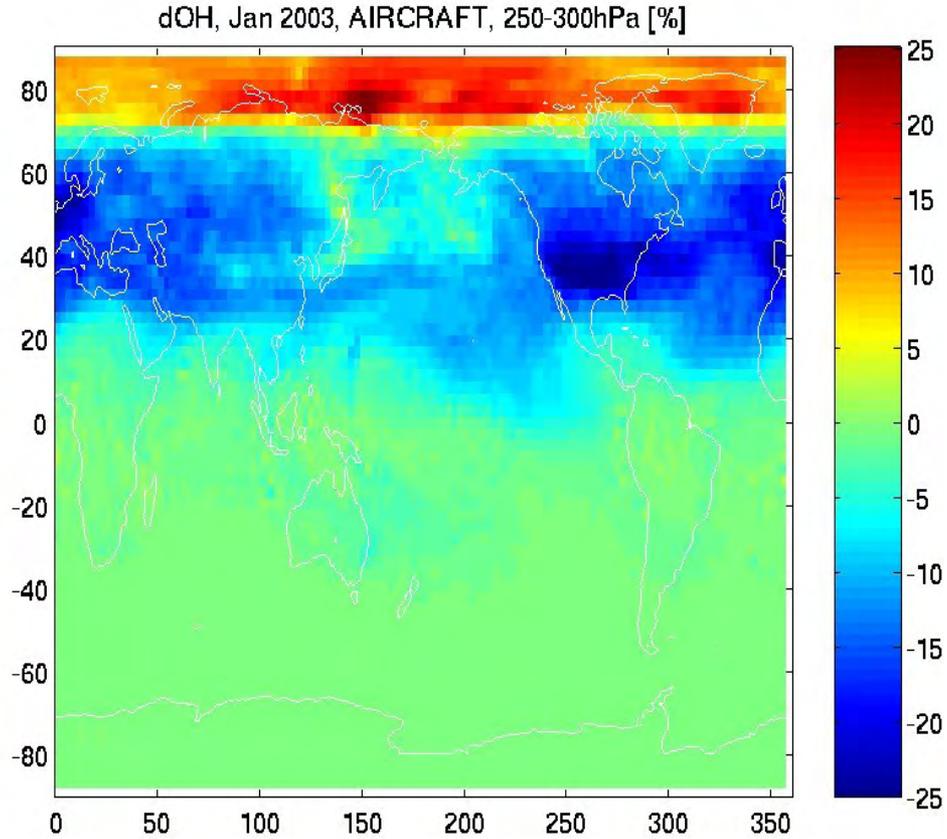


UCI



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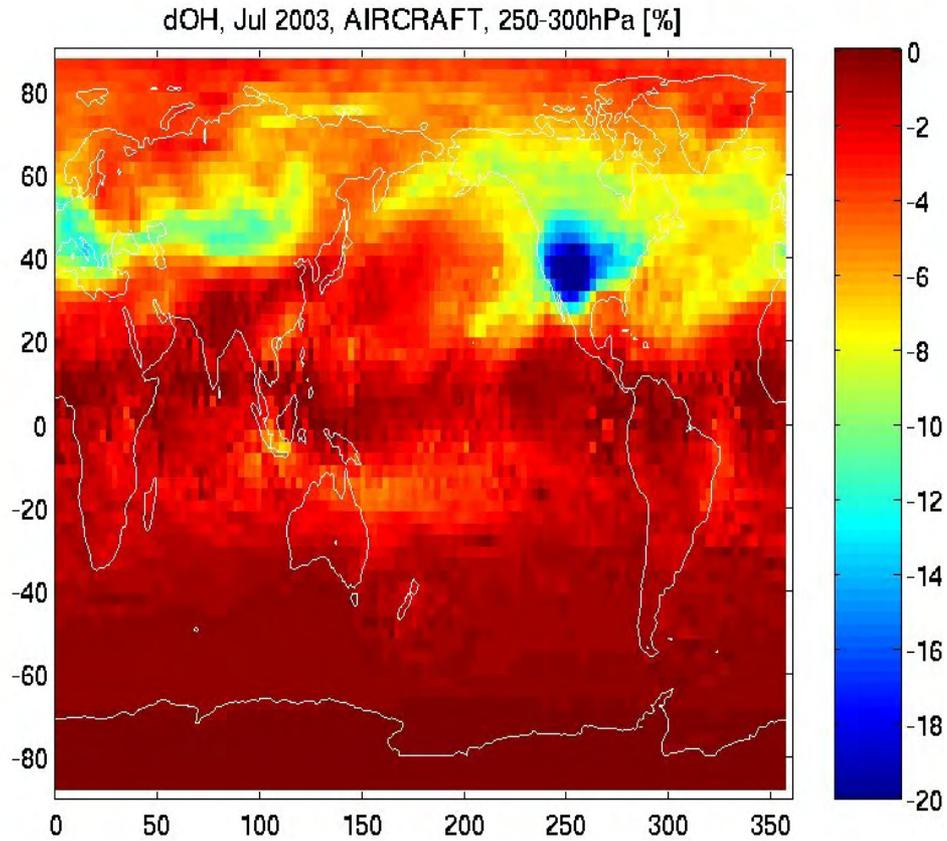
dOH, AIR in Jan.



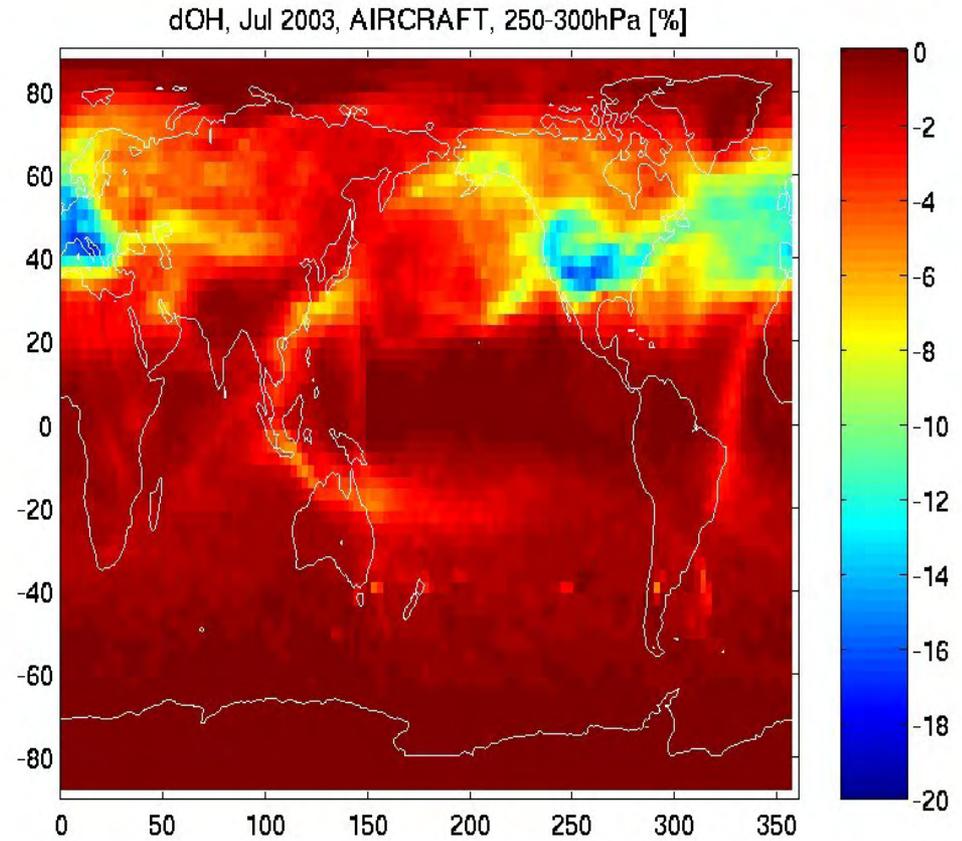
UCI

UiO

dOH, AIR in Jul.



UCI



UiO

Conclusions

- Tropical tropospheric O₃ concentration is ~20% less in UCI CTM than in Oslo CTM2 (maybe due to scavenging).
- Dark chemistry over North Pole need better understanding.