WACCM6 discussion

WACCM4 was improved substantially for CCMI

- new hetereogenous chemistry

- retuned GW parameterization

- elimination of SH cold bias

- best WACCM simulation of O_3 hole evolution

- realistic SSW climatology

WACCM6 builds on WACCM4

1° horizontal resolution + new physics:

- boundary layer
- convection (CLUBB)
- interactive aerosols (MAM)
- orographic GW parameterization (J. Bacmeister)
- turbulent mountain stress (TMS)

items in red have potential major impacts on dynamical and chemical climatology—require careful evaluation

Supported versions of WACCM6

- the official version of WACCM6 will run at 1° horizontal resolution, with full CCMI chemistry (TSMLT)

Other possibilities?

- same as above with MA chemistry (less expensive to run)

- increased vertical resolution (110L vs 70L) at 1° horizontal resolution (for internally-generated QBO)

- 2° horizontal resolution (for very long simulations; e.g, last millenium runs)
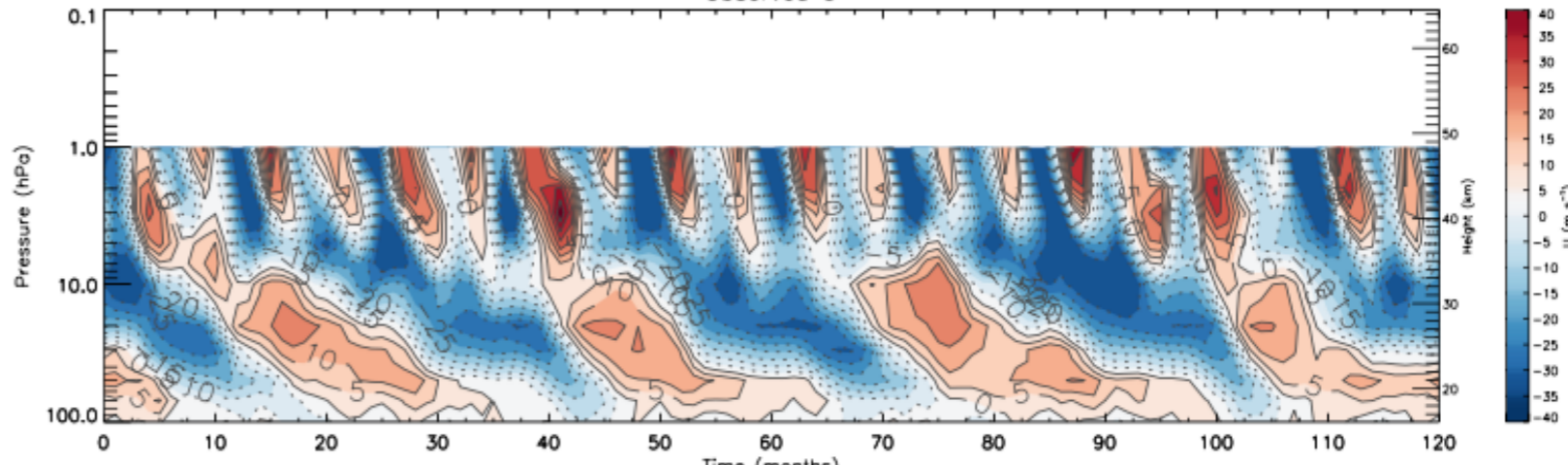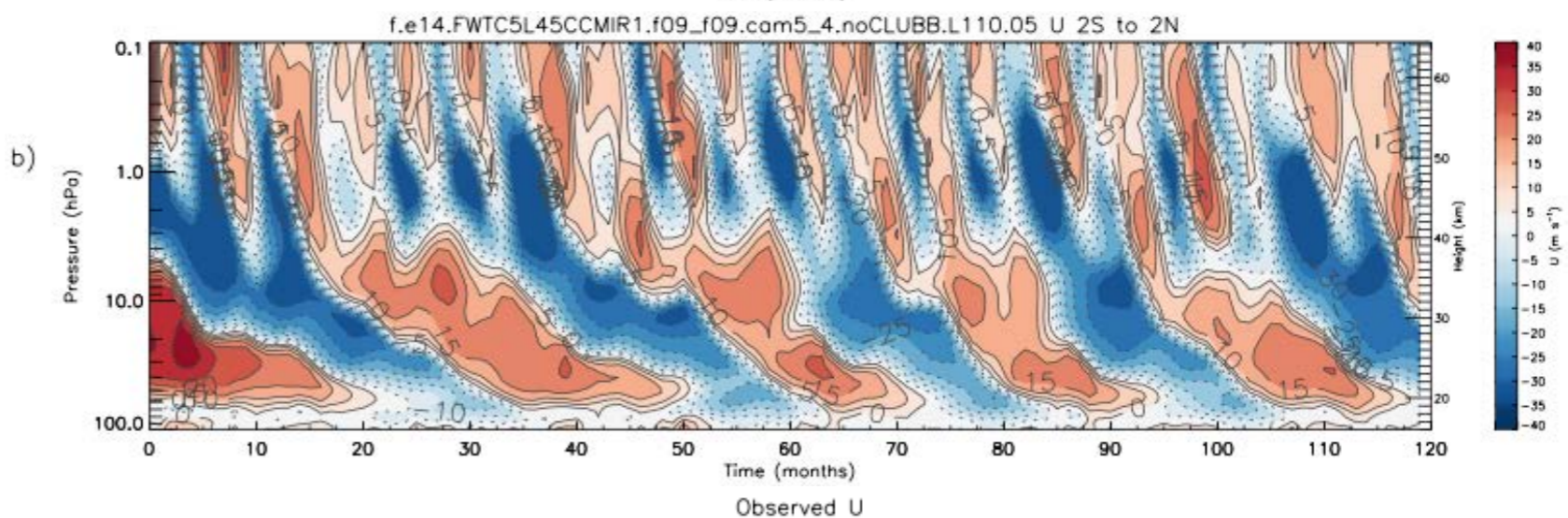
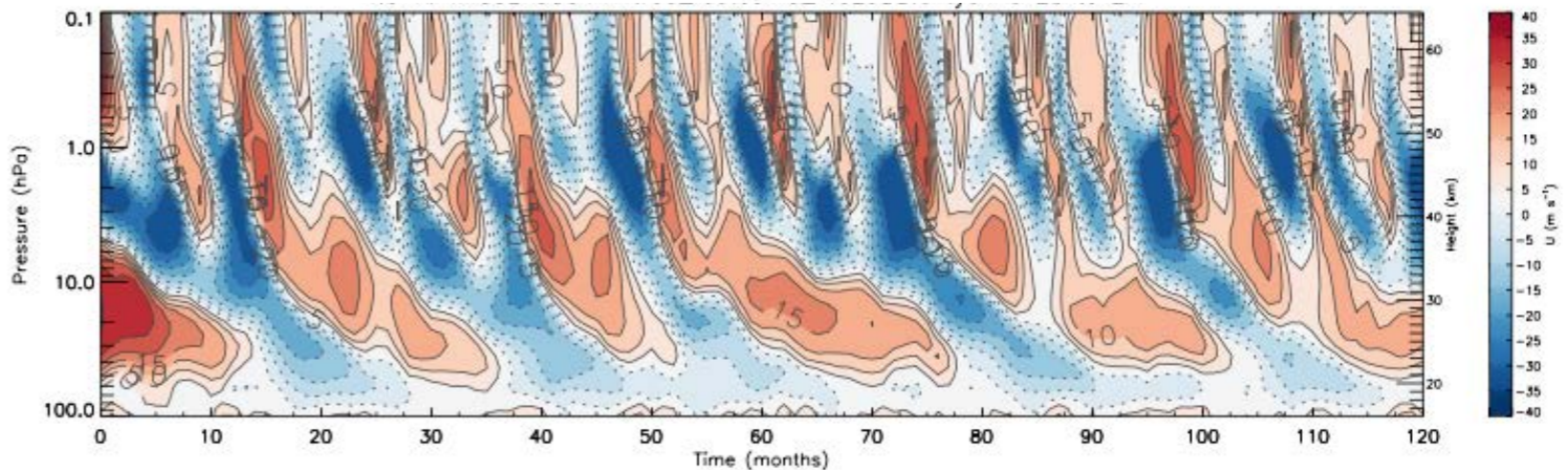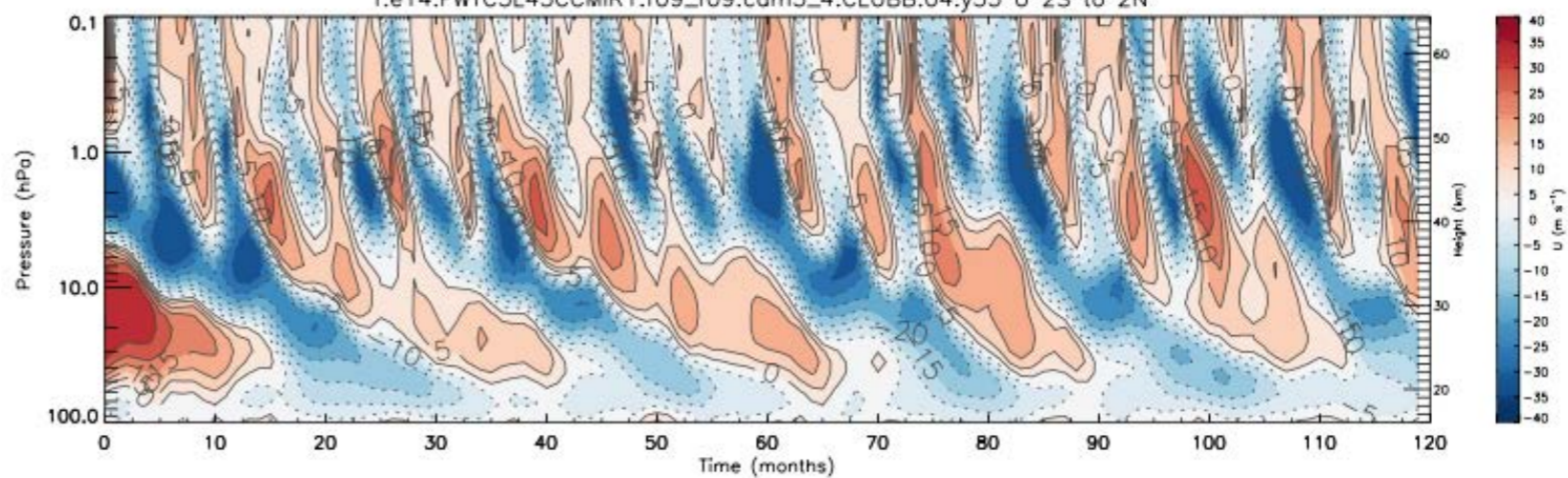# internally-generated QBO

WACCM6 performance: QBO

better

70L CLUBB

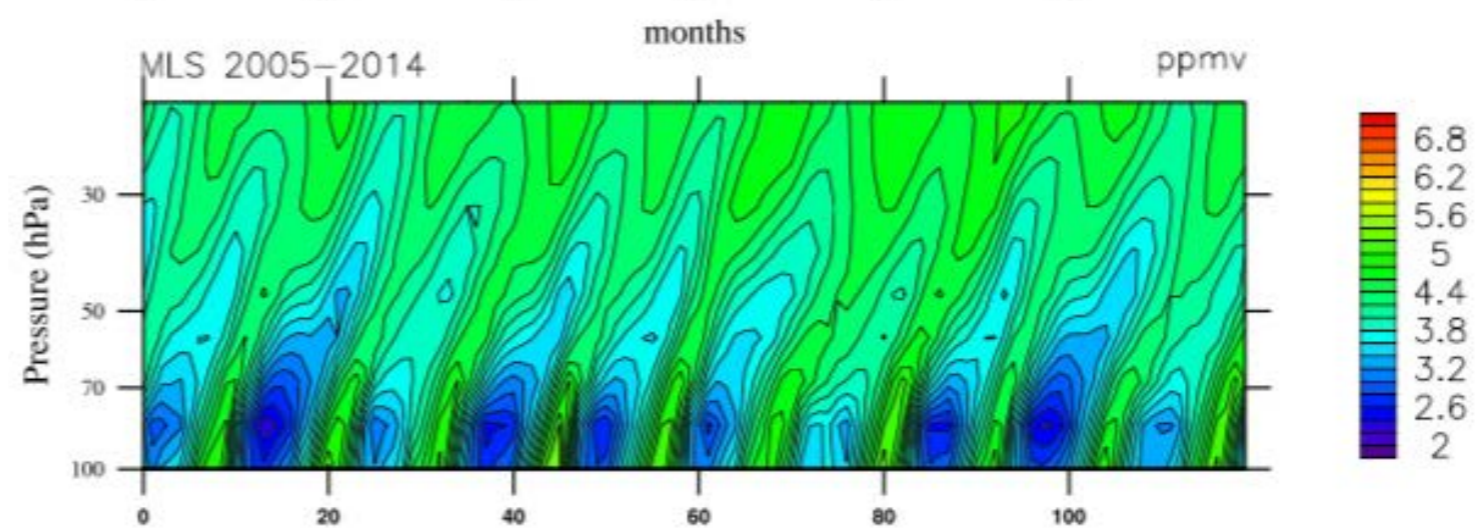70L noCLUBB

110L noCLUBB
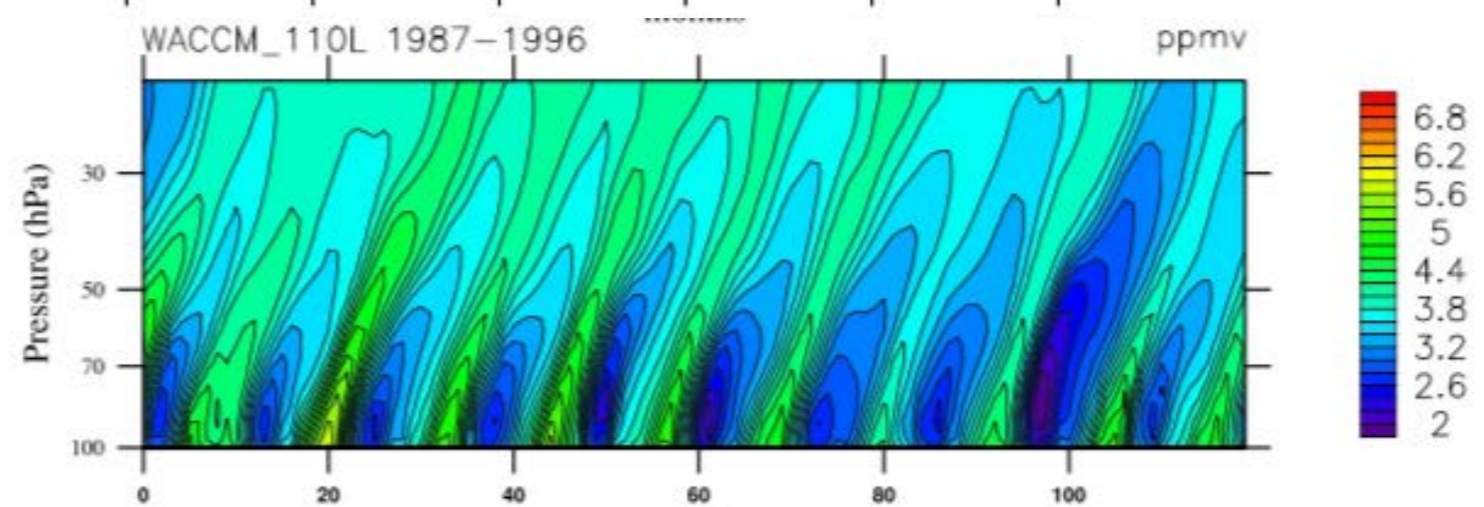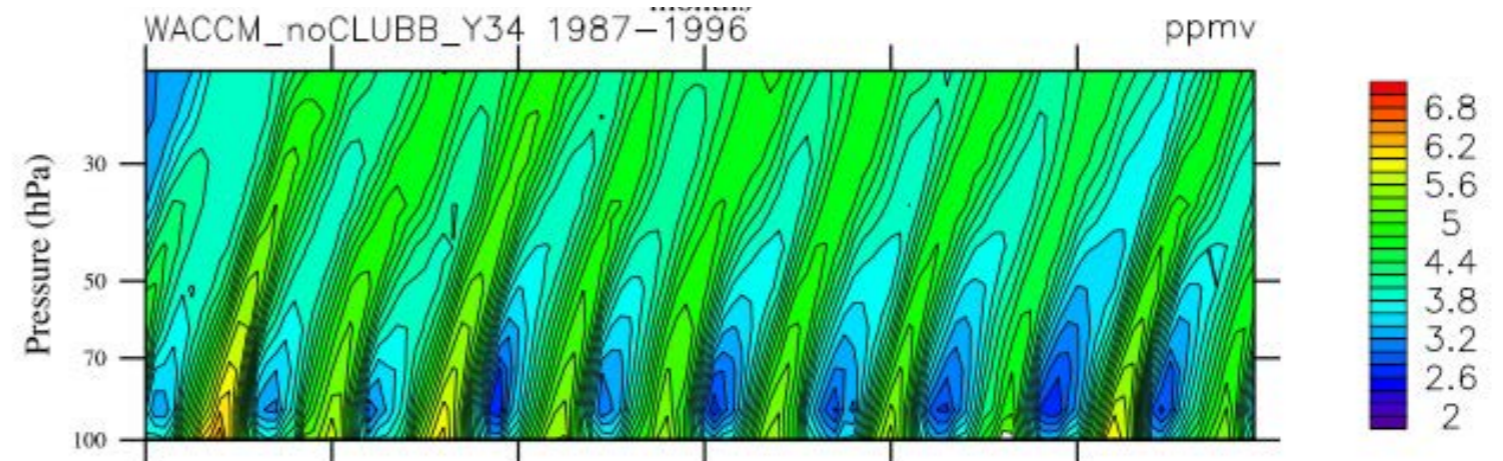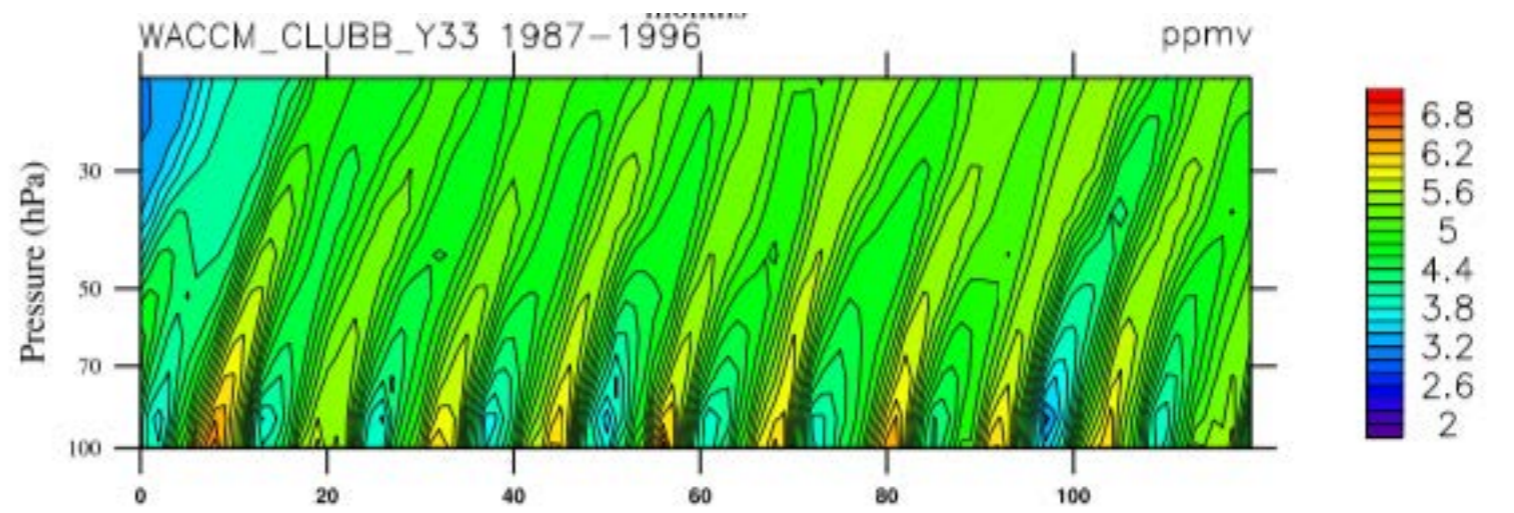
ERA-I

WACCM6 performance: tropical tape recorder

70L CLUBB

better

70L noCLUBB

110L noCLUBB

MLS

1° vs. 2° horizontal resolution sample costs:

resolution	nodes	sim yr / day	pe-hr /sim yr
2°	14	3.2	1680
2°	34	6.4	2040
1°	61	2.7	9000
1°	386	8.1	18000

1° and 2°, 70L, both with MA chemistry
1° cases with MAM3