

A sample list of relevant papers for discussion in ATM 525

Review/Overview Articles

- Hartley D. E., J. T. Villarin¹, R. X. Black and C. A. Davis, 2013: A new perspective on the dynamical link between the stratosphere and troposphere. *Nature*, **391**, 471-474 doi:10.1038/35112
- Haynes, P., 2005: Stratospheric dynamics. *Annual Review of Fluid Mechanics*, **37**, 263-293.
- Holton, J. R. et al., 1995: Stratosphere-troposphere exchange. *Rev. of Geophys.*, **33**, 403-439.
- Gerber, E. P., et al., 2012: Assessing and understanding the impact of stratospheric dynamics and variability on the Earth system. *Bull. Amer. Meteor. Soc.* <http://dx.doi.org/10.1175/BAMS-D-11-00145.1>
- Plumb, R. A., 2007: Trace interrelationships in the stratosphere. *Rev. of Geophys.*, **45**, RG4005.
- Shepherd, T. G., 2007: Transport in the middle atmosphere. *J. Meteorol. Soc. Japan*, **85B**, 165-191.
- Shepherd, T. G., 2002: Issues in Stratosphere-Troposphere Coupling. *J. Meteorol. Soc. Japan*, **80**, 769-792.
- Tripathi, O. P., Baldwin, M., Charlton-Perez, A., Charron, M., Eckermann, S. D., Gerber, E., Harrison, R. G., Jackson, D. R., Kim, B.-M., Kuroda, Y., Lang, A., Mahmood, S., Mizuta, R., Roff, G., Sigmond, M. and Son, S.-W. (2015), The predictability of the extratropical stratosphere on monthly time-scales and its impact on the skill of tropospheric forecasts. *Q.J.R. Meteorol. Soc.*, **141**: 987–1003. doi: 10.1002/qj.2432
- Waugh, D.W. and L.M. Polvani, 2010: Stratospheric polar vortices, *The Stratosphere: Dynamics, Chemistry, and Transport*, Geophys. Monogr. Ser., **190**, , edited by L. M. Polvani, A. H. Sobel, and D. W. Waugh, pp. 43–57, AGU, Washington, D. C. (2010)

Wave Dynamics

- Charney, J. G., and P. G. Drazin, 1961: Propagation of planetary-scale disturbances from the lower into the upper atmosphere, *J. Geophys. Res.*, **66**(1), 83–109.
- Haynes, P. H., et al. 1991: On the “Downward Control” of extratropical diabatic circulations by eddy-induced mean zonal forces. *J. Atm. Sci.* **48**, 651-678.

Brewer-Dobson Circulation

- Brewer, A. W., 1949: Evidence for a world circulation provided by the measurements of helium and water vapour distribution in the stratosphere. *Quart. J. Roy. Meteor. Soc.*, **75**, 351-363.
- Dobson, G. M. B., 1956: Origin and distribution of polyatomic molecules in the atmosphere. *Proc. Roy. Soc. London*, **A236**, 187-193.

Stratosphere-Troposphere Exchange

- Danielsen, E. F., 1968: Stratospheric-tropospheric exchanged based on radioactivity, ozone, and potential vorticity. *J. Atmos. Sci.* **25**, 502-518.
- Stohl, A., H. Wernli, P. James, M. Bourqui, C. Forster, M. Liniger, P. Seibert, and M. Sprenger, 2003: A new perspective of stratosphere-troposphere exchange. *Bull. Amer. Meteor. Soc.*, **84**, 1565-1573.
- Reutter, P., Škerlak, B., Sprenger, M., and Wernli, H.: Stratosphere–troposphere exchange (STE) in the vicinity of North Atlantic cyclones, *Atmos. Chem. Phys. Discuss.*, **15**, 2535-2575, doi:10.5194/acpd-15-2535-2015, 2015.

Quasi-Biannual Oscillation (QBO)

- Reed, R. J., W. J. Campbell, L. A. Rasmussen, and D. G. Rogers, 1961: Evidence of a downward-propagating annual wind reversal in the equatorial stratosphere. *J. Geophys. Res.*, **66**, 813-818.
- Veryard, R. G., R. A. Ebdon, 1961: Fluctuations in tropical stratospheric winds. *The Meteorological Magazine*, **90**, 125-143., **90**, 125-143.
- Plumb, R. A., 1977: Interaction of two internal waves with the mean flow, implications for the theory of the quasi-biennial oscillation. *J. Atmos. Sci.*, **34**, 1847-1858.
- Baldwin, M.P., L.J. Gray, T.J. Dunkerton, K. Hamilton, P.H. Haynes, W.J. Randel, J.R. Holton, M.J. Alexander, I. Hirota, T. Horinouchi, D.B.A. Jones, J.S. Kinnarsley, C. Marquardt, K. Sato, and M. Takahashi, 2001: The quasi-biennial oscillation. *Rev. Geophys.* **39**, 179-229.

QBO links to other phenomena

- Holton, J. R., H. Tan, 1980: Influence of the equatorial quasi-biennial oscillation on the global circulation at 50 mb. *J. Atmos. Sci.*, 37, 2200-2208.
- Son, S., Y. Lim, C. Yoo, H.H. Hendon, and J. Kim, 2017: Stratospheric Control of the Madden–Julian Oscillation. *J. Climate*, 30, 1909–1922, <https://doi.org/10.1175/JCLI-D-16-0620.1>
- Garfinkel, C. I., S. B. Feldstein, D. W. Waugh, C. Yoo, and S. Lee, 2012: Observed connection between stratospheric sudden warmings and the Madden–Julian oscillation. *Geophys. Res. Lett.*, 39, L18807, doi:<https://doi.org/10.1029/2012GL053144>.
- Scaife, A. A., and Coauthors, 2014: Predictability of the quasi-biennial oscillation and its northern winter teleconnection on seasonal to decadal timescales. *Geophys. Res. Lett.*, 41, 1752–1758,

Ozone and Climate

- M. Previdi and L.M. Polvani, 2014: Climate System Response to Stratospheric Ozone Depletion and Recovery, *Quart. J. Roy. Meteor. Soc.*, 140, 2401-2419
- K.M. Grise, S.-W. Son, G.P.J. Correa and L.M. Polvani, 2014: The response of mid-latitude storms in the Southern Hemisphere to stratospheric ozone depletion in the 20th Century, *Atmos. Sci. Lett.*, 15, 29-36
- Polvani, Lorenzo M., D. W. Waugh, G. J. P. Correa, S.-W. Son, 2011: Stratospheric Ozone Depletion: The Main Driver of Twentieth-Century Atmospheric Circulation Changes in the Southern Hemisphere. *J. Climate*, 24, 795–812.
- Wu, Y. and L.M. Polvani and R. Seager ,2013: The importance of the Montreal Protocol in protecting the earth's hydroclimate, *J. Climate*, 26, 4049-4068, doi:10.1175/JCLI-D-12-00675.1

SSW, Arctic Oscillation, stratosphere circulation and tropospheric weather

- Baldwin, M. P., and T. J. Dunkerton, 1999: Propagation of the Arctic Oscillation from the stratosphere to the troposphere. *J. Geophys. Res.*, 104, 30,937-30,946.
- Baldwin, M. P., and T. J. Dunkerton, 2001: Stratospheric harbingers of anomalous weather regimes. *Science*, 294, 581-584.
- Baldwin, M. P., D. B. Stephenson, D. W. J. Thompson, T. J. Dunkerton, A. J. Charlton, and A. O'Neill, 2003: Stratospheric memory and extended-range weather forecasts. *Science*, 301, 636-640.
- Butler, A. H., D. J. Seidel, S. C. Hardiman, N. Butchart, T. Birner, and A. Match, 2015: Defining sudden stratospheric warmings. *Bull. Amer. Meteor. Soc.* doi: <http://dx.doi.org/10.1175/BAMS-D-13-00173.1>
- Charlton A. J., and L. M. Polvani, 2007: A new look at stratospheric sudden warmings. Part I. Climatology and modeling benchmarks. *J. Climate*, 20, 449-469.
- Cohen, J., M. Barlow, P. Kushner, and K. Saito, 2007: Stratosphere-Troposphere coupling and links with Eurasian Land-Surface Variability. *J. Climate*, 20, 5335–5343.
- Cohen, Judah, Justin Jones, 2011: Tropospheric precursors and stratospheric warmings. *J. Climate*, 24, 6562–6572.
- Garfinkel, C. I., D. L. Hartmann, and F. Sassi, 2010: Tropospheric precursors of anomalous Northern Hemisphere stratospheric polar vortices. *J. Climate*, 23, 3282-3299.
- Ineson, S., and A. A. Scaife, 2009: The role of the stratosphere in the European climate response to El Niño. *Nature Geosci.*, 2, 32-36.
- Kidston, J., A. A. Scaife, S. C. Hardiman, D. M. Mitchell, N. Butchart, M. P. Baldwin and L. J. Gray, 2015: Stratospheric influence on tropospheric jet streams, storm tracks and surface weather. *Nature Geoscience* 8, 433–440. doi:10.1038/ngeo2424
- Martius, O., L. M. Polvani, and H. C. Davies, 2009: Blocking pre- cursors to stratospheric sudden warming events. *Geophys. Res. Lett.*, 36, L14806.
- Matsuno, T., 1970: Vertical propagation of stationary planetary waves in the winter Northern Hemisphere. *J. Atmos. Sci.*, 27, 871-883.
- Polvani, L. M., and D. W. Waugh, 2004: Upward wave activity flux as precursor to extreme stratospheric events and subsequent anomalous surface weather regimes. *J. Climate*, 17, 3548-3554.