

Publications by Murry L Salby

Open Literature:

- **Salby M.L.**, 1978: Radio meteor wind analysis using finite element approximation. *J. Atm. Terr. Phys.*, 40, 636–656.
- **Salby M.L.**, 1979: On the solution of the homogeneous vertical structure problem for long-period oscillations. *J. Atmos. Sci.*, 36, 2350–2359.
- **Salby M.L.**, 1980: Global-scale disturbances and dynamic similarity. *J. Atmos. Sci.*, 37, 473–478.
- **Salby M.L.**, and R. G. Roper, 1980: Long-period oscillations in the meteor region. *J. Atm. Sci.*, 37, 237–244.
- **Salby M.L.**, 1980: An energy equivalent for viscous dissipation of atmospheric disturbances. *Can. J. Physics*, 58, 405–411.
- **Salby M.L.**, 1980: The influence of realistic dissipation on planetary normal structures. *J. Atm. Sci.*, 37, 2186–2199.
- **Salby M.L.**, 1981: Rossby normal modes in nonuniform background configurations. Part I: Simple fields. *J. Atm. Sci.*, 38, 1803–1826.
- **Salby M.L.**, 1981: Rossby normal modes in nonuniform background configurations. Part II: Equinox and solstice conditions. *J. Atmos. Sci.*, 38, 1827–1840.
- **Salby M.L.**, 1981: The 2-day wave in the middle atmosphere: Observations and theory. *J. Geophys. Res.*, 86, 9654–9660.
- **Salby M.L.**, 1981: Optimal determination of geopotential base height for stratospheric temperature sounders. *Pageoph.*, 119, 711–725.
- **Salby M.L.**, 1982: Sampling theory for asynoptic satellite observations. Part I: Spectra, resolution, and aliasing. *J. Atm. Sci.*, 39, 2577–2600.
- **Salby M.L.**, 1982: Sampling theory for asynoptic satellite observations. Part II: Fast Fourier synoptic mapping. *J. Atm. Sci.*, 39, 2601–2614.
- **Salby M.L.**, 1982: A ubiquitous wave 5 anomaly in the Southern hemisphere during FGGE. *Mon. Wea. Rev.*, 110, 1712–1720.
- **Salby M.L.**, Hartmann, D., Bailey, P., and J. Gille, 1984: Evidence for equatorial Kelvin waves in Nimbus-7 LIMS. *J. Atm. Sci.*, 41, 220–235.
- **Salby M.L.**, 1984: Survey of planetary-scale traveling waves: The state of theory and observations. *Rev. Geophys. Space Phys.*, 22, 209–236. (Invited review).

- **Salby M.L.**, 1984: Transient disturbances in the stratosphere: Implications for theory and observing systems. *J. Atm. Terr. Phys.*, 46, 1009–1047.
- **Salby M.L.**, and Y. Hayashi, 1985: On the uniqueness of space-time spectra and synoptic maps derived from polar-orbiting satellite data. *J. Meteor. Soc. Japan*, 63, 1067–1070.
- **Salby M.L.**, and R. Garcia, 1987: Transient response to localized episodic heating in the tropics. Part I: Excitation and short-time near-field behavior. *J. Atm. Sci.*, 44, 458–498.
- Garcia, R., and **Salby, M.L.**, 1987: Transient response to localized episodic heating in the tropics. Part II: Far-field behavior. *J. Atmos. Sci.*, 44, 499–530.
- **Salby M.L.**, and R. Garcia, 1987: Vacillations induced by interference of stationary and traveling planetary waves. *J. Atmos. Sci.*, 44, 2679–2711.
- **Salby M.L.** 1987: Vacillations induced by interference of stationary and traveling planetary waves. *Transport Processes in the Middle Atmosphere*. Reidel, Dordrecht. G. Visconti and R. Garcia, eds., 353–370.
- **Salby M.L.**, 1987: Irregular and diurnal variability in asynoptic measurements of stratospheric trace species. *Transport Processes in the Middle Atmosphere*. Reidel, Dordrecht. G. Visconti and R. Garcia, eds., 423–438.
- **Salby M.L.**, 1987: Irregular and diurnal variability in asynoptic measurements of stratospheric trace species. *J. Geophys. Res.*, 92, 14781–14805.
- **Salby M.L.**, 1988: Asynoptic sampling considerations for wide-field-of-view measurements of outgoing radiation. Part I: Spatial and temporal resolution. *J. Atm. Sci.*, 45, 1176–1183.
- **Salby M.L.**, 1988: Asynoptic sampling considerations for wide-field-of view measurements of outgoing radiation. Part II: Diurnal and random space-time variability. *J. Atm. Sci.*, 45, 1184–1204.
- **Salby M.L.**, 1989: Deep circulations under simple classes of stratification. *Tellus*, 41A, 48–65.
- **Salby M.L.**, 1989: Climate monitoring from space: Asynoptic sampling considerations. *J. Climate*, 2, 1091–1105, (Invited).
- O’Sullivan, D. and **Salby, M.L.**, 1990: Coupling of the quasi-biennial oscillation and the extratropical circulation in the stratosphere through planetary wave transport. *J. Atmos. Sci.*, 47, 650–673.
- **Salby M.L.**, R. Garcia, D. O’Sullivan, and J. Tribbia, 1990: Global transport calculations with an equivalent barotropic system. *J. Atmos. Sci.* 47, 188–214.
- **Salby M.L.**, D. O’Sullivan, R. Garcia, and P. Callaghan, 1990: Air motions accompanying the development of a planetary wave critical layer. *J. Atmos. Sci.*, 47, 1179–1204.
- **Salby M.L.**, D. O’Sullivan, R. Garcia, and P. Callaghan, 1990: The inter- action of

horizontal eddy transport and thermal drive in the stratosphere. *J. Atmos. Sci.*, 47, 1647–1665.

- **Salby M.L.**, and R. Garcia, 1990: Dynamical perturbations to the ozone layer. *Physics Today*, 43, 38–46 (cover).
- **Salby M.L.**, P. Callaghan, and S. Solomon, and R. Garcia, 1990: Chemical fluctuations associated with vertically propagating equatorial Kelvin waves. *J. Geophys. Res.*, 95, 20491 – 20505.
- **Salby M.L.**, and R. Garcia, 1990: Dynamical perturbations to the ozone layer. *Parity*, 43, 2–12 (Japanese).
- O’Sullivan, D. and **Salby M.L.**, 1990: Coupling of the quasi-biennial oscillation and the extratropical circulation in the stratosphere through planetary wave transport. *J. Atmos. Sci.*, 47, 650–673.
- **Salby M.L.**, H. Hendon, K. Woodberry, and K. Tanaka, 1991: Analysis of global cloud imagery from multiple satellites. *Bull. Amer. Meteor. Soc.*, 4, 467–479 (cover).
- **Salby M.L.**, and D. Shea, 1991: Correlations between solar activity and the atmosphere: An unphysical explanation. *J. Geophys. Res.*, 96, 22,579–22,595.
- Tanaka, K., K. Woodberry, H. Hendon, and **Salby M.L.**, 1991: Assimilation of global cloud imagery from multiple satellites. *J. Atm. Ocean Tech.*, 8, 613–626.
- Woodberry, K., K. Tanaka, H. Hendon, and **Salby M.L.**, 1991: An interactive system for analyzing global imagery. *J. Atm. Ocean Tech.*, 8, 627–638.
- **Salby M.L.**, 1992: The influence of planetary wave transience on horizontal air motions in the stratosphere. *J. Atmos. Sci.*, 49, 405–421.
- **Salby M.L.**, 1992: The Atmosphere. In *Climate System Modeling*, K. Trenberth Ed., UCAR/EPRI monograph. Cambridge U. Press, 53 – 115.
- **Salby M.L.**, and P. Callaghan, 1993: Fluctuations in total ozone and their relationship to stratospheric air motions. *J. Geophys. Res.*, 98, 2716 2727.
- **Salby M.L.**, and M. Juckes, 1994: An algorithm for retrieving the circulation from satellite measurements of tracer behavior. *J. Geophys. Res.*, 99, 1403-1417.
- **Salby M.L.**, and Hendon, H., 1994: Intraseasonal behavior of clouds, temperature, and motion in the tropics. *J. Atmos. Sci.*, 51, 2207-2224.
- Hendon, H. and **Salby M.L.**, 1994: The life cycle of the Madden-Julian Oscillation. *J. Atmos. Sci.*, 51, 2225-2237.
- **Salby M.L.**, R. Garcia, and H. Hendon, 1994: Planetary circulations in the presence of climatological and wave-induced heating. *J. Atmos. Sci.*, 51, 2344-2367.
- Bergman, J. and **Salby M.L.**, 1994: Equatorial waves derived from fluctuations in observed convection. *J. Atmos. Sci.*, 51, 3791-3806.
- Fusco and **Salby M.L.**, 1994: Relationship between horizontal eddy displacements and mean meridional motions in the stratosphere. *J. Geophys. Res.*, 99, 20633-20645.

- Hendon, H. and **Salby M.L.**, 1996: Planetary-scale circulations forced by intraseasonal variations of observed convection. *J. Atmos. Sci.* 53, 1751- 1758.
- **Salby M.L.**, and P. Callaghan, 1997: Sampling error in climate properties derived from satellite measurements: Consequences of undersampled diurnal variability. *J. Climate*, 10 18-36 .
- Bergman, J. and **Salby M.L.**, 1996: Diurnal variations of cloud cover and their relationship to climatological conditions. *J. Climate* 9, 2802-2820.
- Bergman, J. and **Salby M.L.**, 1996: The role of cloud diurnal variations in the time-mean energy budget. *J. Climate*, 10, 1114-1124.
- **Salby M.L.**, and P. Callahan, 1997: Sampling error in climate properties derived from satellite observations: Impact of undersampled diurnal variability. *J. Climate*, 10, 18–36.
- **Salby M.L.**, Callaghan, P., and D. Shea, 1997: Interdependence of the tropical and extratropical QBO: Relationship to the solar cycle vs a biennial oscillation in the stratosphere. *J. Geophys. Res.* 102, 29,789–29,798.
- Sassi, F. and **Salby M.L.**, 1998: Fast Fourier Synoptic Mapping of UARS data. *J. Geophys. Res.*, 103, 10885–10,898.
- Sassi, F. and **Salby M.L.**, 1998: Impact of diurnal variability on UARS synoptic products. *Geophys. Res. Lett.* 25, 4349-4352.
- Callaghan, P., Fusco, A., Francis, G., and **Salby M.L.**, 1999: A Hough spectral model for 3-dimensional studies of the middle atmosphere. *J. Atmos. Sci.*, 56 1461-1480.
- Sassi, F. and **Salby M.L.**, 1999: Diurnal variations in the middle atmosphere observed by UARS. *J. Geophys. Res.* 104, 3729-2739.
- Fusco, A. and **Salby M.L.**, 1999: Interannual variations of total ozone and their relationship to variations of planetary wave activity. *J. Climate*, 12, 1619-1629.
- Fusco, A. and **Salby M.L.**, 1999: Interannual variations of total ozone and their relationship to variations of planetary wave activity. *J. Climate*, 12, 3165.
- Salby, M. and P. Callaghan, 2000: Connection between the solar cycle and the QBO: The missing link. *J. Climate* 13, 2652-2662.
- Salby, M., P. Callaghan, Guirlet, M., and P. Keckhut, 2000: Interannual changes of temperature and ozone. *SPARC Newsletter*, 15, 6–11.
- **Salby M.L.**, and P. Callaghan, 2001: Seasonal amplification of the 2-day wave: Relationship between normal mode and instability. *J. Atmos. Sci.*, 58, 1858-1869.
- Francis, G. and **Salby M.L.**, 2001: Radiative influence of Antarctica on the polar night vortex. *J. Atmos. Sci.*, 58, 1300-1309.
- Salby, M. and F. Sassi, 2001: Synoptic mapping of convective structure in undersampled satellite observations. *J. Climate*, 14, 2281-2295.
- Sassi, F., Salby, M., and W. Read, 2001: Relationship between upper-tropospheric

humidity and deep convection. *J. Geophys. Res.*, 106, 17,133-17,146.

- Gettelman, A., Salby, M., Randel, W., and F. Sassi, 2001: Convection in the tropical tropopause region and stratosphere-troposphere exchange. *SPARC Newsletter*, 17, 22-25.
- Callaghan P. and **Salby, M.L.**, 2002: On the 3-dimensional structure and origin of the Brewer-Dobson circulation. *J. Atmos. Sci.*, 59, 976-991.
- Sassi, F., Salby, M., Pumphrey, H., and W. Read, 2002: Influence of the Madden-Julian oscillation on upper-tropospheric humidity. *J. Geophys. Res.*, 107 (D23), 4681, doi:10.1029/2001JD001331.
- Gettelman, A., Salby, M., and F. Sassi, 2002: Distribution and influence of convection in the tropical tropopause region. *J. Geophys. Res.*, 107, ACL6 (DOI 10.1029/2001JD001048).
- Salby, M. and P. Callaghan, 2002: Interannual changes of the stratospheric circulation: Relationship to Ozone and tropospheric structure. *J. Climate*, 15, 3673-3685.
- Salby, M., P. Callaghan, P. Keckhut, S. Godin, and M. Guirlet, 2002: Interannual changes of stratospheric temperature and ozone: Relationship between the lower and upper stratosphere. *J. Geophys. Res.*, 107, (D18), doi:10.1029/2001JD000421.
- Salby, M., Sassi, F., P. Callaghan, P. Wu, D., Keckhut, and A. Hauchecorne, 2002: Mesospheric inversions and their relationship to planetary wave structure. *J. Geophys. Res.*, 107, ACL4.1-4.13, DOI 10.1029/2001JD900756.
- Salby, M., 2002: Planetary Waves. in *Encyclopedia of Physical Science and Technology*, P. Crutzen Ed. Academic Press, 12, 357-371.
- Salby, M. and P. Callaghan, 2003: Systematic changes of stratospheric temperature: Relationship between the tropics and extratropics. *J. Geophys. Res.*, 108(D3), 4101, doi:10.1029/2001JD002034.
- Salby, M. and P. Callaghan, 2003: Interannual changes of the stratospheric circulation. Highlights of Upcoming Articles, *Bull. Amer. Meteorol. Soc.*, 84, 183-184 (Invited).
- Salby, M., F. Sassi, P. Callaghan, W. Read, and H. Pumphrey, 2003: Fluctuations of cloud, humidity, and thermal structure near the tropical tropopause. *J. Climate*, 15, 3428-3446.
- Salby, M., 2003: Gridding of global cloud structure from asynoptic satellite measurements. *Remote Sensing of Clouds and the Atmosphere VII*, K., Schafer, O. Lado-Bordowsky, A. Comeron, and R. Picard Eds., 232-239, SPIE, Bellingham WA.
- Salby M. L., P. F. Callaghan, 2003: Dynamics of the 2-day wave in a non-linear model of the middle and upper atmosphere, *J. Geophys. Res.*, 108 (D23), 4713, doi:10.1029/2003JD003648.
- Salby, M. and P. Callaghan, 2004: Interannual changes of the stratospheric circulation: Influence on the tropics and Southern Hemisphere. *J. Climate*, 17, 952-964.
- Salby, M. and P. Callaghan, 2004: Evidence of the solar cycle in the general

circulation of the stratosphere. *J. Climate*, 17, 34-46.

- Salby, M. and P. Callaghan, 2004: Control of the tropical tropopause and vertical transport across it. *J. Climate*, 17, 965-985.
- Salby, M., and P. Callaghan, 2004: Systematic changes of northern hemisphere ozone and their relationship to random interannual changes. *J. Climate* 17, 4512-4521.
- Salby, M. and P. Callaghan, 2005: Interaction between the Brewer-Dobson circulation and the Hadley circulation. *J. Climate*, 18, 4303-4316.
- Salby, M. and P. Callaghan, 2006: Relationship of the QBO to the stratospheric signature of the solar cycle. *J. Geophys. Res.*, 111, D06110, doi:10.1029/2005JD006012.
- Salby, M. and P. Callaghan, 2006: Influence of the Brewer-Dobson circulation on stratosphere-troposphere exchange. *J. Geophys. Res.* 111, D21106, doi:10.1029/2006JD007051.
- **Salby M.L.**, and P. F. Callaghan, 2006: Evidence of the solar cycle in the tropical troposphere. *J. Geophys. Res.* 111, D21113, doi:10.1029/2006JD007133.
- Salby, M, 2007: Influence of the solar cycle on the general circulation of the stratosphere and upper troposphere. *Solar Influence on Climate, ISSI Monograph*, Springer Verlag (In Press).
- Li, T, She, C, Palo, S, Wu, Q, Liu, H, and M Salby, 2007: Coordinated lidar and TIMED observations of the quasi-two-day wave during August 2002-2004 and possible quasi-biennial oscillation influence. *J. Adv. Space Res.* (In Press).
- Salby, M. and P. Callaghan, 2007: On the Wintertime Increase of Arctic Ozone: Relationship to Changes of the Polar-Night Vortex. *J. Geophys. Res.* 112, D06116, doi:10.1029/2006JD007948.
- Salby, M. and P. Callaghan, 2007: Interaction between the QBO and the Hadley circulation: Evidence of solar influence? *J. Climate* 20 (8) 1583-1592.
- Salby, M. and P. Callaghan, 2006: Residual mean transport in the stratosphere: Contributions from wave driving and seasonal transience. *J. Geophys. Res.* 111, D22304, doi:10.1029/2005JD006767.
- Salby, M. and P. Callaghan, 2007: Influence of planetary wave activity on the stratospheric final warming and spring ozone. *J. Geophys. Res.*, 112, D20111, doi:10.1029/2006D007536.
- Salby, M. and L. Matrosova, 2007: Global Kelvin waves in the upper atmosphere excited by tropospheric forcing at midlatitudes. *J. Geophys Res.* 112 D06111, doi:10.1029/2006JD007235.
- Salby, M and P Callaghan, 2008: Interaction between the 2-day wave and solar tides. *J. Geophys Res.*, doi:1029/2006JD007892.
- Salby, M and L Matrosova, 2007: Anomalous temperature introduced during solar proton events. *Geophys. Res. Lett.*, 34, L23702, doi:10.1029/2007GL029586.

- Salby, M, McBride, P, and P Callaghan, 2008: Inter-Satellite Temperature Bias: Elimination through Statistical Calibration. *J. Atm. Ocean Tech.*, 25,
- 959-967.
- Salby, M., 2008: Involvement of the Brewer-Dobson circulation in changes of Northern Hemisphere ozone. *Dynamics of Atmospheres and Oceans* (Invited/In Press).
- Salby, M. and P. Callaghan, 2008: Interannual changes of stratospheric temperature and ozone: Forcing by anomalous wave driving and the QBO. *J. Climate* (Submitted).
- Salby, M and P Callaghan, 2008: Stratospheric signature of the solar cycle: Relationship to tropospheric variability. *J. Climate* (Submitted).

Books

- **Salby M.L.**, 1992: The Atmosphere. In *Climate Systems Modeling*, K. Trenberth Ed. Sponsored jointly by UCAR and the Electric Power Research Institute (EPRI), Cambridge University Press 53–115.
- **Salby M.L.**, 1996: Fundamentals of Atmospheric Physics. *International Geophysics Series*, Academic Press, 628 pp. 2nd Printing (2005)
- **Salby M.L.**, 2003: Fundamental Forces and Governing Equations, Chapter 2, in *Handbook of Weather, Water, and Climate: Dynamics, Climate, Physical Meteorology, Weather Systems, and Measurements*, T. Potter and B. Colman, eds. (Wiley-Interscience, Hoboken NJ, 2003), 7-20.
- **Salby M.L.**, 2002: Planetary Waves. in *Encyclopedia of Physical Science and Technology*, P. Crutzen Ed. Academic Press, 12, 357-371.
- **Salby M.L.**, 2009: *Fundamentals of Atmospheric Physics*. International Geophysics Series, Academic Press, 2nd Edition (In Preparation)
- **Salby M.L.**, 2009: *Aviation Weather: Interaction between Flight and the Environment*. Academic Press (Under Development)