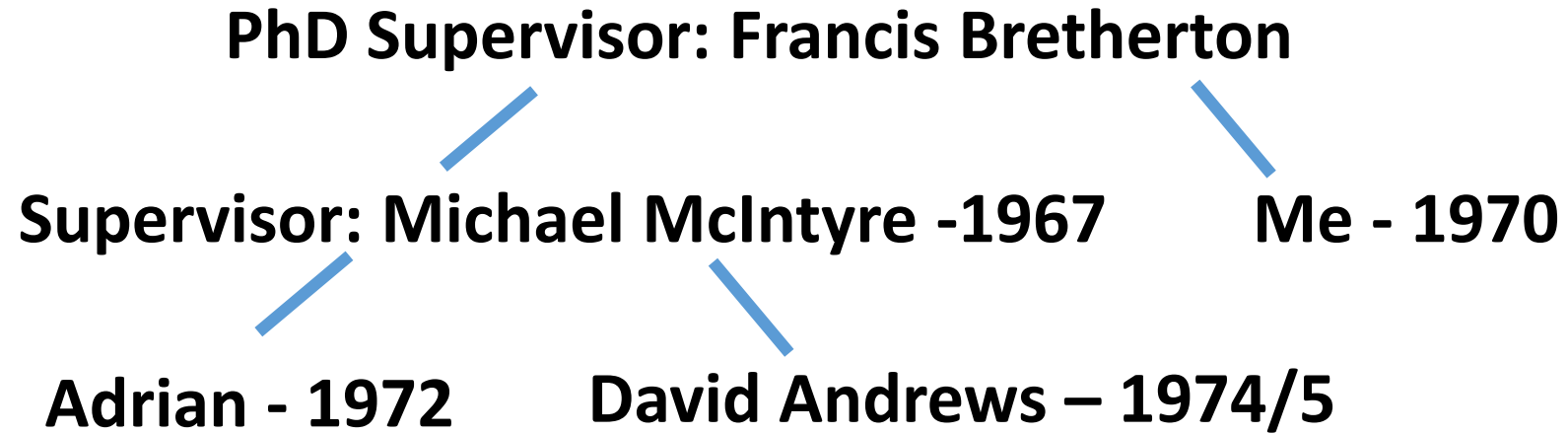


A Symposium for Adrian Simmons

Adrian's Early Academic Career

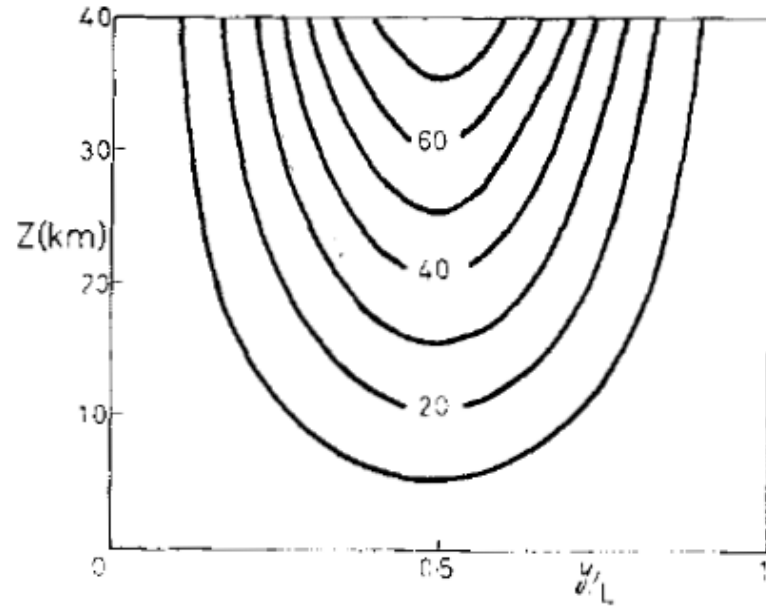
Brian Hoskins

A Cambridge GFD “Family” Tree

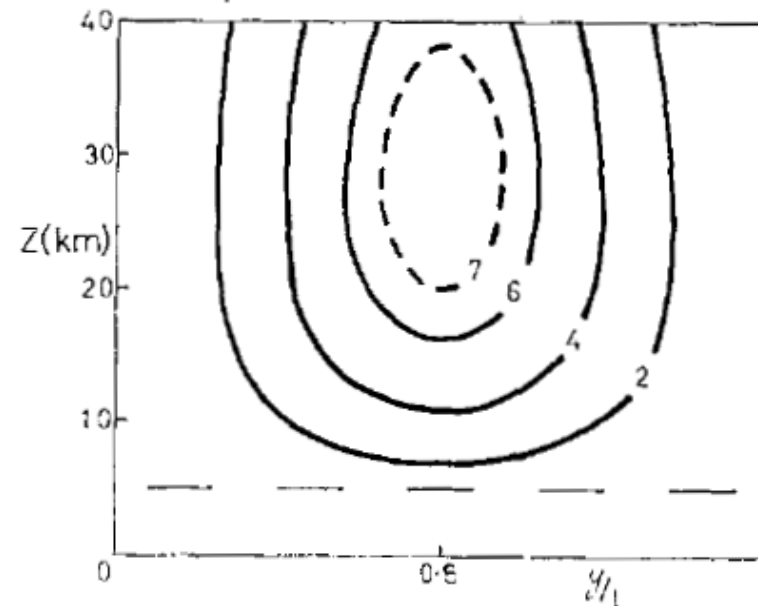


Simmons 1974: Planetary-scale disturbances in the polar winter stratosphere.

Simmons 1974: Baroclinic instability at the winter stratopause.



Zonal wind



Amplitude of steady wavenumber 2 disturbance

Simmons 1974: The meridional scale of baroclinic waves.

Gill, Green & Simmons 1974:

Energy partition in the large-scale ocean circulation and the production of mid-ocean eddies

Simmons 1977: Baroclinic instability in the summer mesosphere

UK Universities Atmospheric Modelling Group

Aim: to develop global atmospheric modelling in UK Universities

Panel: Pearce (Reading), Shepherd & Green (Imperial), Davies (Exeter), Bates (Dublin), McIntyre (Cambridge), Harwood (Oxford),

Core Group at Reading with Bob Pearce

1971 3 appointments:

1972 BJH → GFDL,

Adrian Simmons appointed

1973 BJH returned, Eli Doron left

1975 Tony Hollingsworth → ECMWF,

David Andrews appointed

1979 Adrian Simmons → ECMWF

Doron, Hollingsworth & Hoskins

Doron, Hollingsworth & Simmons

Hollingsworth, Hoskins & Simmons

Andrews, Hoskins & Simmons

UKUAMG → UGAMP → NCAS-Climate



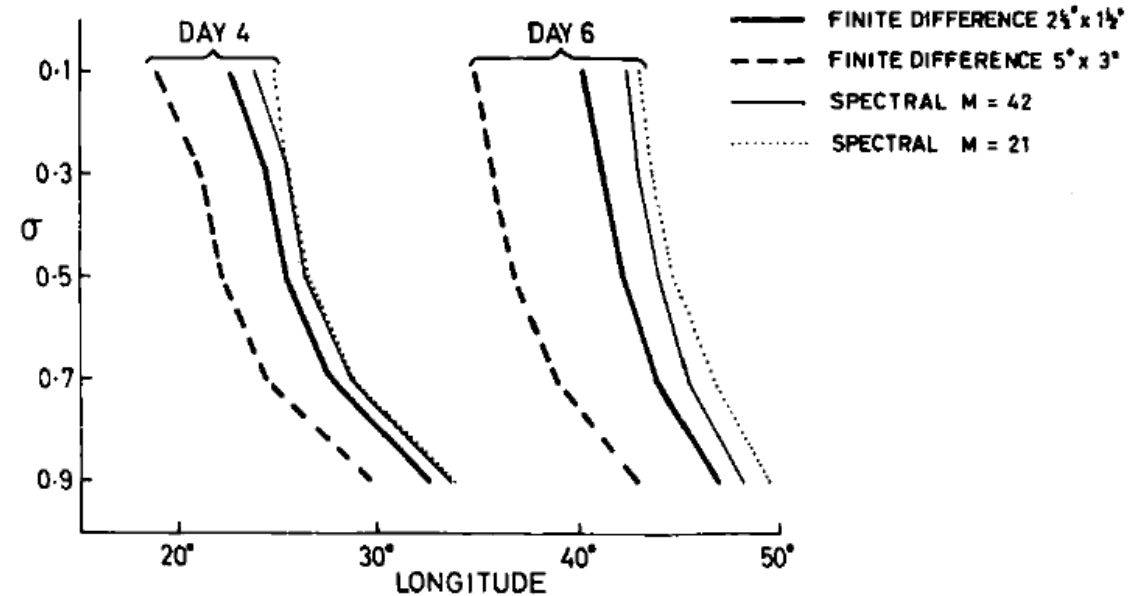
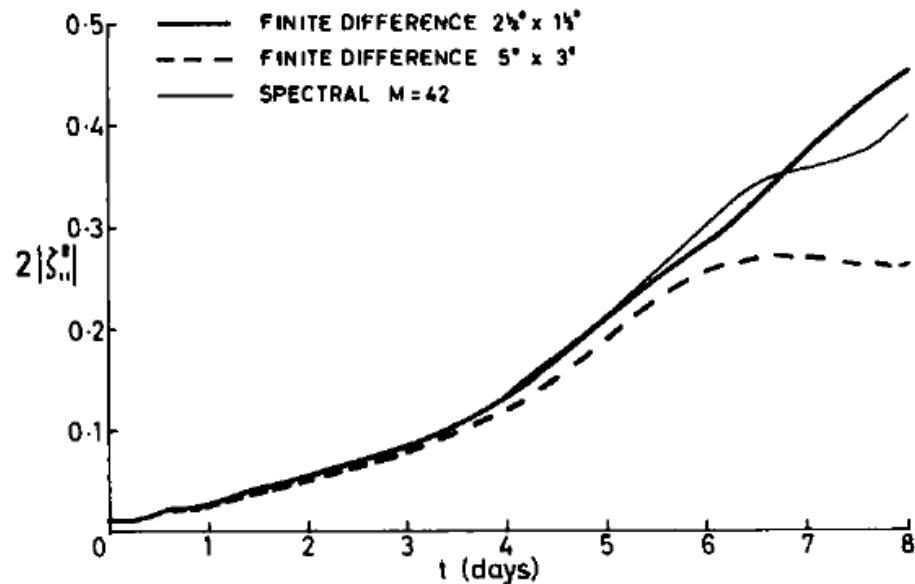
Development of numerical models of the global atmosphere

Hoskins, Doron, Hollingsworth, Simmons, 1974:

A comparison of grid point and spectral methods in a meteorological problem.

Hoskins & Simmons 1975: A multi-layer spectral model and the semi-implicit method.

Simmons & Hoskins, 1975: A comparison of spectral and finite-difference simulations of a growing baroclinic wave.



Simmons, Hoskins & Burridge, 1978: Stability of the semi-implicit method of time integration.

The impacts of a spherical domain

Hollingsworth, Simmons & Hoskins, 1976:

The effect of spherical geometry on momentum transports in simple baroclinic flows.

Hoskins, Simmons & Andrews, 1977: Energy dispersion in a barotropic atmosphere.

Simmons, 1978: Some effects of meridional shear and spherical geometry on long stratospheric waves

Linear baroclinic instability of jet flows on the sphere

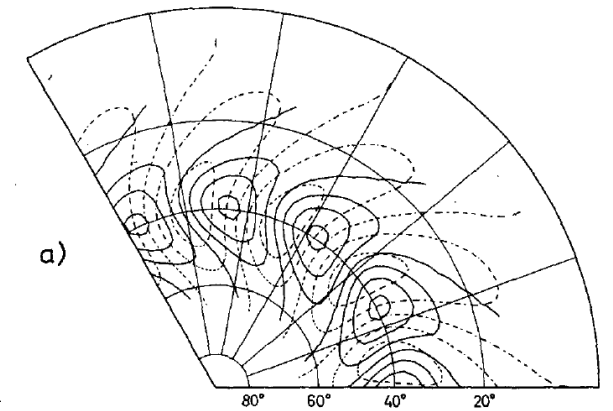
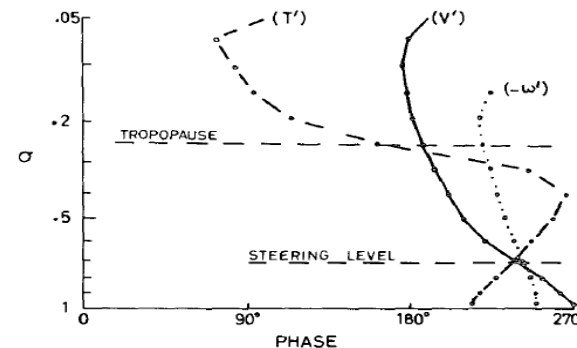
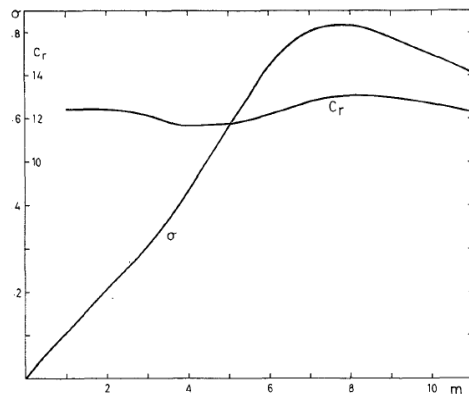
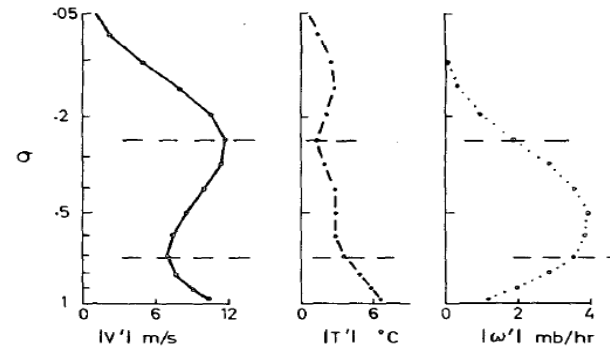
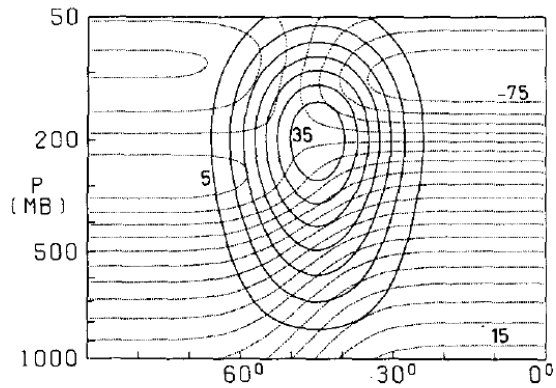
Simmons & Hoskins, 1976:

Baroclinic instability on the sphere - normal modes of the primitive and quasi-geostrophic equations.

Simmons & Hoskins, 1977: Baroclinic instability on the sphere – solutions with a more realistic tropopause.

Simmons & Hoskins, 1977: A note on the wavelength of maximum growth rate of baroclinic instability.

Simmons, 1977: A note on the instability of the African easterly jet.



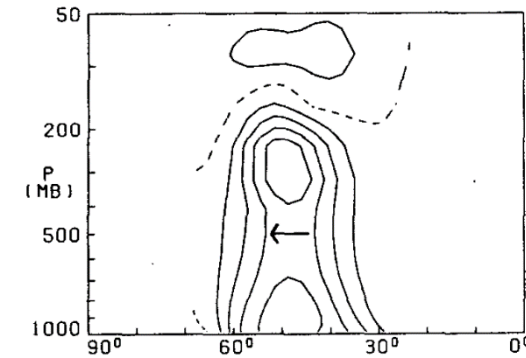
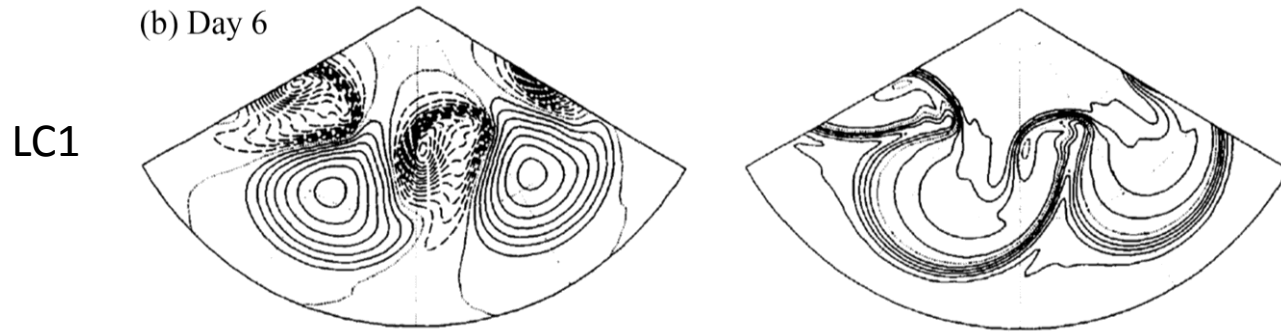
Nonlinear development of baroclinic waves

Simmons & Hoskins, 1977: Nonlinear baroclinic disturbances to mid-latitude zonal flows

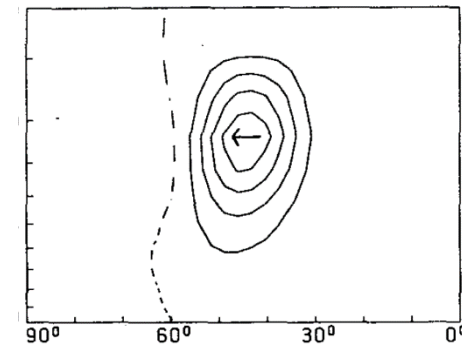
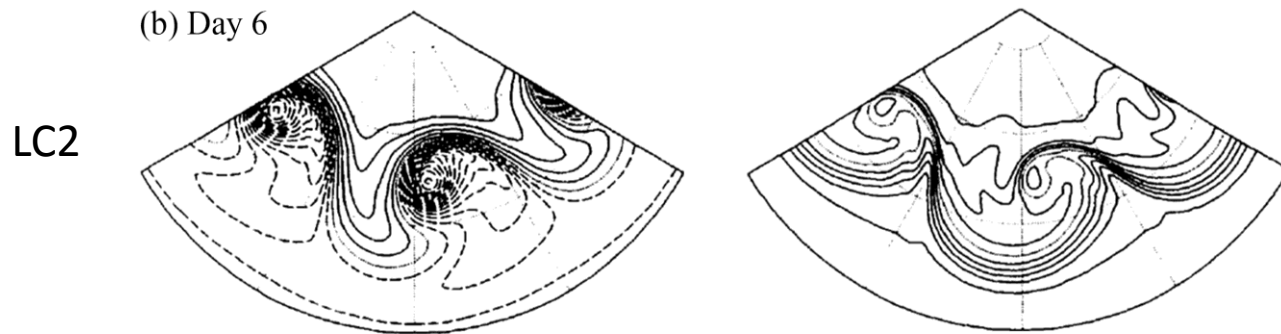
Simmons & Hoskins: 1978: The life cycles of some non-linear baroclinic waves.

Simmons & Hoskins, 1979: The downstream and upstream development of unstable baroclinic waves.

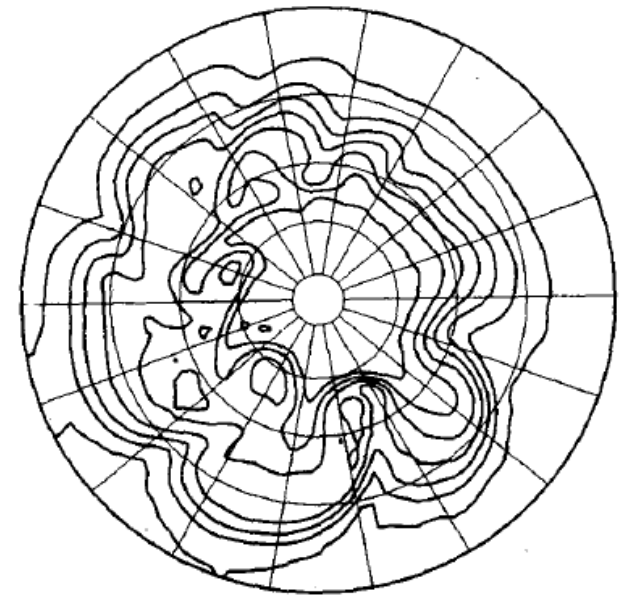
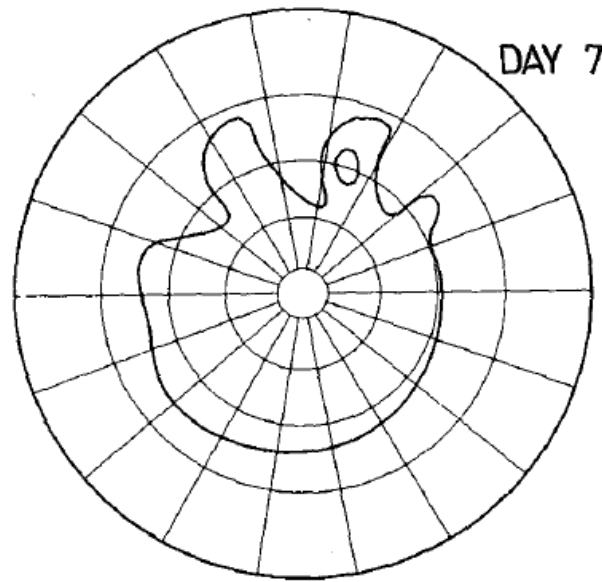
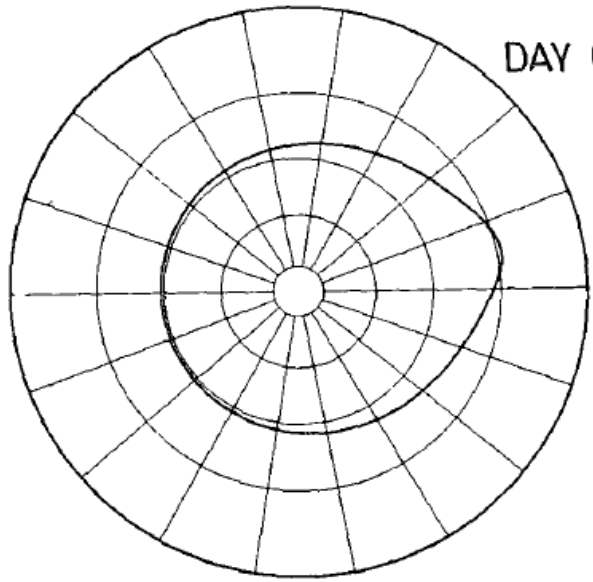
Simmons & Hoskins, 1980: Barotropic influences on the growth and decay of non-linear baroclinic waves.



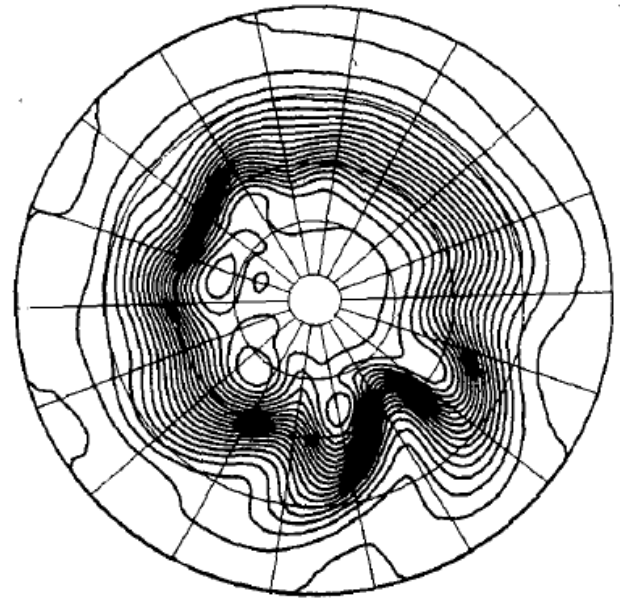
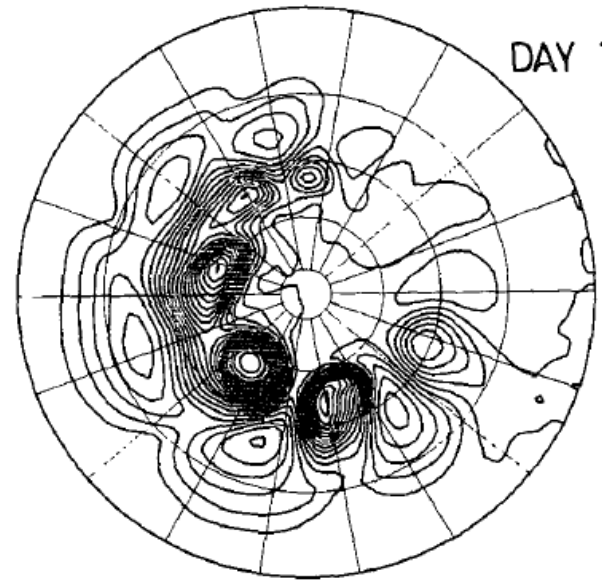
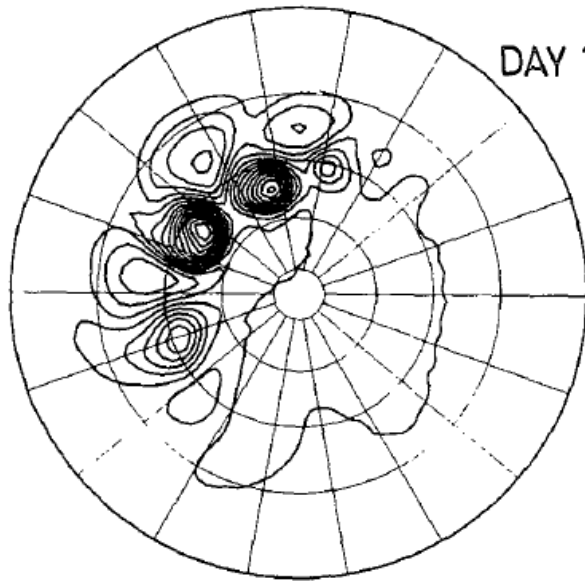
LC1 poleward
heat Flux



LC1 poleward
momentum flux



MSLP



Day 17
 ψ_{500}

Adrian's Early Academic Career