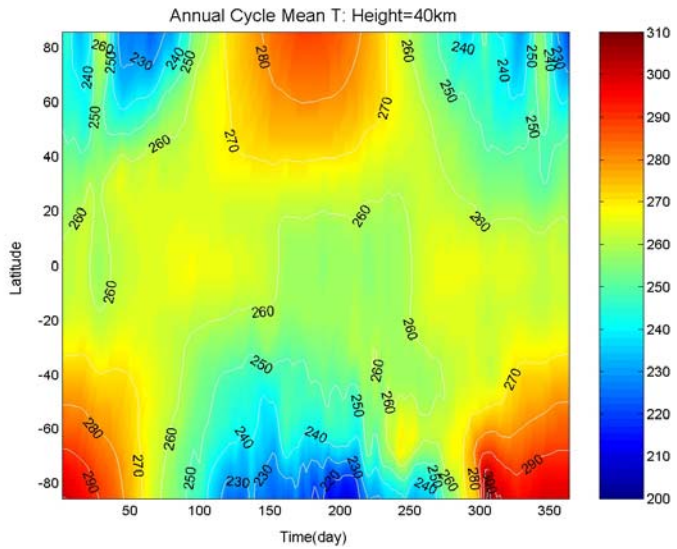
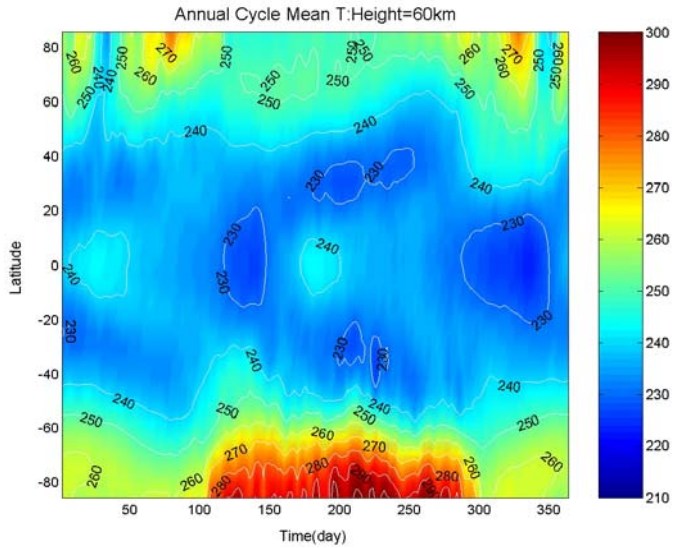
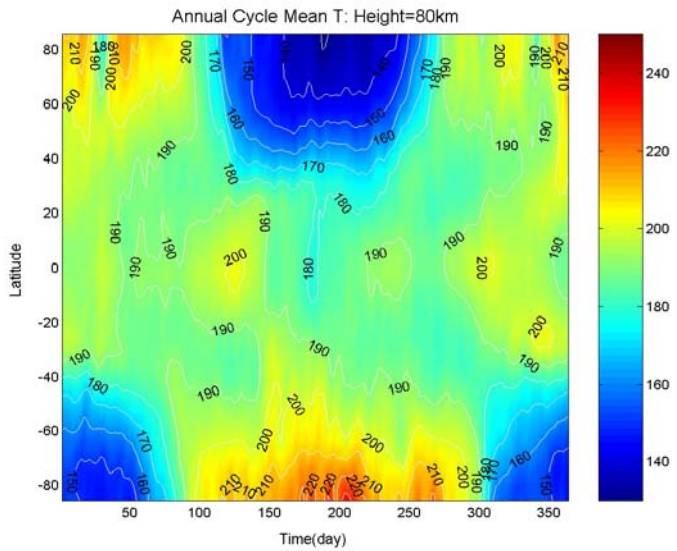
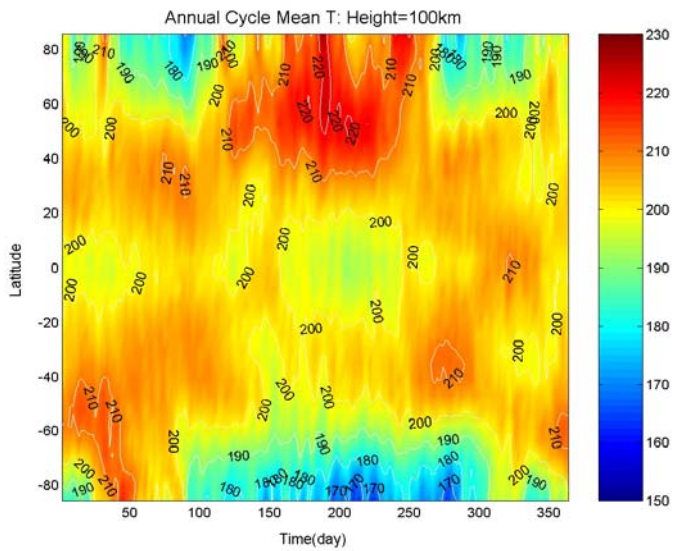
T Annual Cycle (40, 60, 80, 100 km)





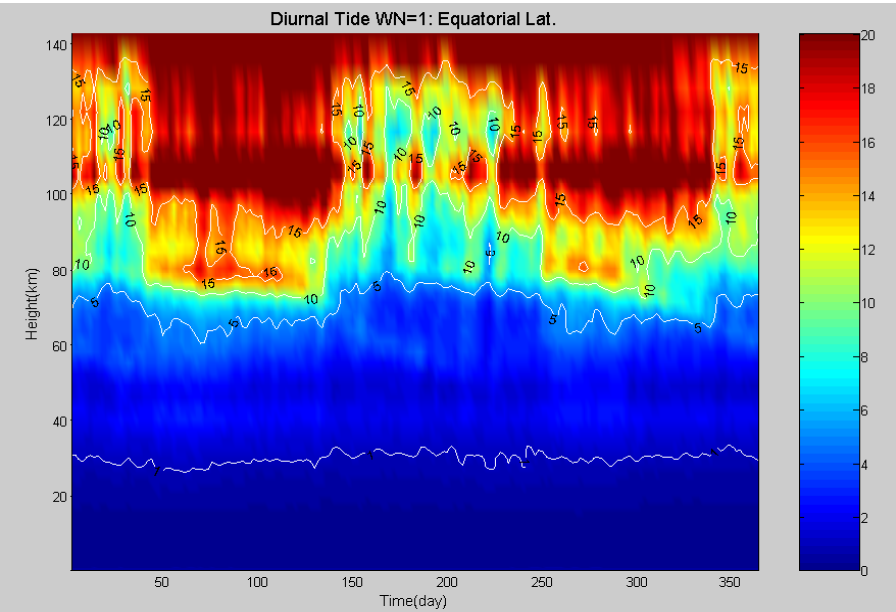


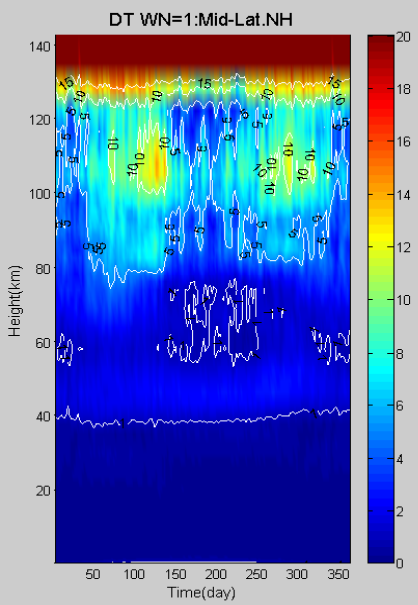


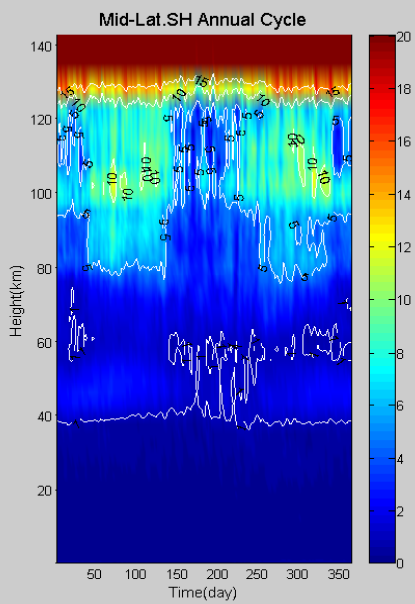
Annual Cycle of Westward Diurnal Tide (W1) at different latitudes region

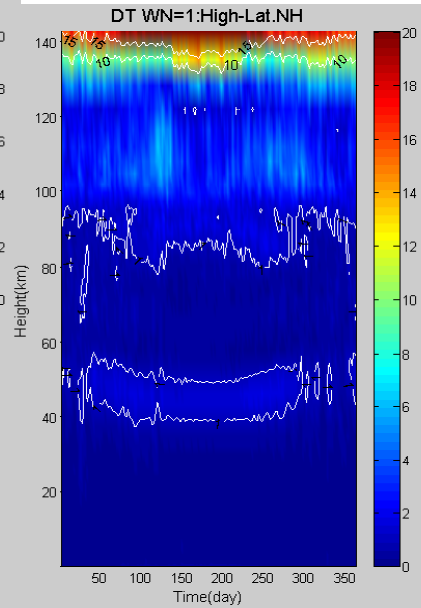
- Equatorial latitudes: 20ºN—20ºS
- Middle latitudes: 20ºN(S)—50ºN(S)
- High latitudes: 50ºN(S)—90ºN(S)

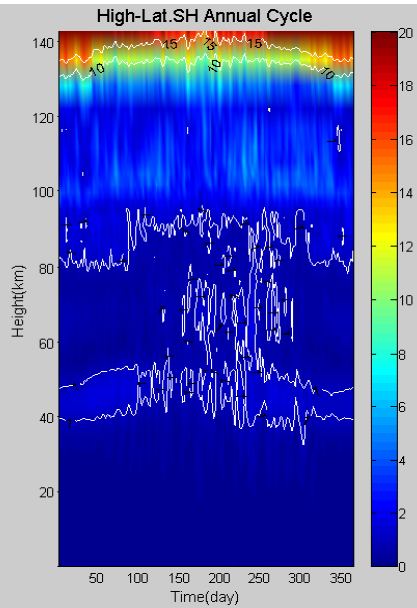
- Westward Diurnal Tide has maximum in equatorial latitudes, and secondly maximum in middle latitudes.
- Westward Diurnal Tide has strong seasonal change, spring and fall are much stronger than Winter and summer.

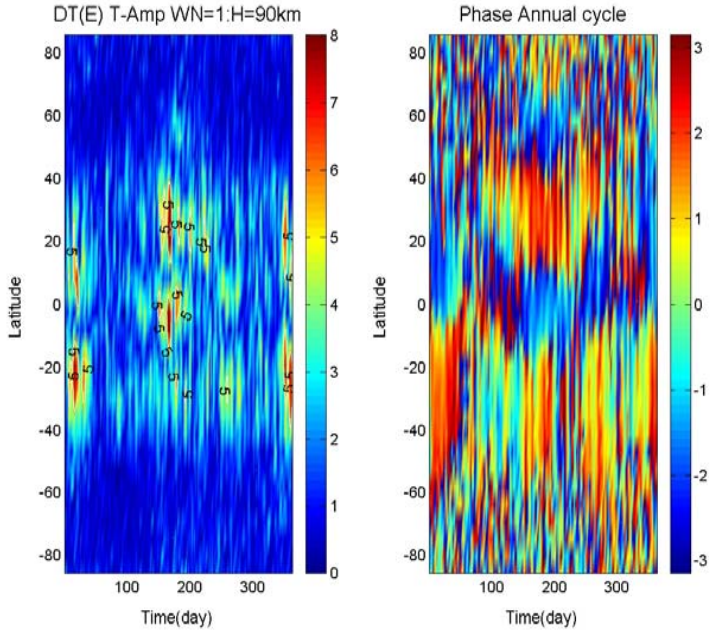


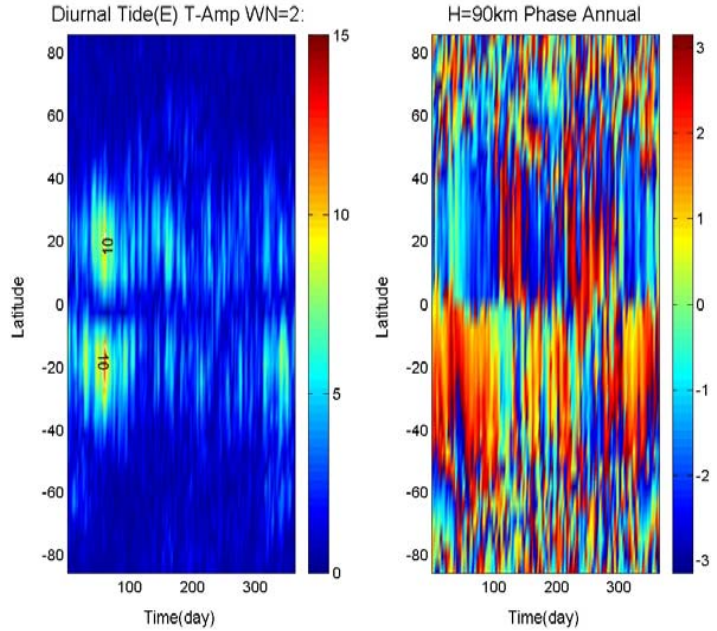


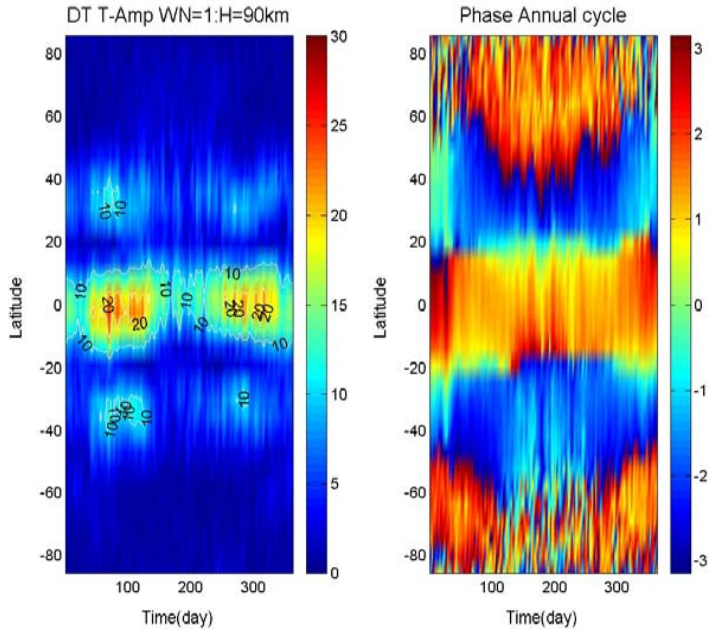


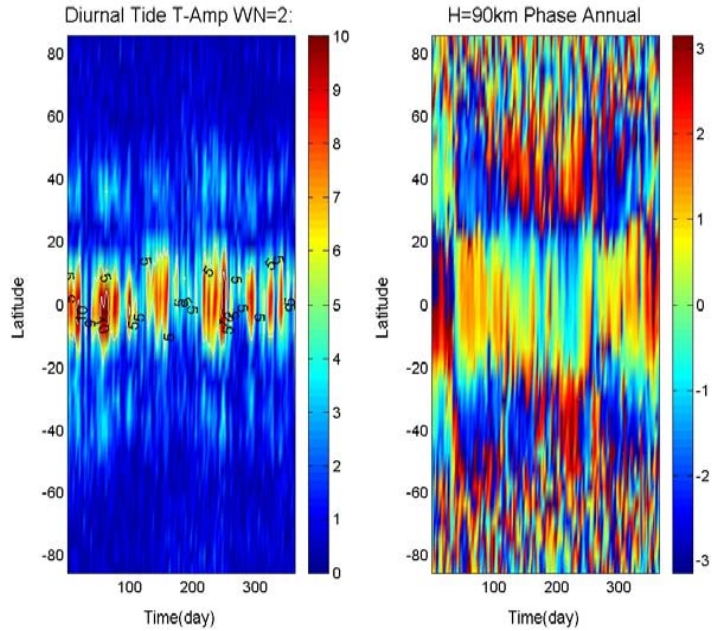





DT(E) T-Amp WN=1:H=90km
Phase Annual cycle
Latitude
Time(day)

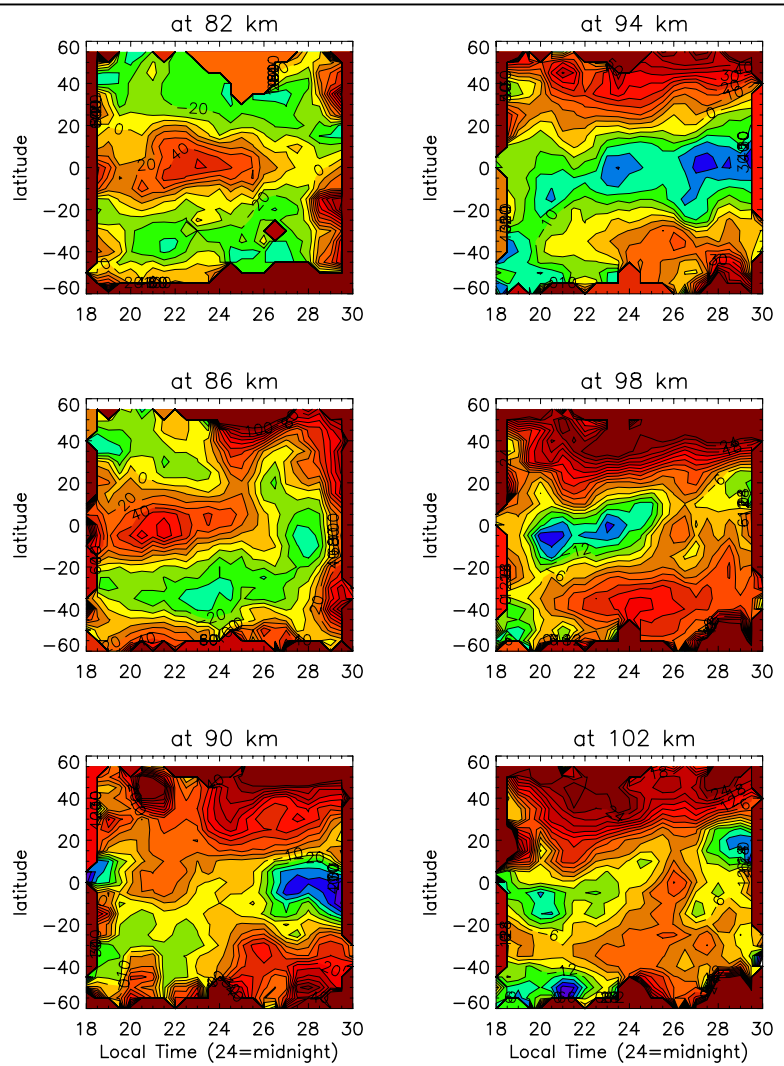

Diurnal Tide(E) T-Amp WN=2:
H=90km Phase Annual
Latitude
Time(day)


DT T-Amp WN=1:H=90km
Phase Annual cycle
Latitude
Time(day)

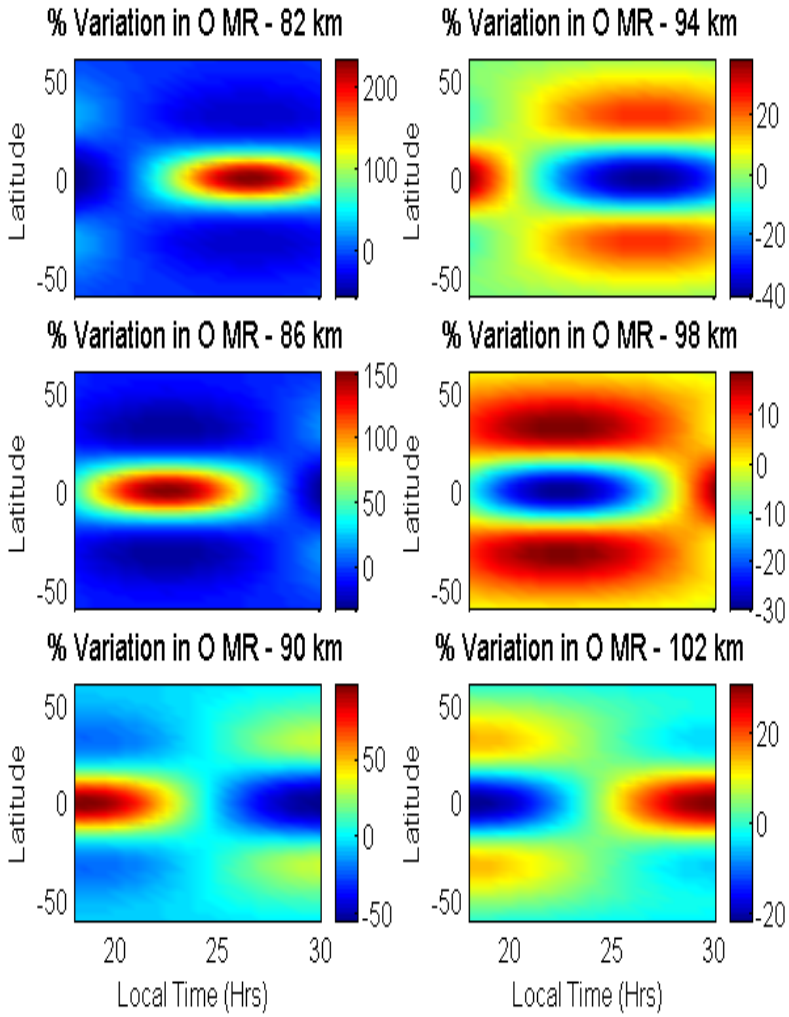

Diurnal Tide T-Amp WN=2:
H=90km Phase Annual
Latitude
Time(day)

Tidal Variation with Altitude at Equinox (Aug-Oct 1992)

% Variation in MR (Our Data)



% Variation in MR (Simple Tidal Model)



CAWSES Proposal

- **How does the sun couple to the neutral atmosphere? What is the role of the MLT in this?**
- Overall goals for “lower” atmosphere :
  - Characterize tropopause to thermosphere region: waves, momentum, constituent and energy budgets, mean conditions and variability.
  - Examine the response to specific forcing events from above and below.
  - Observe the unique phenomena in this region (noctilucent clouds, PMSE, temperature inversion layers, mesospheric bores, sudden stratospheric warmings, …).
- Activities in support of these goals:
  - Coordinated campaigns: latitudinal and longitudinal chains of stations along with multiple instrument observations. Can we characterize the forcing and the response in the mesosphere?
  - An inter-GCM comparison study for models extending into the thermosphere.
  - Coordination of multi-instrument observations of the MLT region for the study of the energetics