QCOM Movies

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To create output files: Add direct access open and write statements to your QCOM program (in the appropriate locations) to store 2D (y-z) snapshots at intervals.

```
! --------- OPEN FILES FOR DIRECT ACCESS --------------
open(unit=11,file='th.dat',access='direct',recl=jt*kt*8)
open(unit=12,file='v.dat',access='direct',recl=jt*kt*8)
open(unit=13,file='w.dat',access='direct',recl=jt*kt*8)
irec = 0
```

```
!---------- OUTPUT --------------------
ns = 40  ! time interval (s) for snapshot output (adjust as needed)
np = ns/dt  ! time step interval for snapshot output

if ( mod (n-1, np) .eq. 0 ) then
!   DIRECT ACCESS FILES
irec = irec + 1
write(11,rec=irec) TH1
write(12,rec=irec) V
write(13,rec=irec) W
endif
```

To read the files using MATLAB: Use `QCOM_movie.m`. You will need to set appropriate parameters for your output file. These parameters are located at various places in the file.

dir1 Directory that contains your output file.

fn1 Name of your output file.

ny Number of grid points in the y-direction.

nz Number of grid points in the z-direction.

nt Number of snapshots saved.

aviobj Name of movie to be created.

grid [To be added] Specify T, V, or W grid.

H Domain height (m).

YL Domain length (m).

h1 Aspect ratio of plot.

cmax Maximum contour value.

cmin Minimum contour value.

cin Contour interval.

title Plot title.

Modifications for the conduction simulation: The conduction simulation is 1D in space (height), but 2D in height and time. There are two easy ways to use `QCOM_movie.m` for this simulation.

Store 2D snapshots: You can do the simulation in 2D (y-z). Just set `jt=10` instead of `jt=1`. Your movie will show the evolution of $\theta(z)$.

Create an array of $\theta(z,t)$: Instead of saving a series of snapshots, store each profile of θ into an array of $\theta(z,t)$, then save that single array like you would a 2D snapshot. Your movie will contain just one frame in this case, of $\theta(z,t)$.