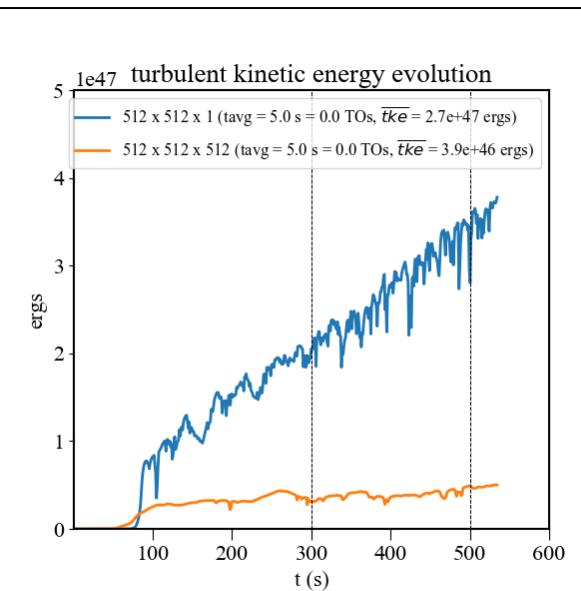
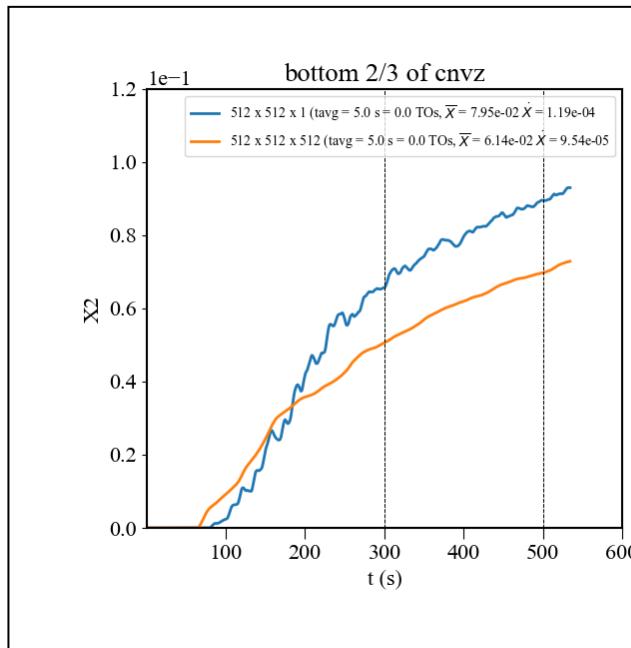
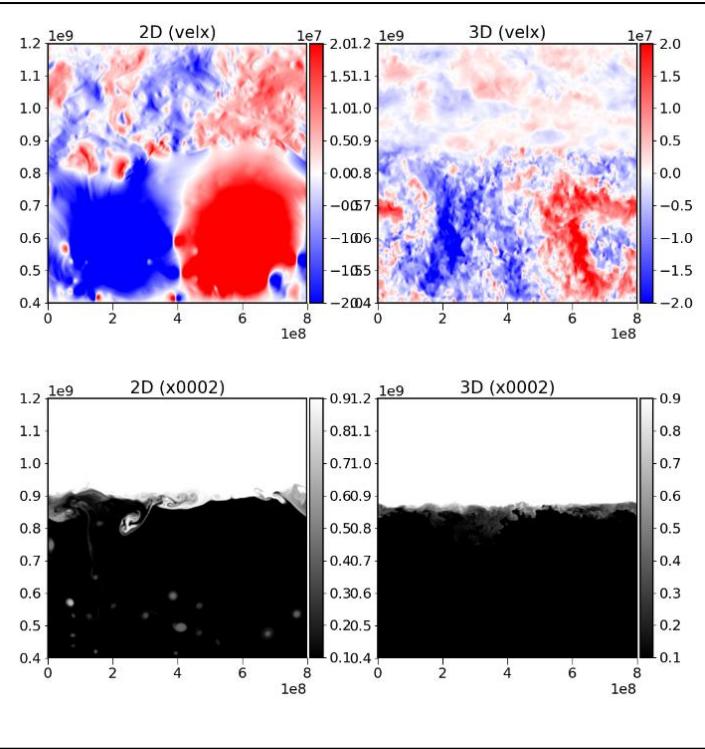


2D vs 3D – code comparison two-layer setup – resolution 512



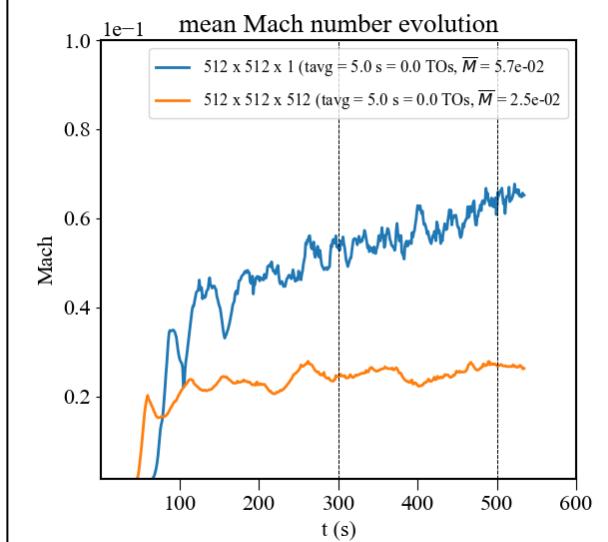
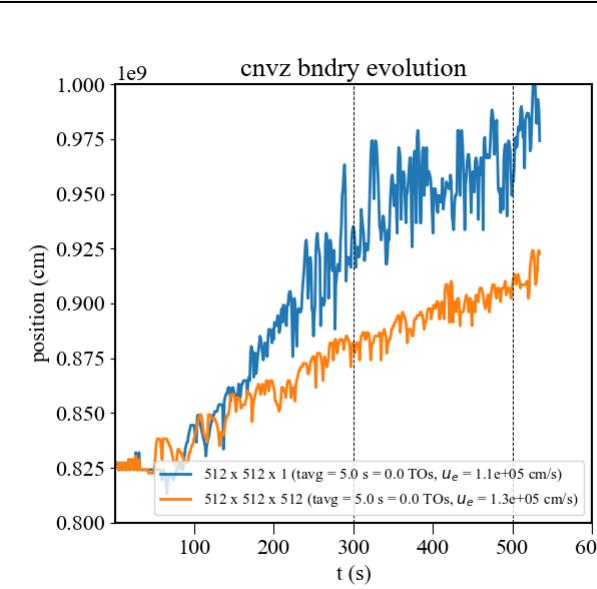
```
In [21]: run ransX.py
# Datafile with space-time averages: ', 'DATA_D/TSERIES/tseries_ccptwo_512x512x512_cosma_300secs.npy'
<Central time <in s>: ', 370.22>
<Averaging window <in s>: ', 300.0>
<Time range <in s from-to>: ', 200.0, 538.0>

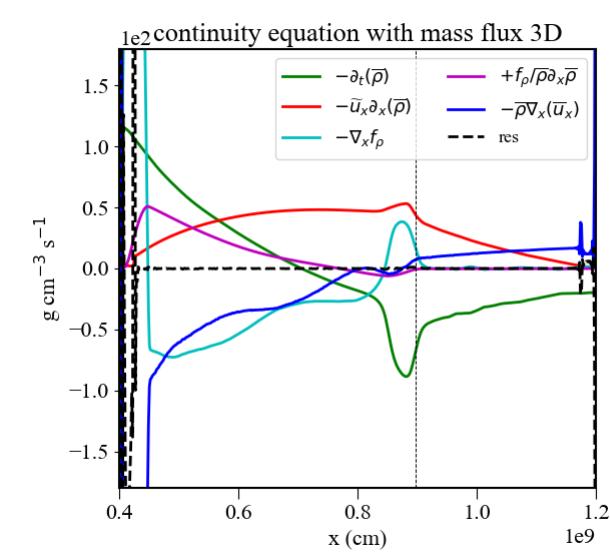
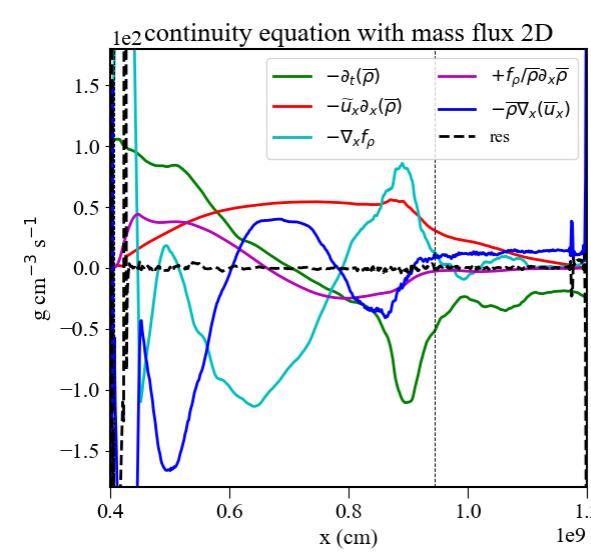
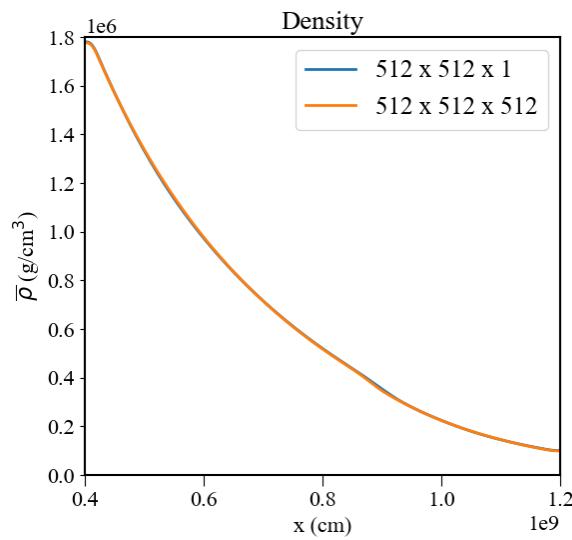
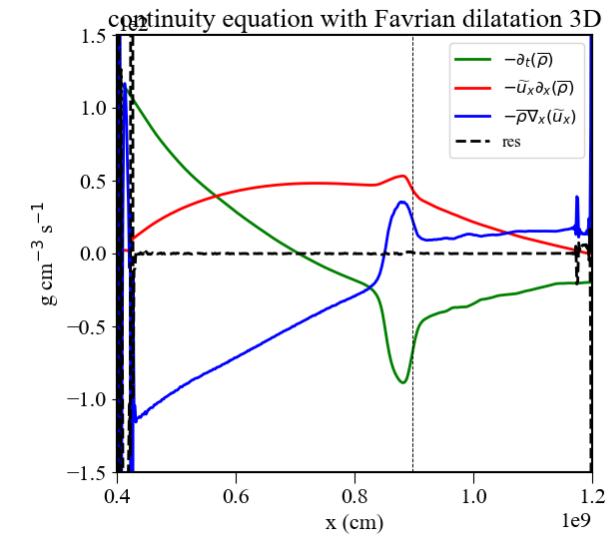
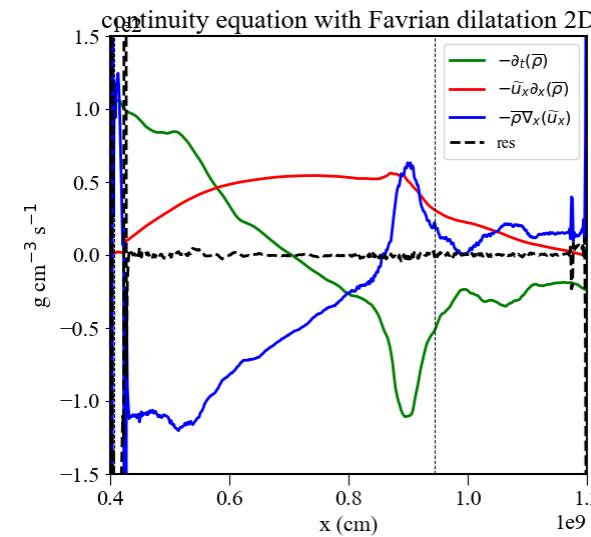
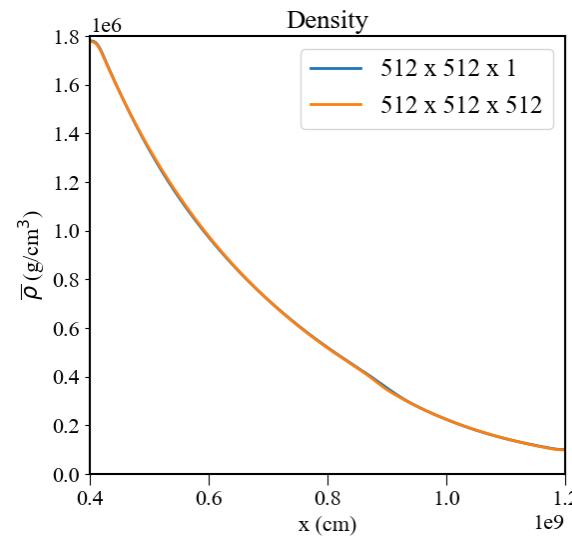
Resolution: 512 512 512
Radial size of computational domain <in cm>: 4.01e+08 1.20e+09
Radial size of convection zone <in cm>: 4.05e+08 8.98e+08
Rate of TOs: 0.0000000000000000
Overavg. time window <in s>: 300.00000000
RMS velocities in convection zone <in cm/s>: 1.67e+07
Convection length scale (in cm) <in s>: 5.89e+01
P_turb o P_gas 1.13e-03
Mach number Max 3.31e-02
Mach number Mean 2.48e-02
Datafile with space-time averages: ', 'DATA_D/TSERIES/tseries_ccptwo512dev2D_cosma_300secs.npy'
<Central time <in s>: 370.32>
<Averaging window <in s>: 300.0>
<Time range <in s from-to>: 200.0, 538.0>

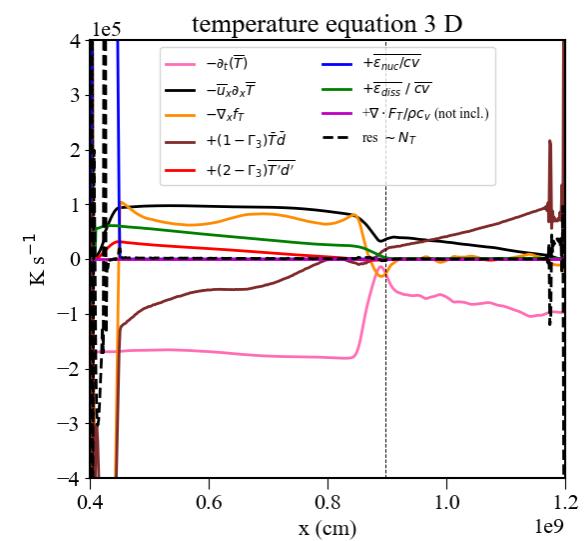
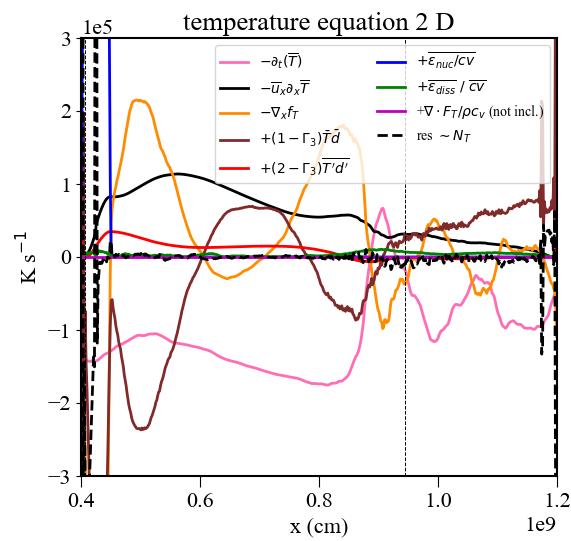
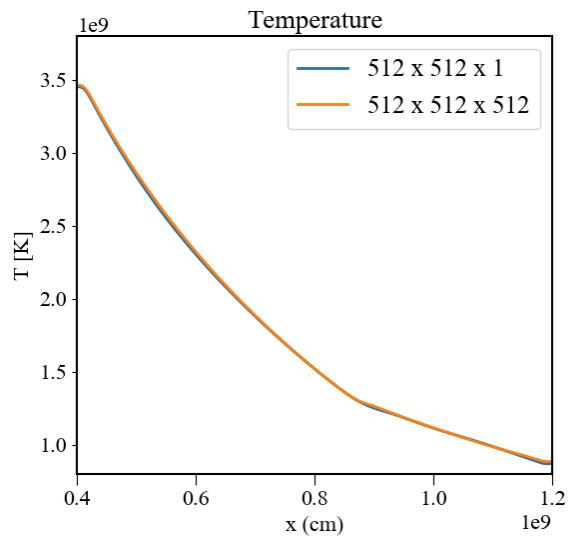
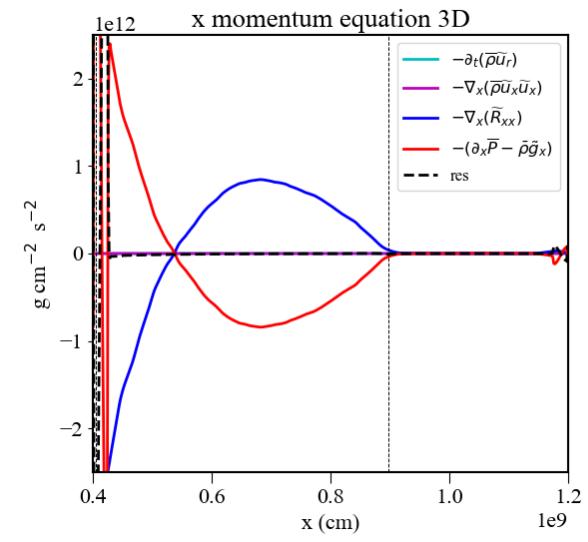
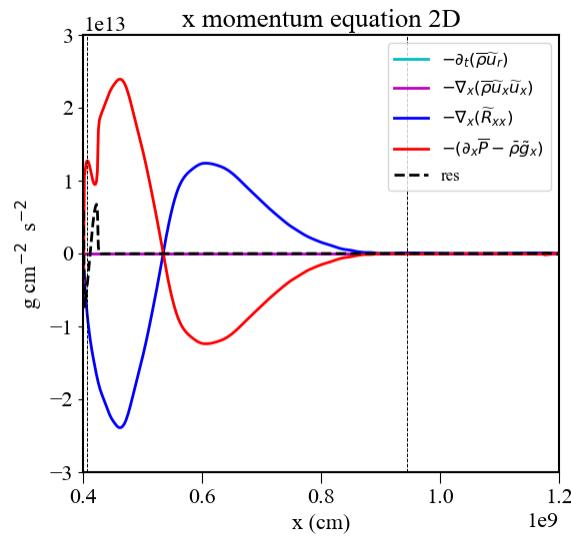
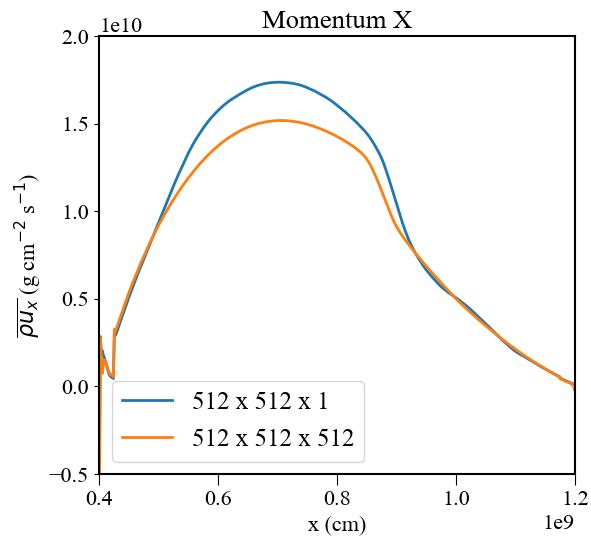
Resolution: 512 512 1
Radial size of computational domain <in cm>: 4.01e+08 1.20e+09
Radial size of convection zone <in cm>: 4.07e+08 9.45e+08
Rate of TOs: 0.0000000000000000
Overavg. time window <in s>: 300.00000000
RMS velocities in convection zone <in cm/s>: 4.20e+07
Convection length scale (in cm) <in s>: 2.36e+01
P_turb o P_gas 6.69e-03
Mach number Max 9.75e-02
Mach number Mean 6.02e-02
Dissipation length scale <in cm>: 3.97e+11
Total nuclear luminosity <in erg/s>: 4.52e+45
Rate of TKE dissipation <in erg/s>: 8.64e+44
Dissipation timescale for TKE <in s>: 46.486510
Reynolds number: 2143
<OUTPUT<relative>RMSflct.py>: Max Mach Number: ', 0.033>
```

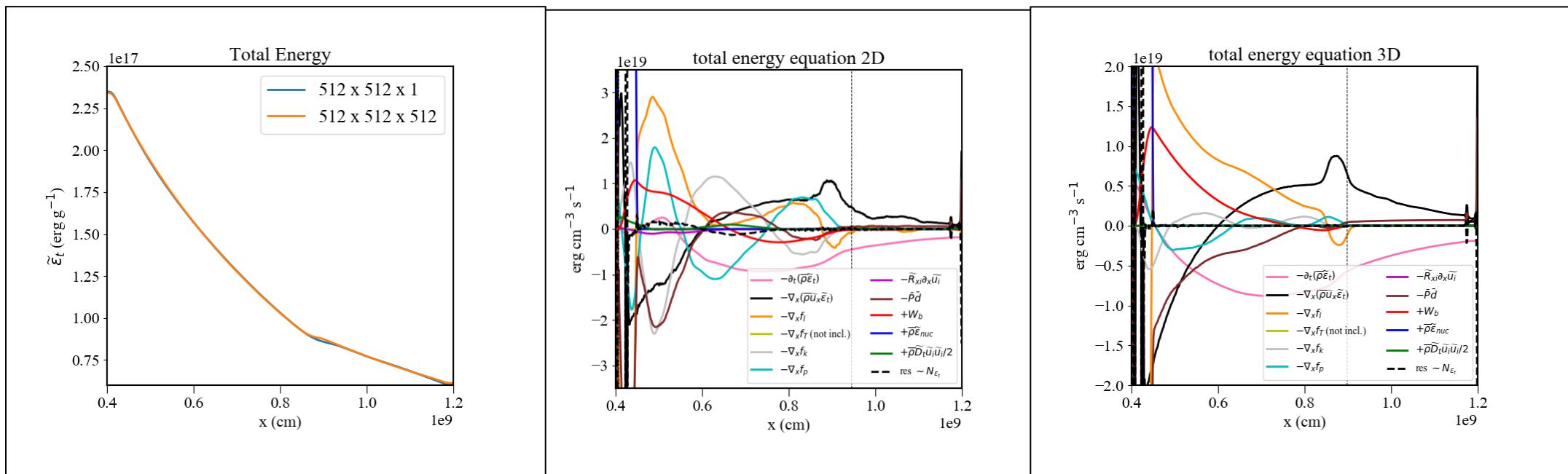
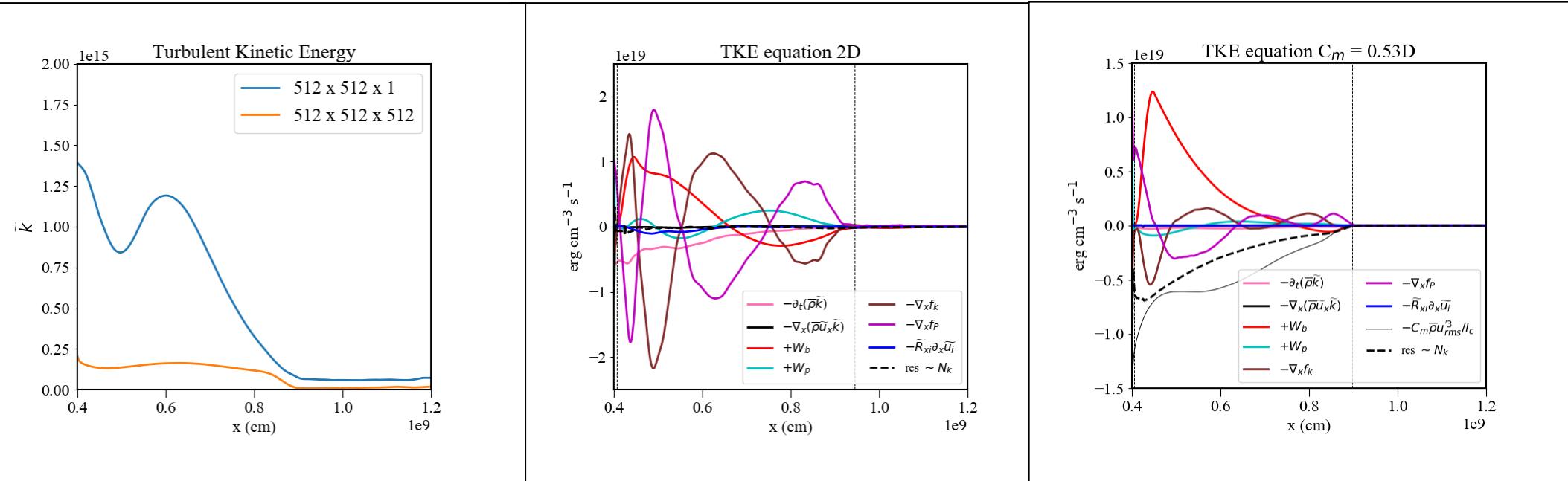
```
In [22]: run ransX.py
# Datafile with space-time averages: ', 'DATA_D/TSERIES/tseries_ccptwo512dev2D_cosma_300secs.npy'
<Central time <in s>: 370.32>
<Averaging window <in s>: 300.0>
<Time range <in s from-to>: 200.0, 538.0>

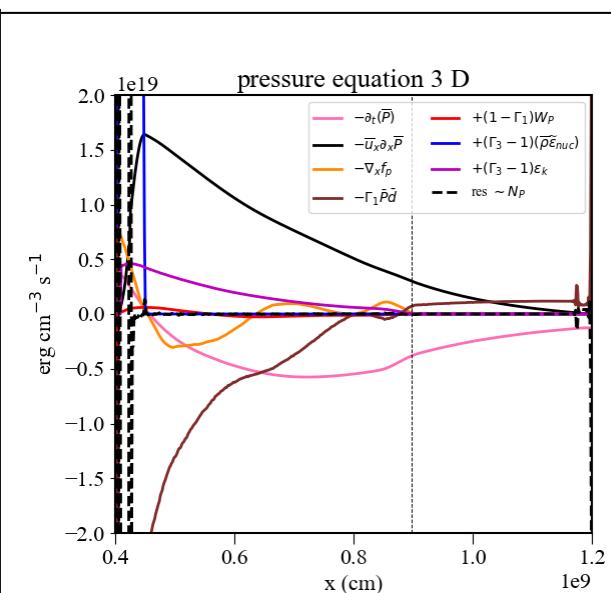
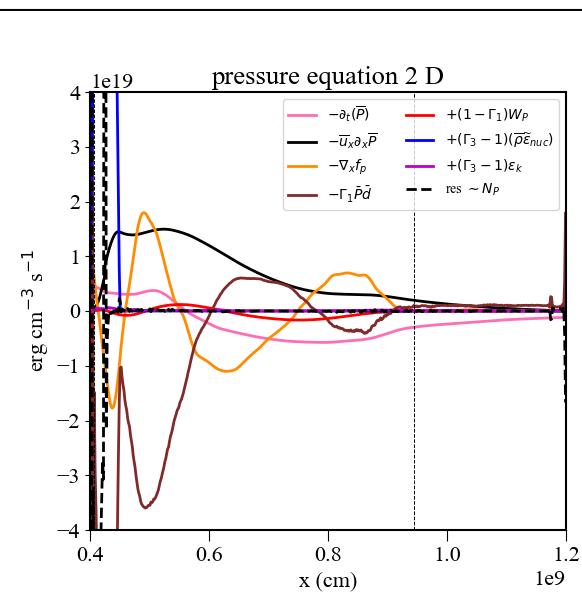
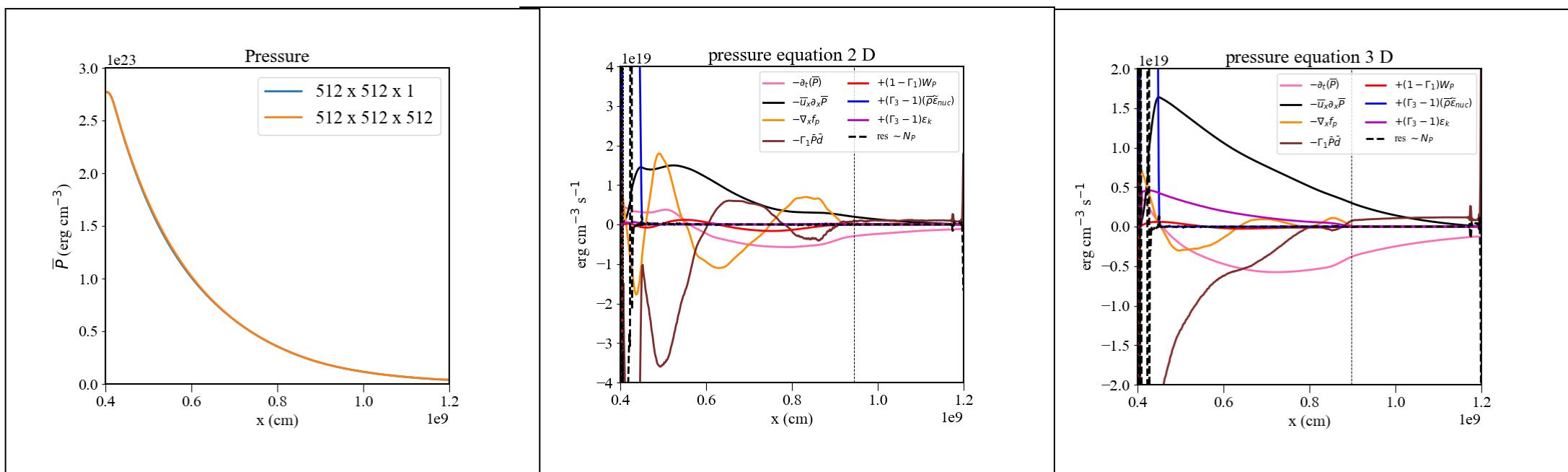
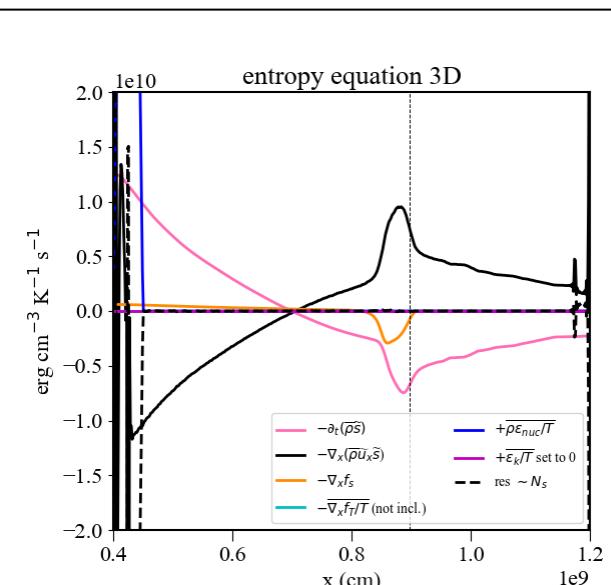
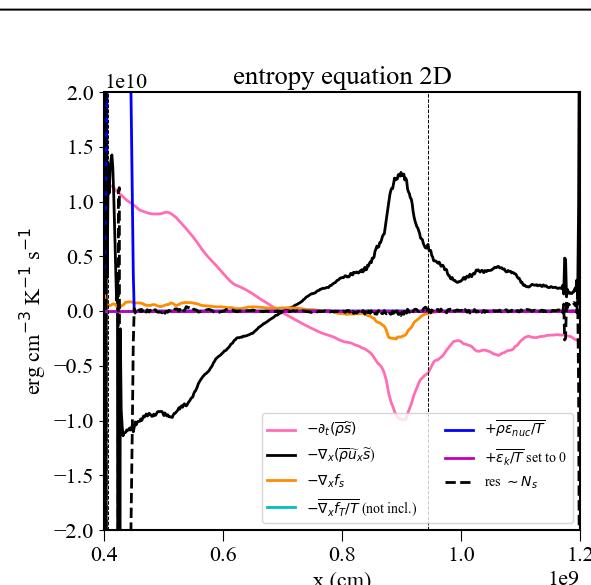
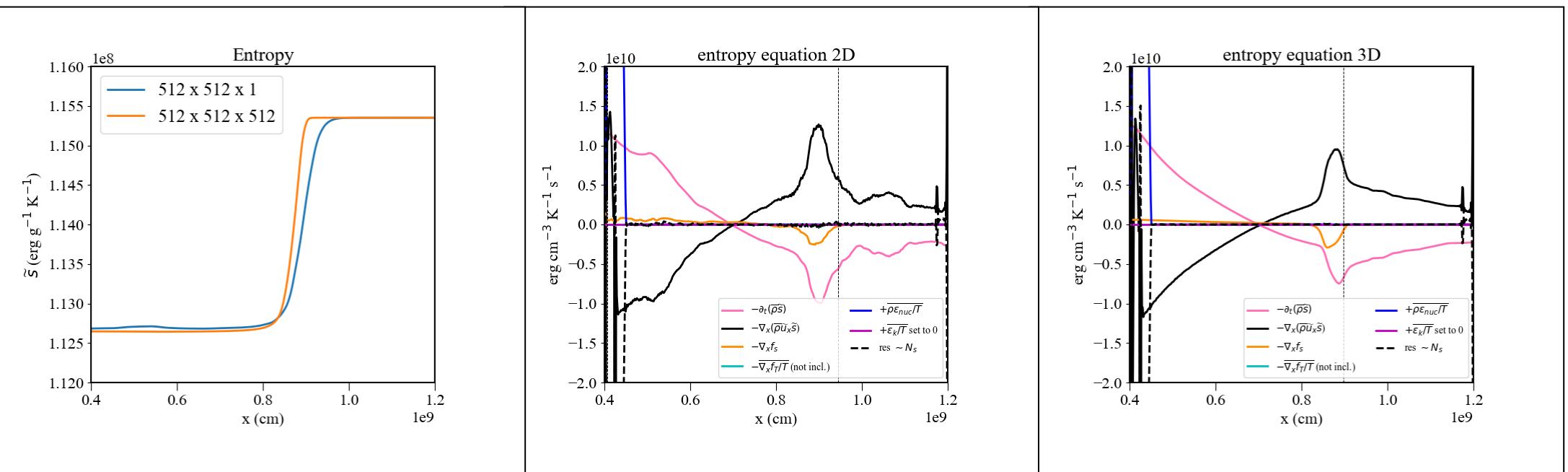
Resolution: 512 512 1
Radial size of computational domain <in cm>: 4.01e+08 1.20e+09
Radial size of convection zone <in cm>: 4.07e+08 9.45e+08
Rate of TOs: 0.0000000000000000
Overavg. time window <in s>: 300.00000000
RMS velocities in convection zone <in cm/s>: 4.20e+07
Convection length scale (in cm) <in s>: 2.36e+01
P_turb o P_gas 6.69e-03
Mach number Max 9.75e-02
Mach number Mean 6.02e-02
Dissipation length scale <in cm>: 3.97e+11
Total nuclear luminosity <in erg/s>: 4.52e+45
Rate of TKE dissipation <in erg/s>: 5.53e+43
Dissipation timescale for TKE <in s>: 4718.4670887
Reynolds number: 2140
```

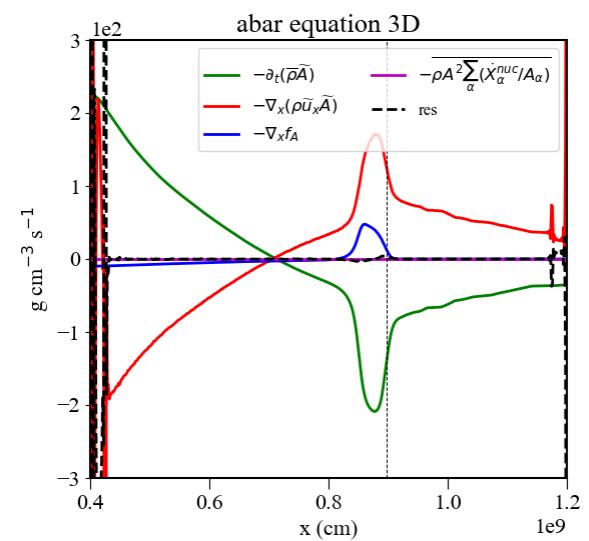
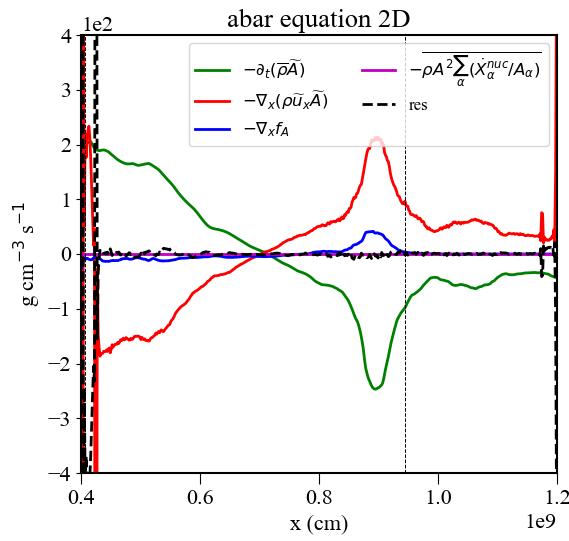
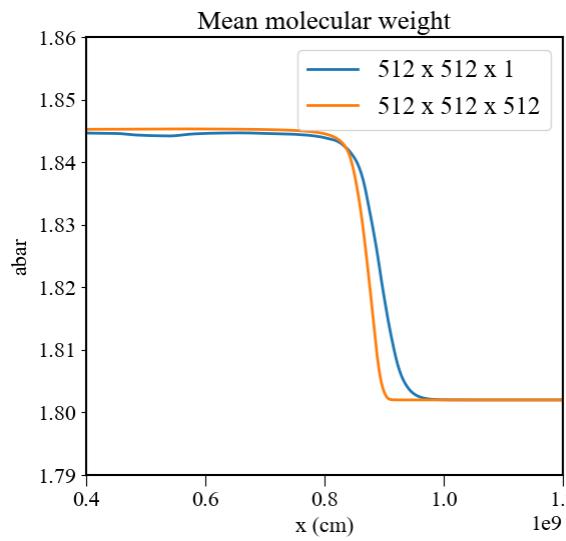
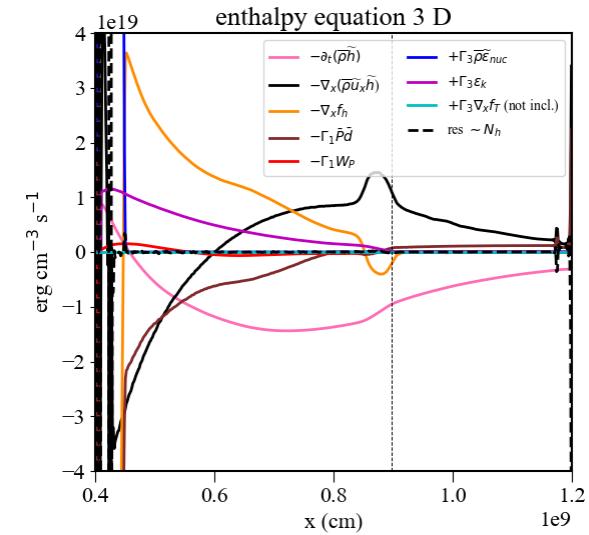
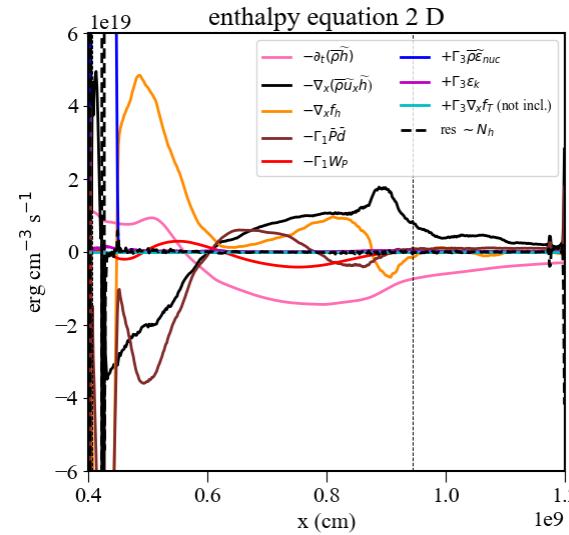
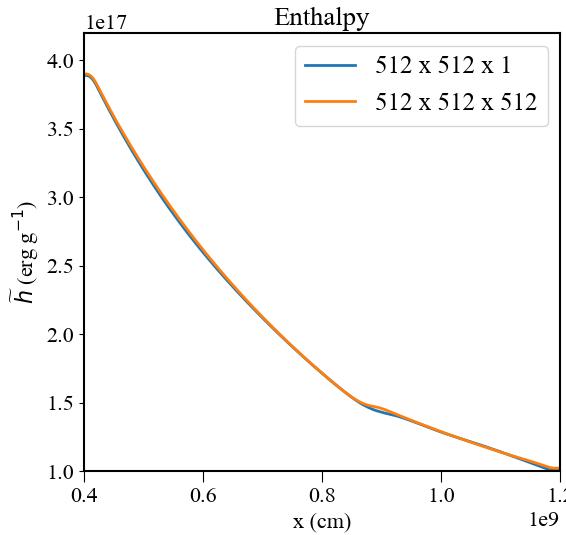


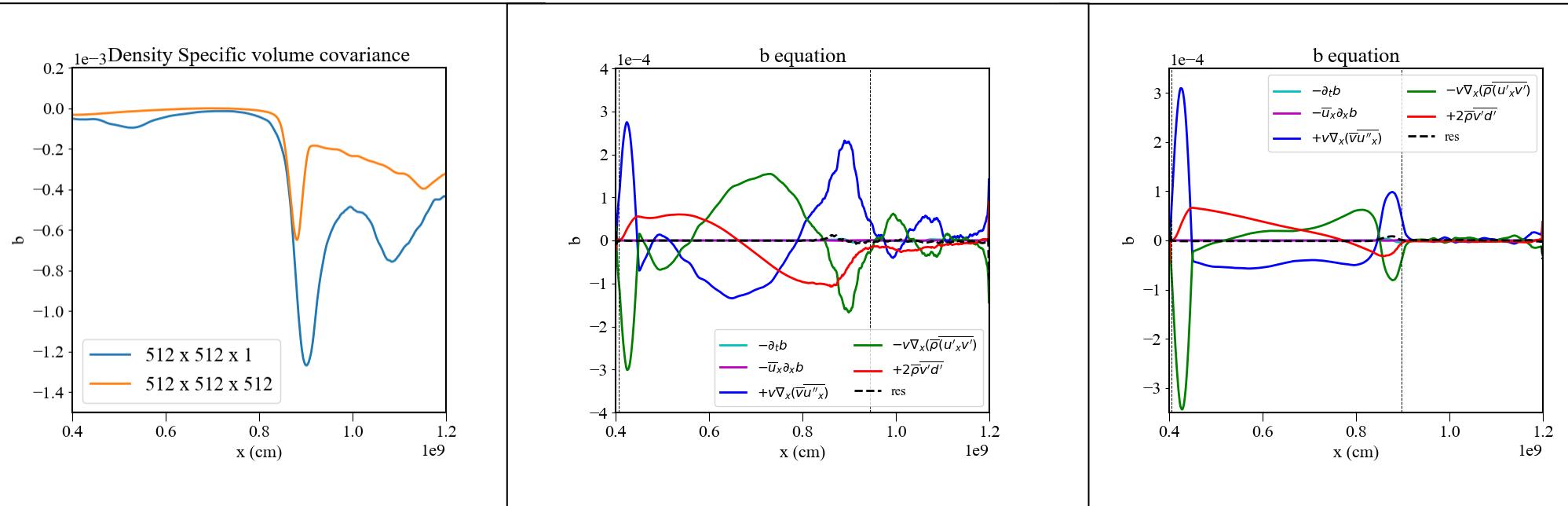
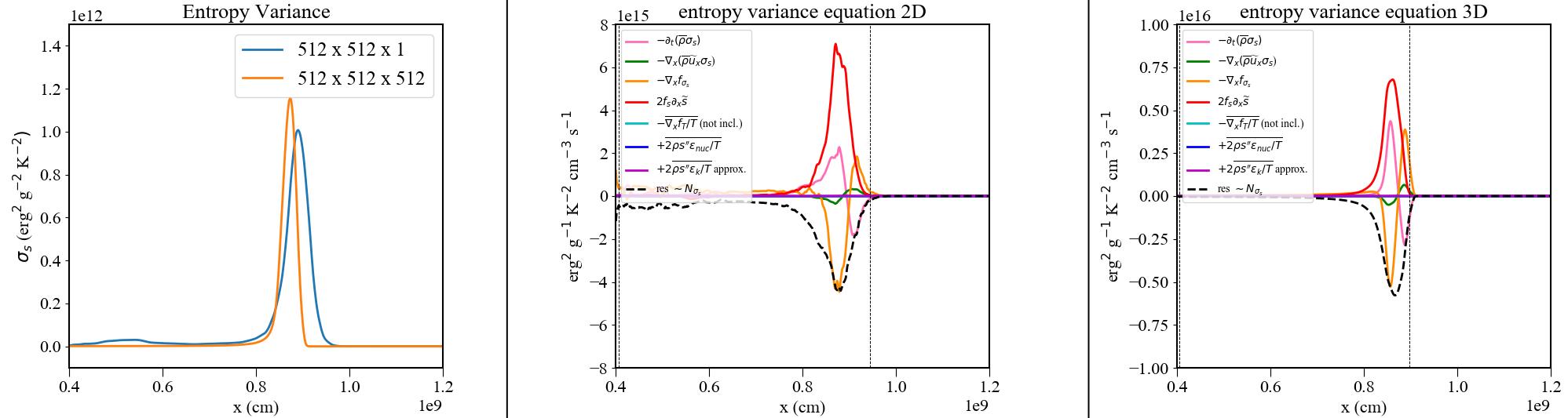


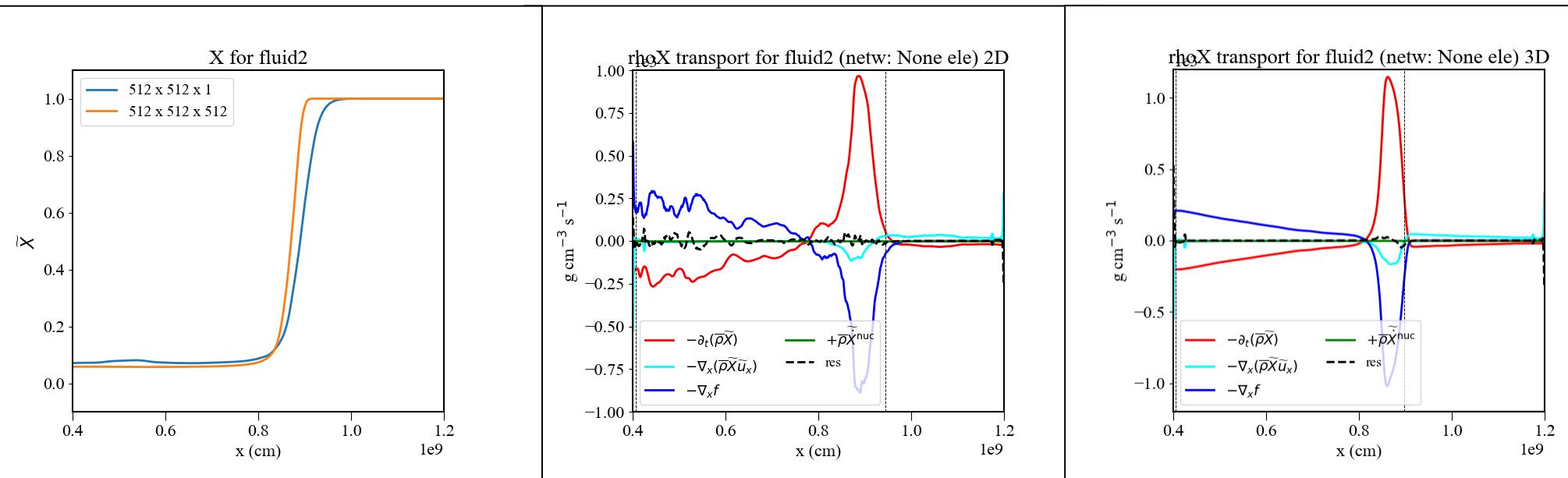
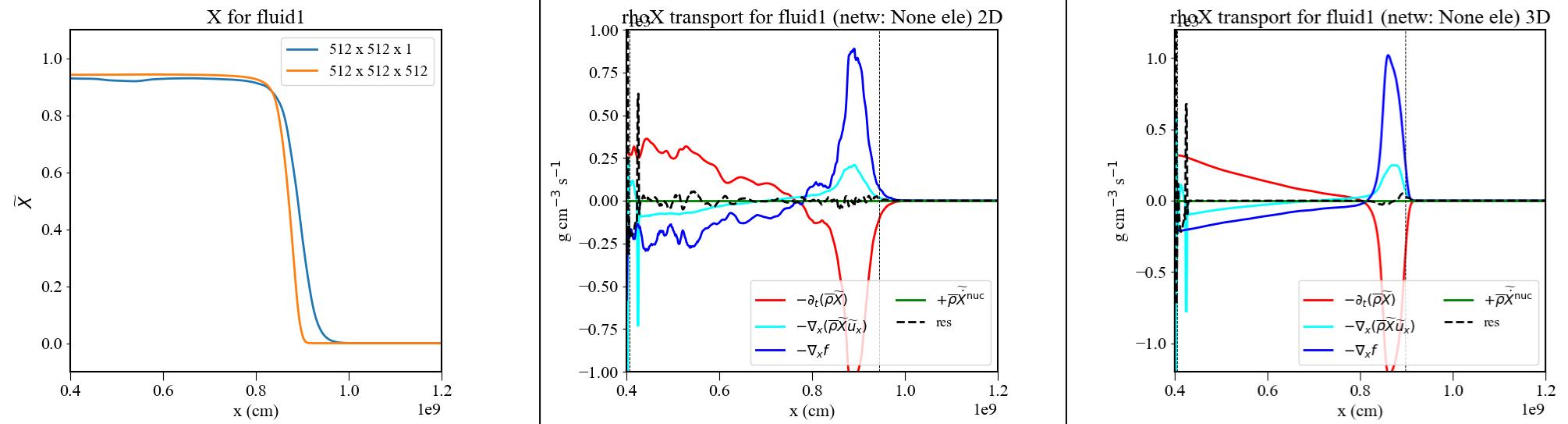


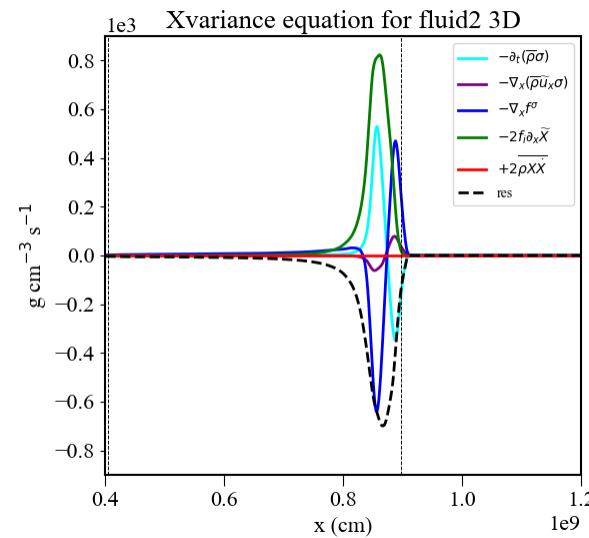
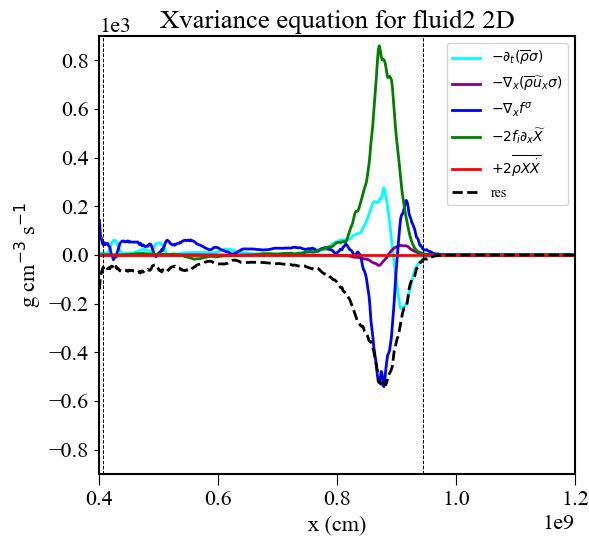
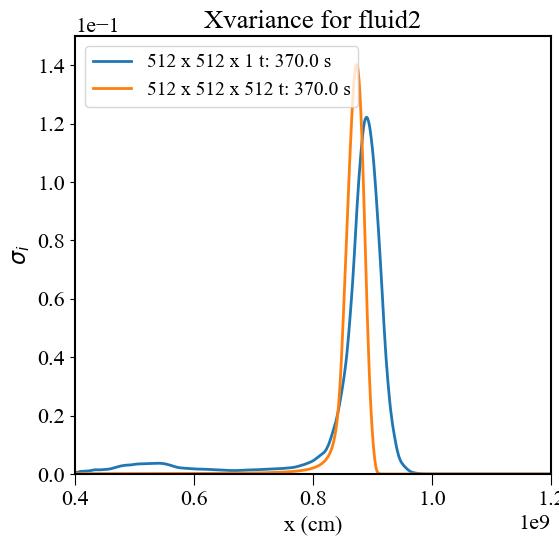
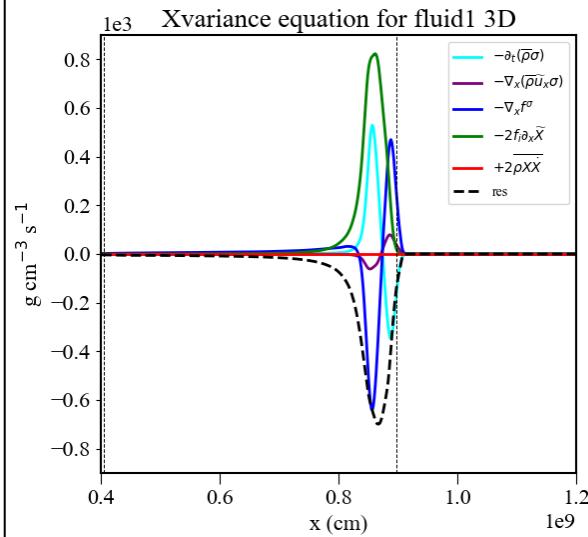
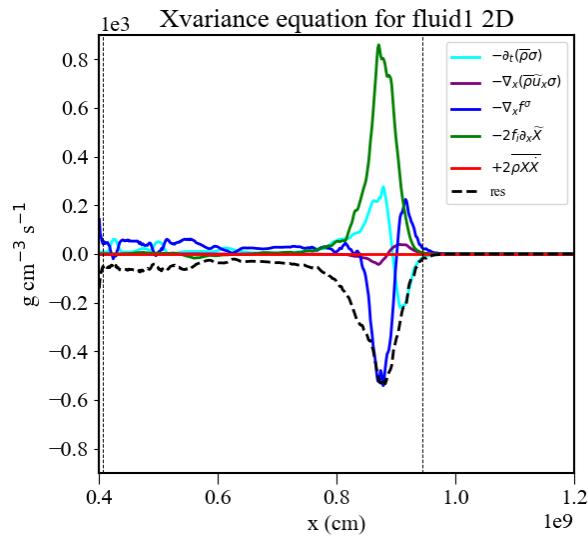
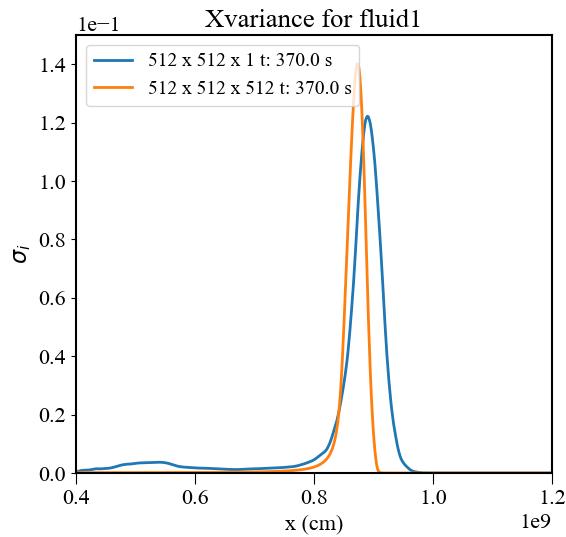


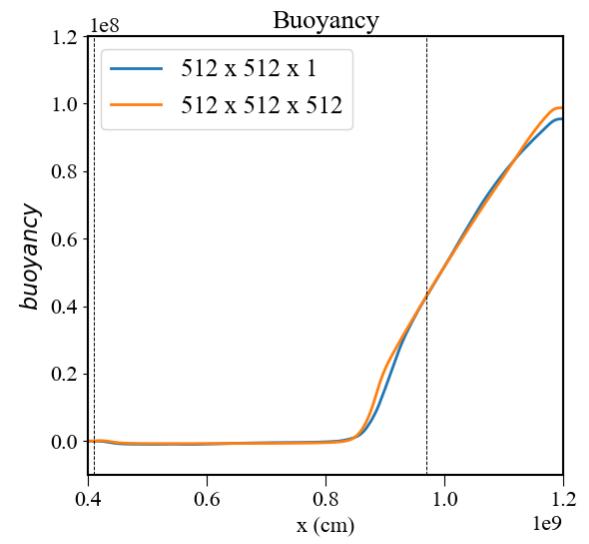
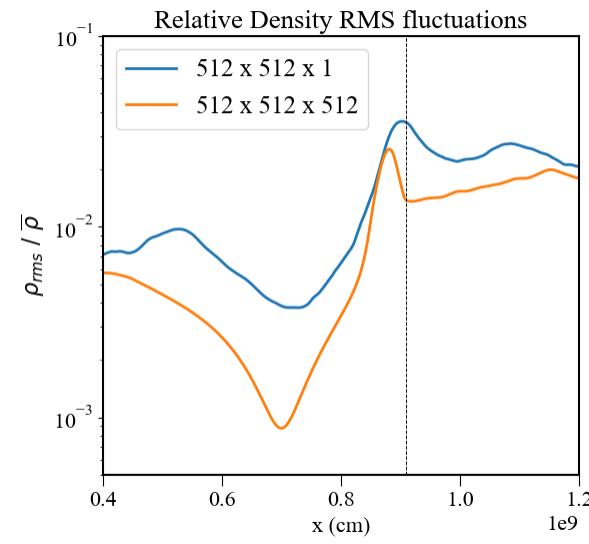
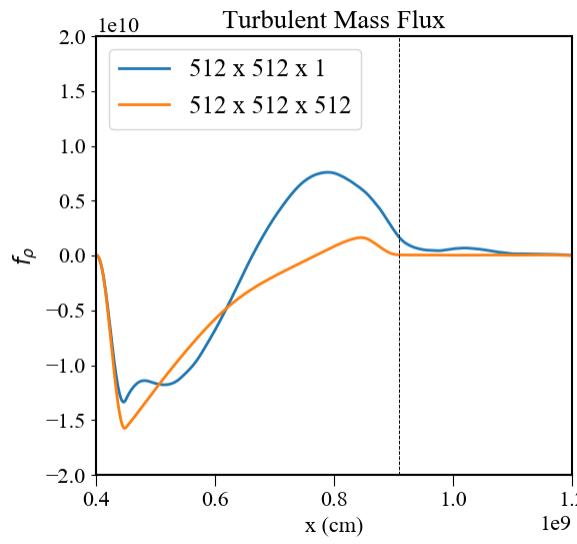
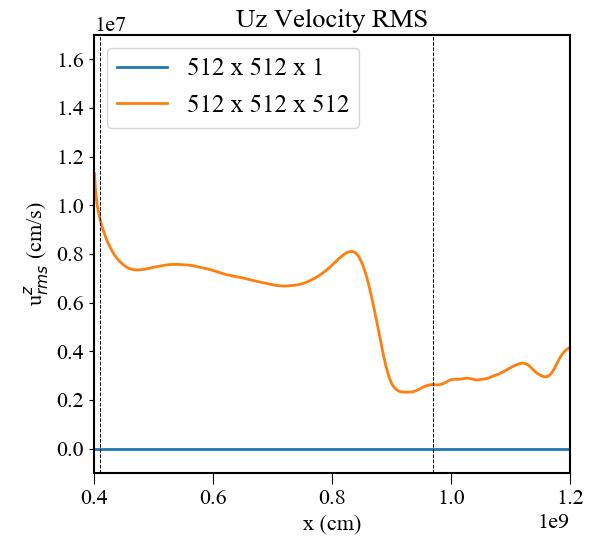
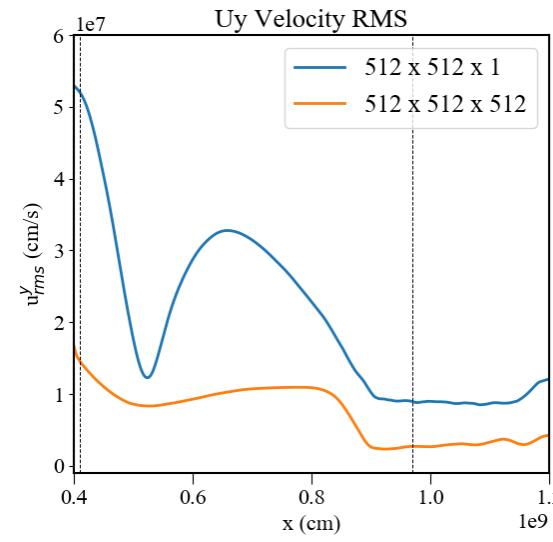
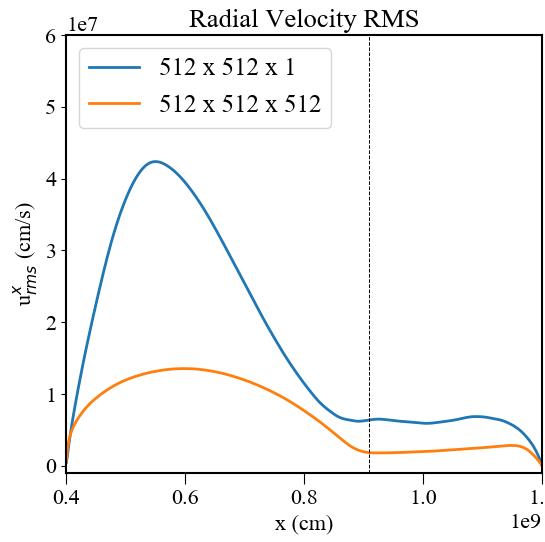


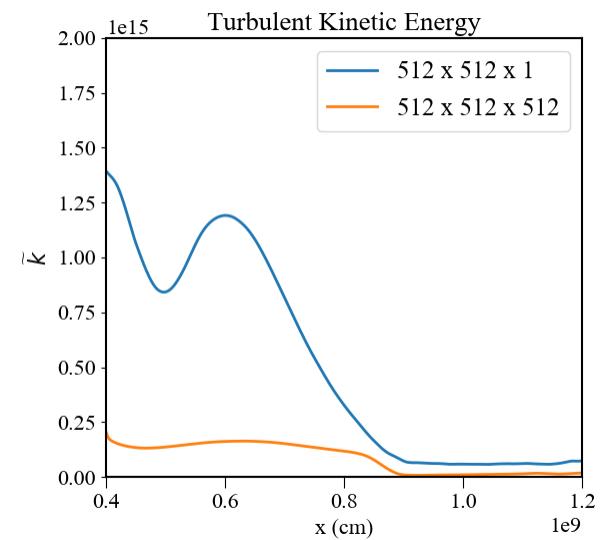
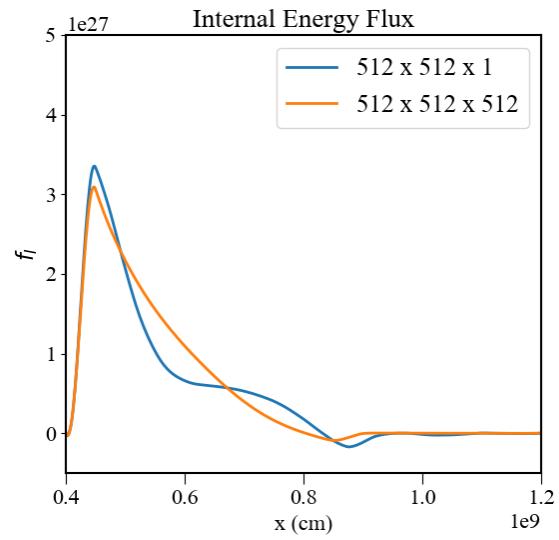
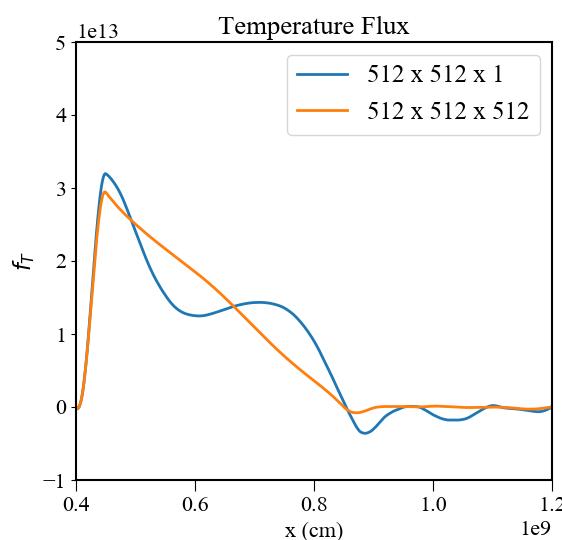
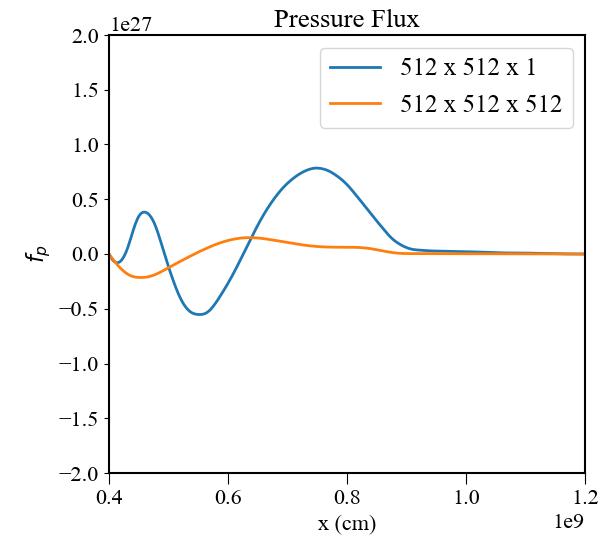
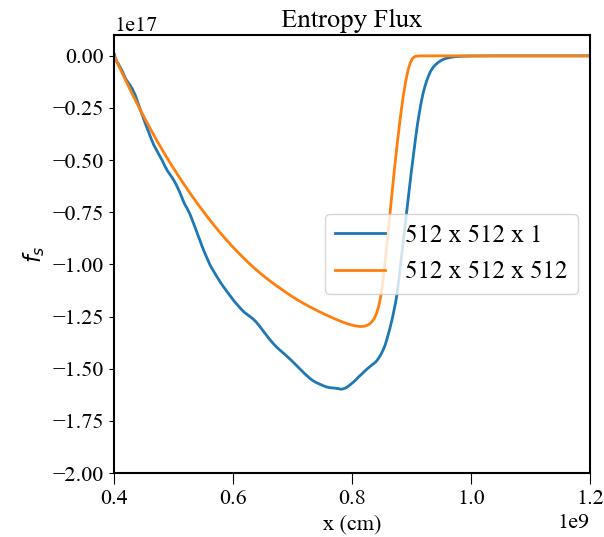
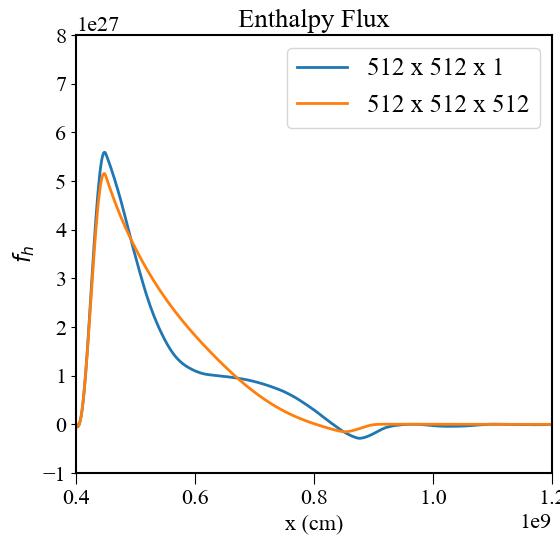


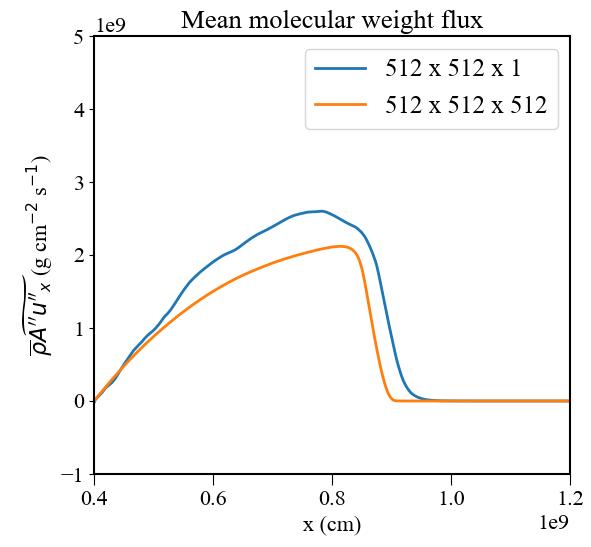
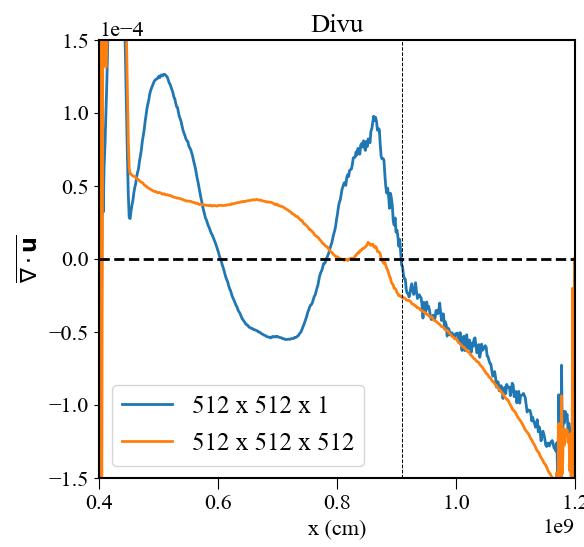
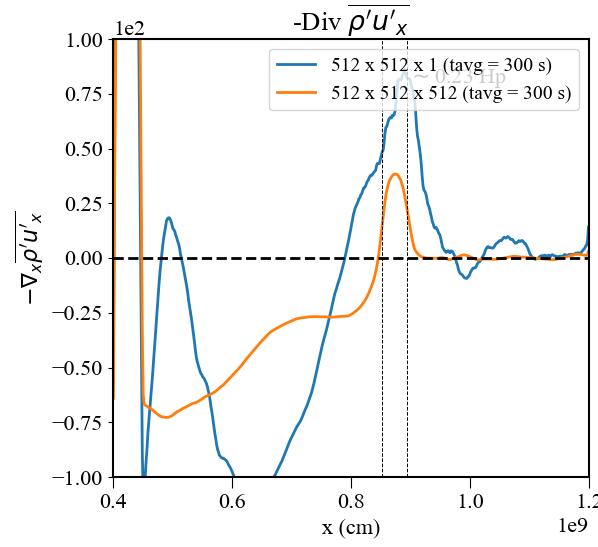
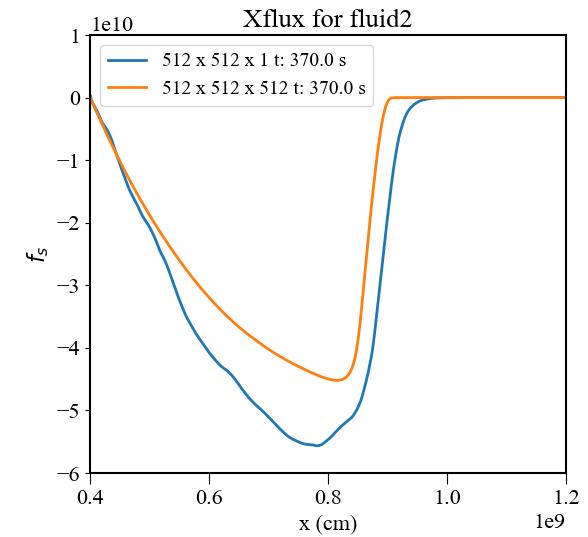
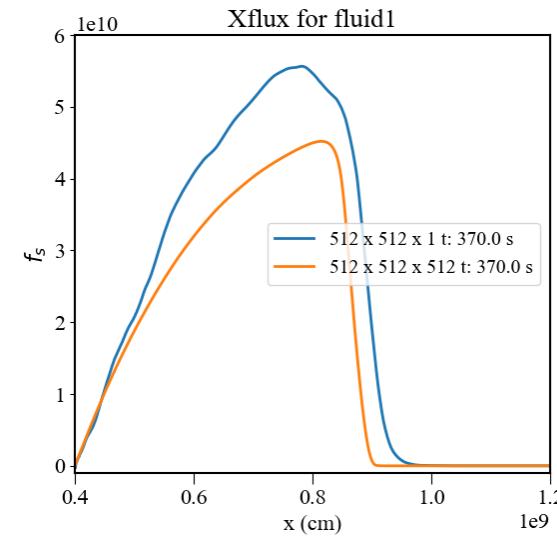
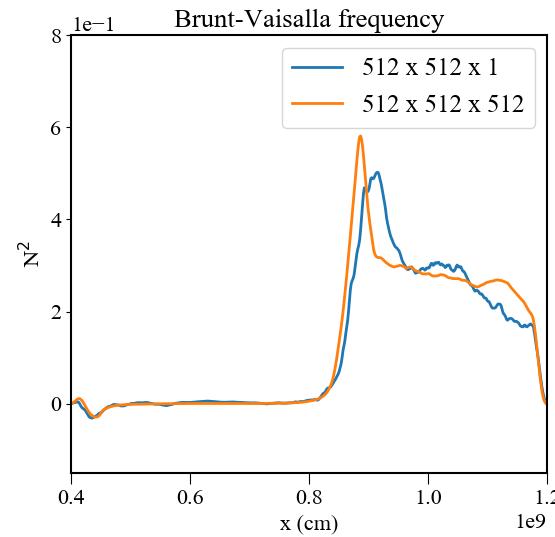


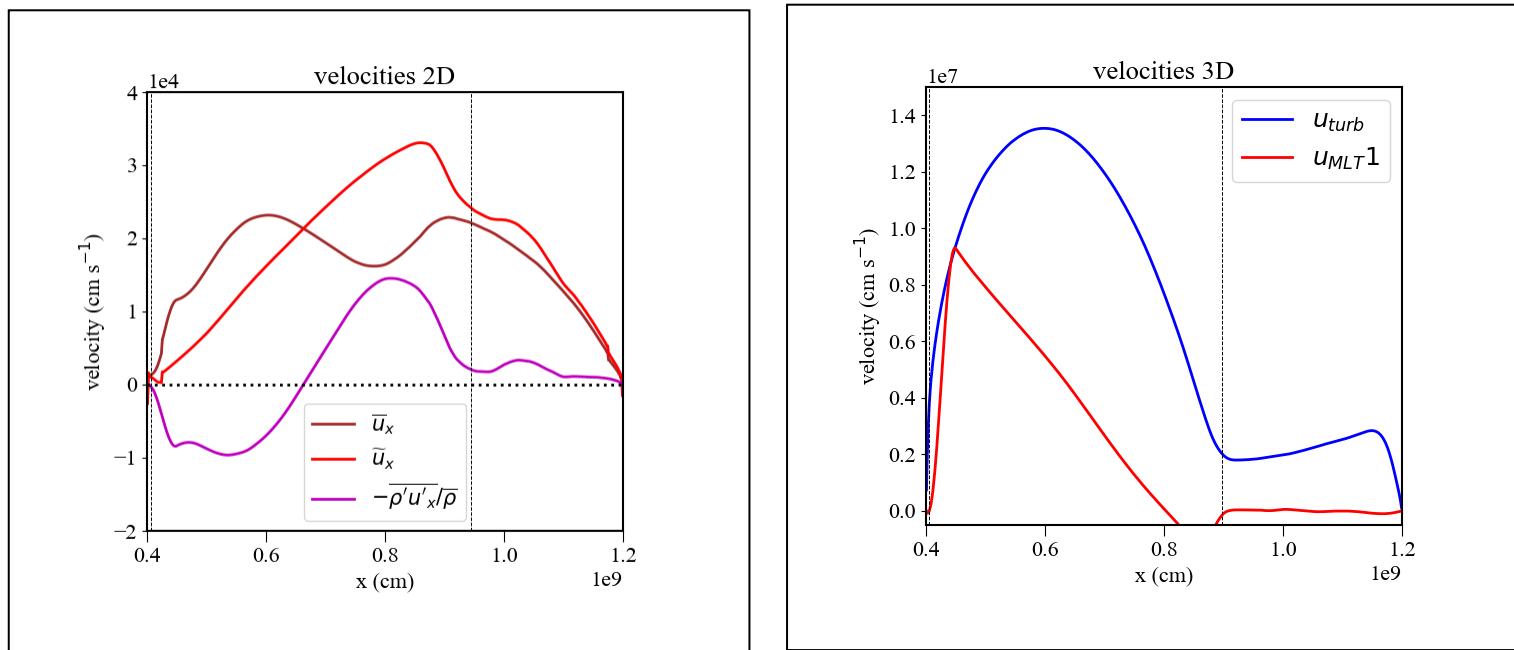
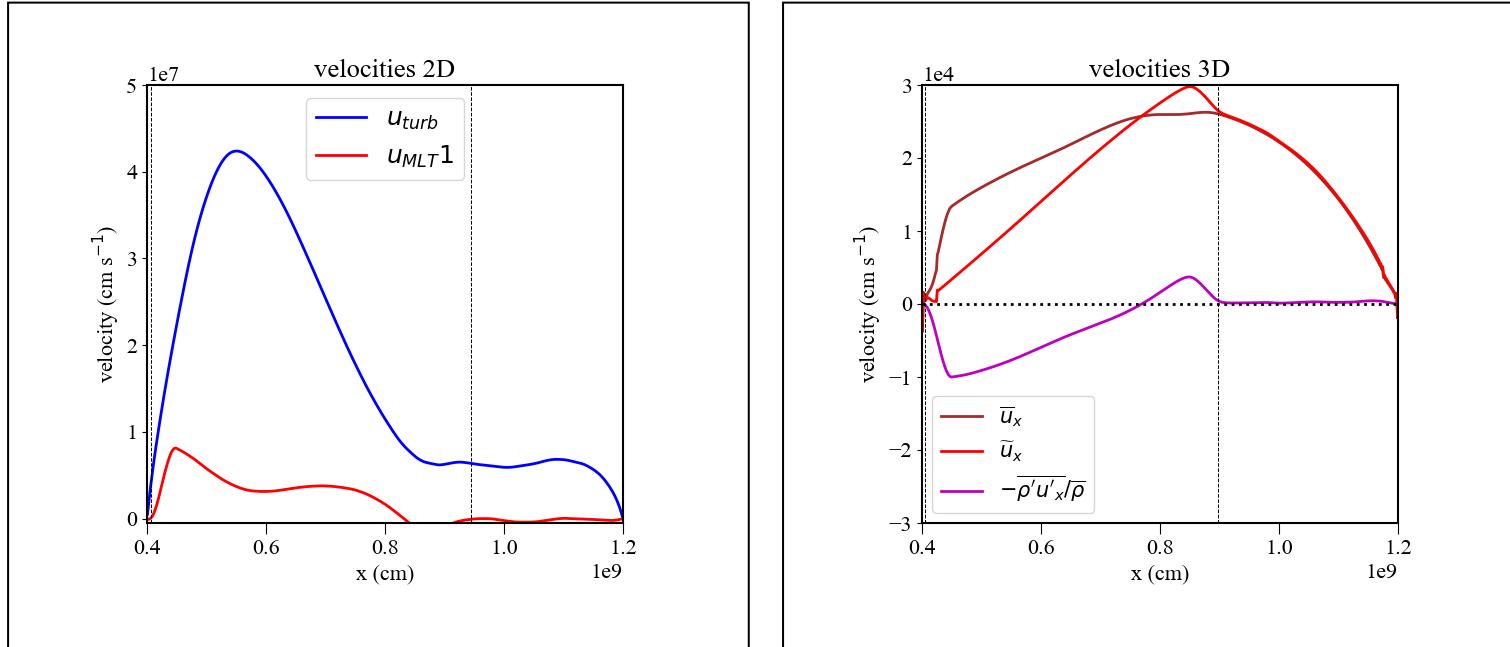


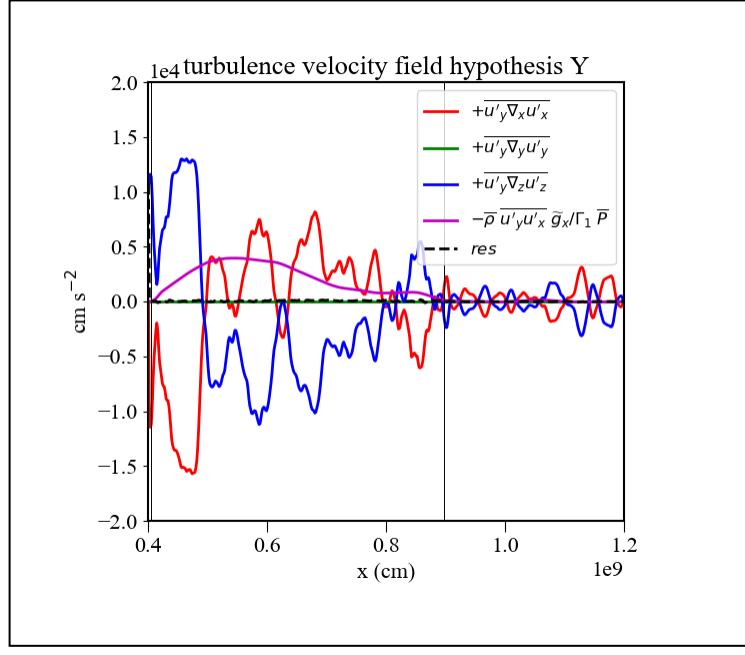
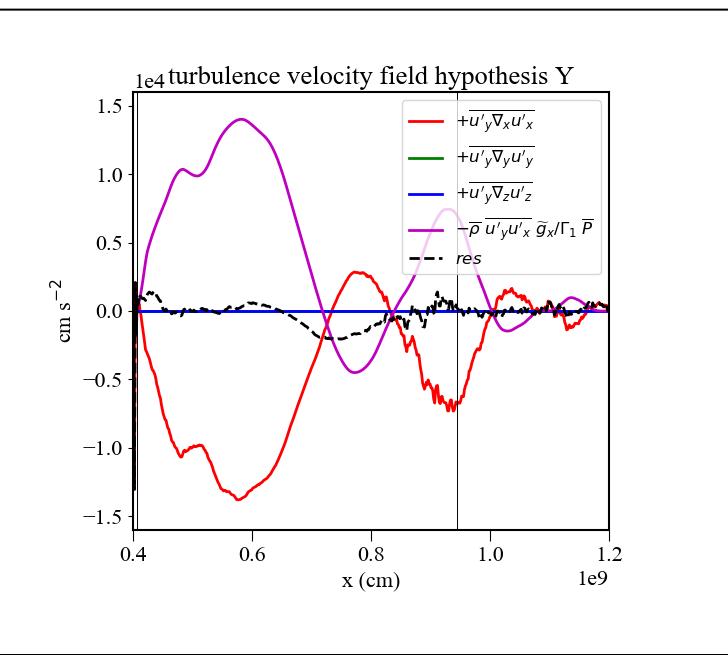
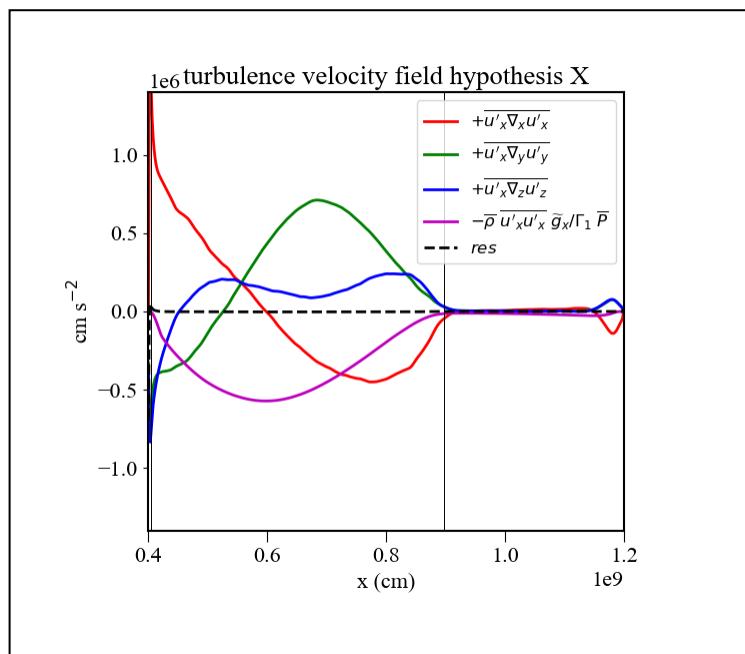
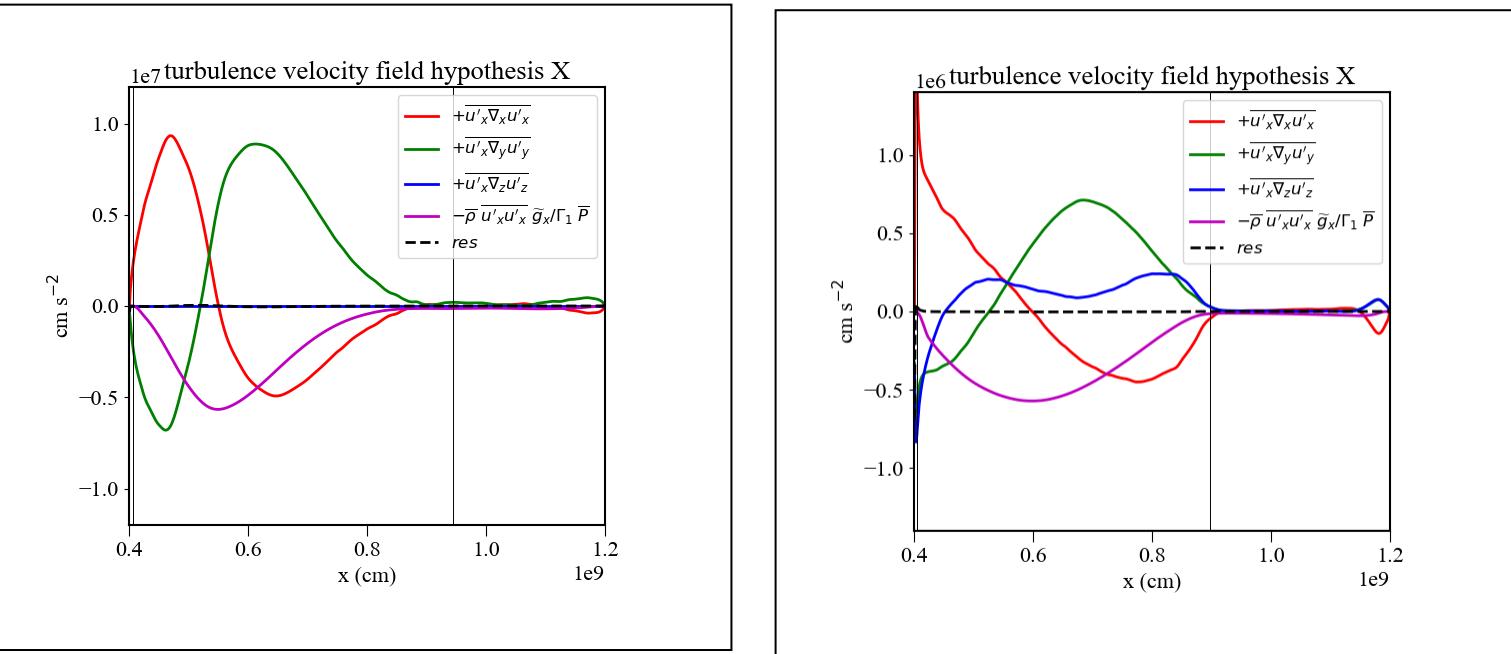


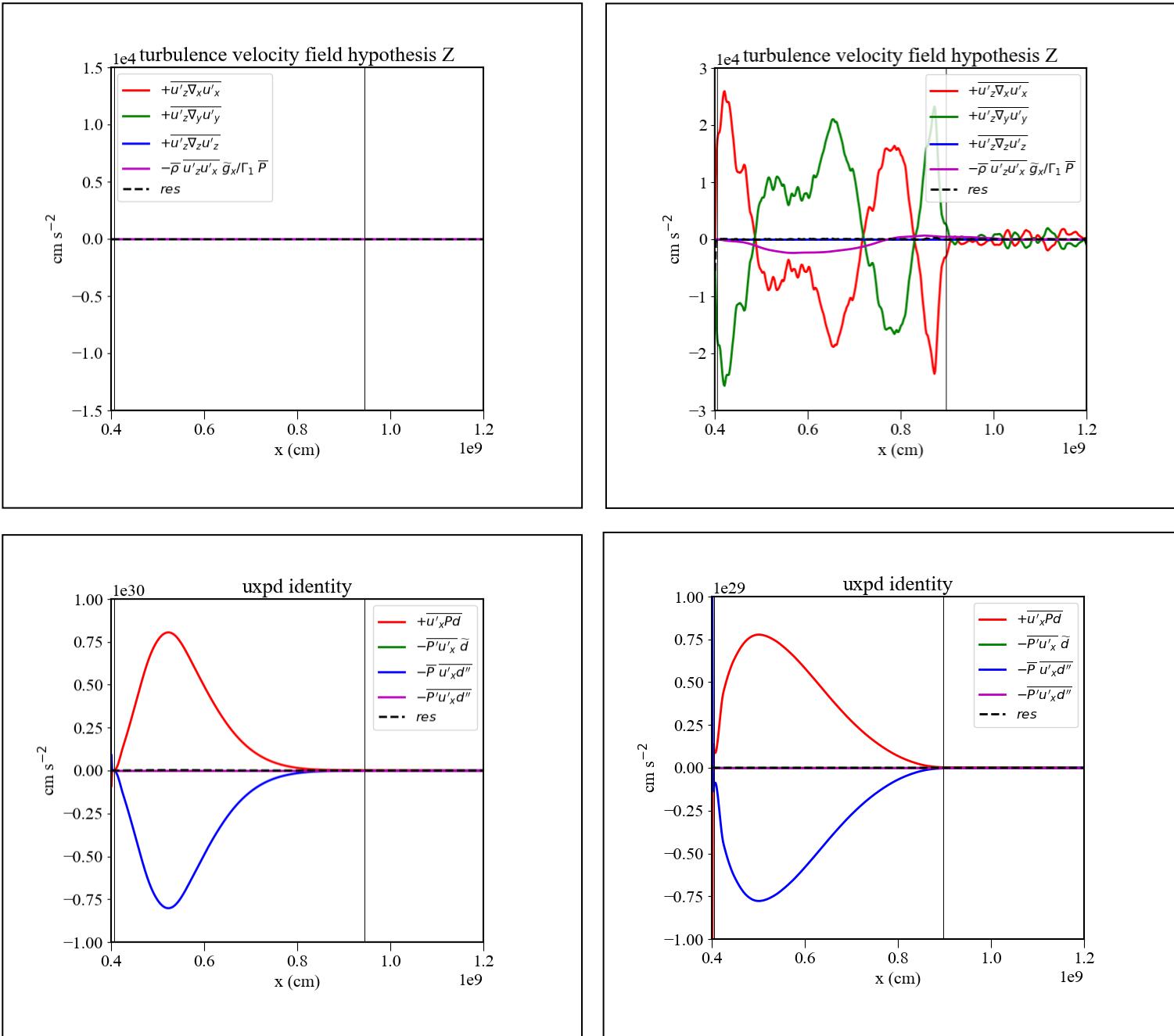


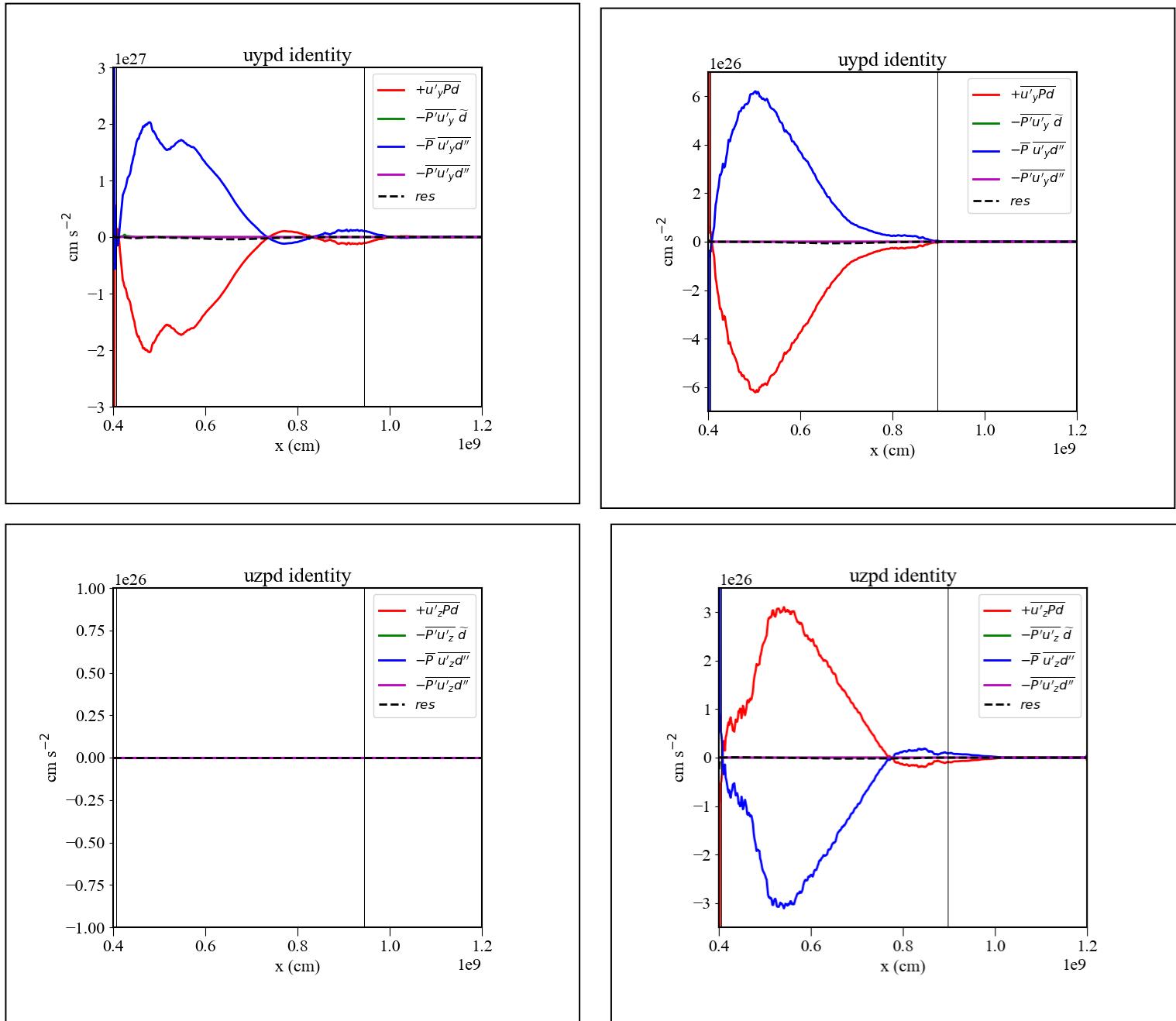


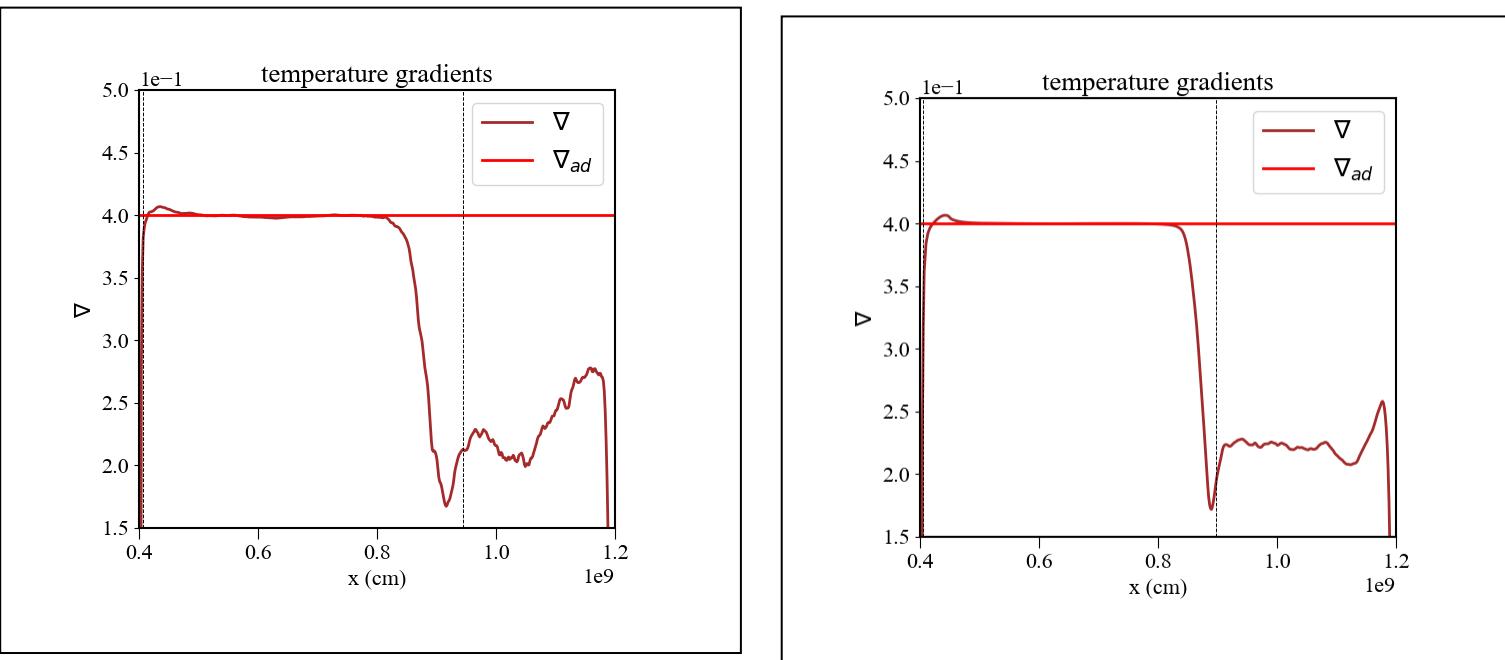




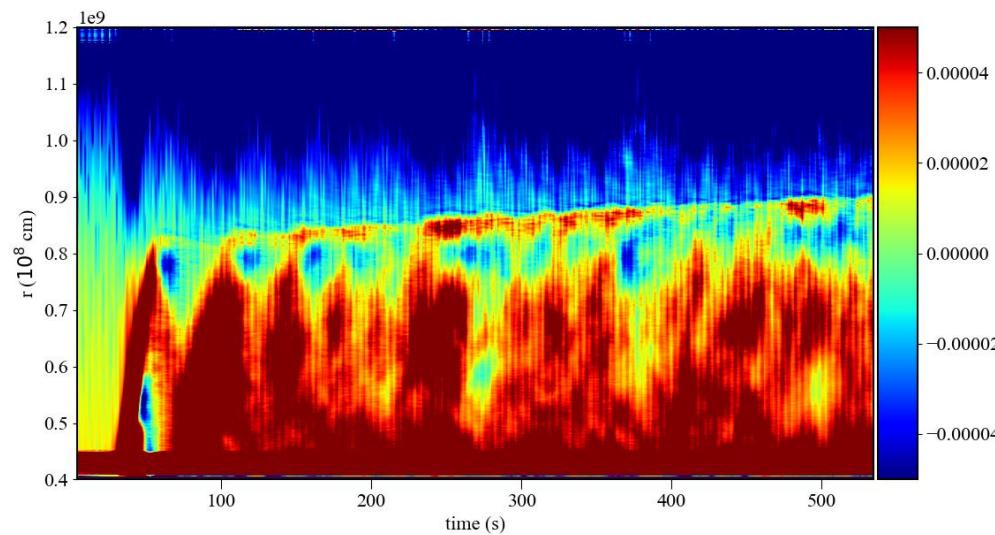




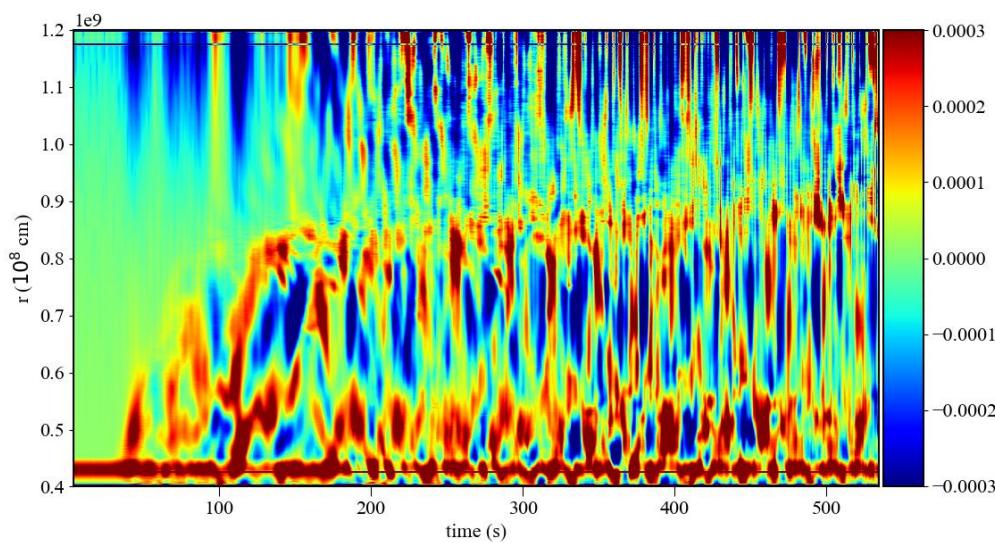




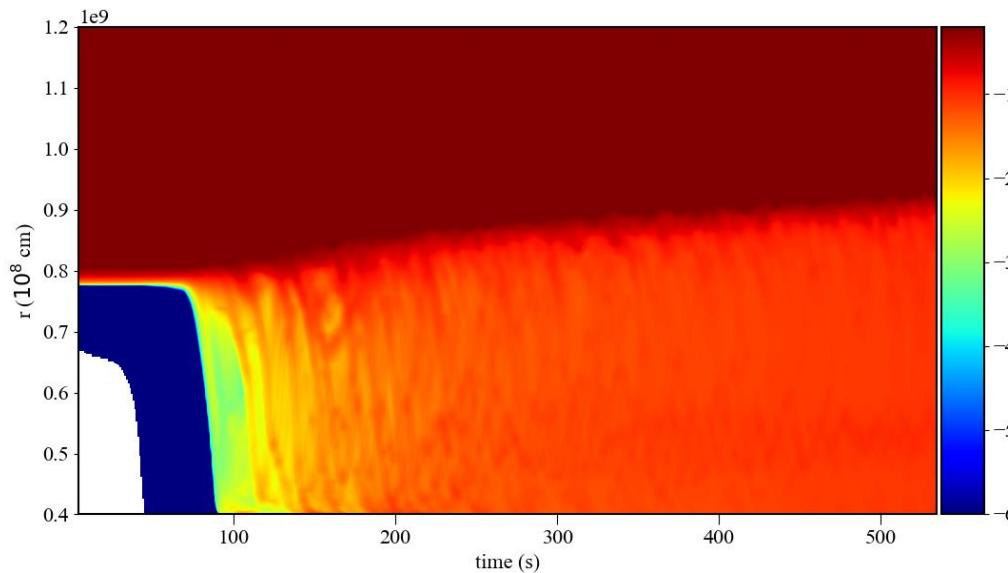
$\nabla \cdot \mathbf{u}$ 512 x 512 x 512



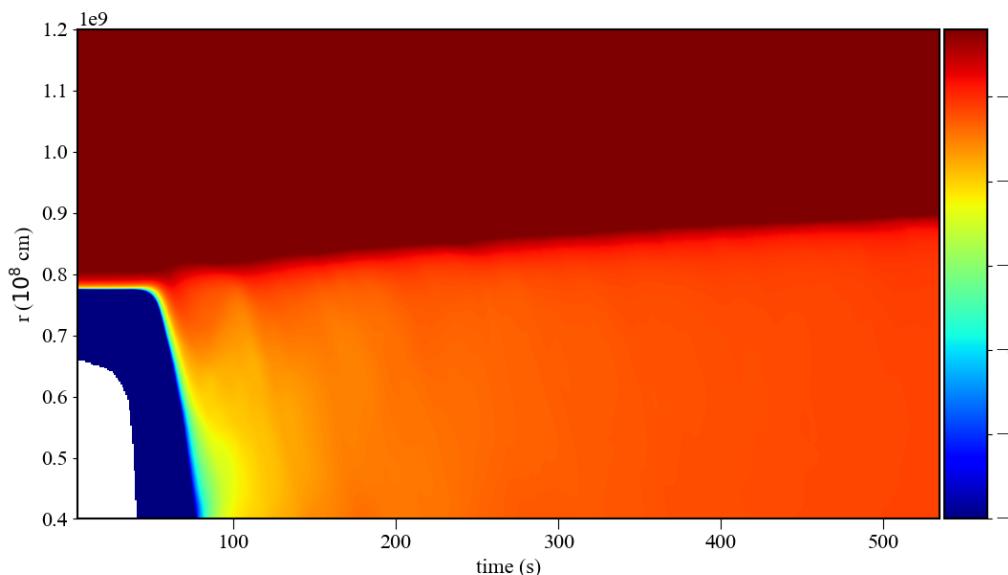
$\nabla \cdot \mathbf{u}$ 512 x 512 x 1



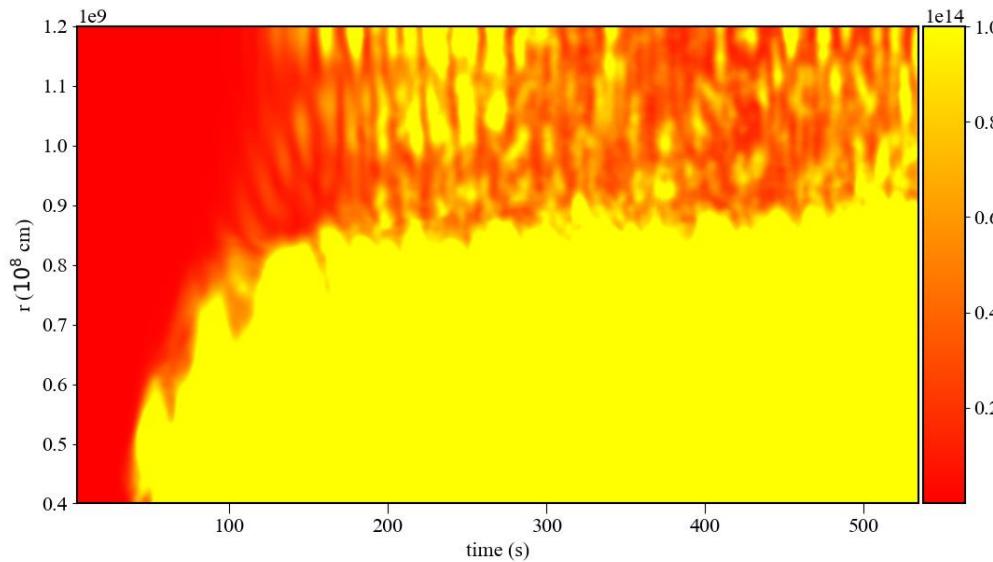
X (512x512x1) (fluid2)



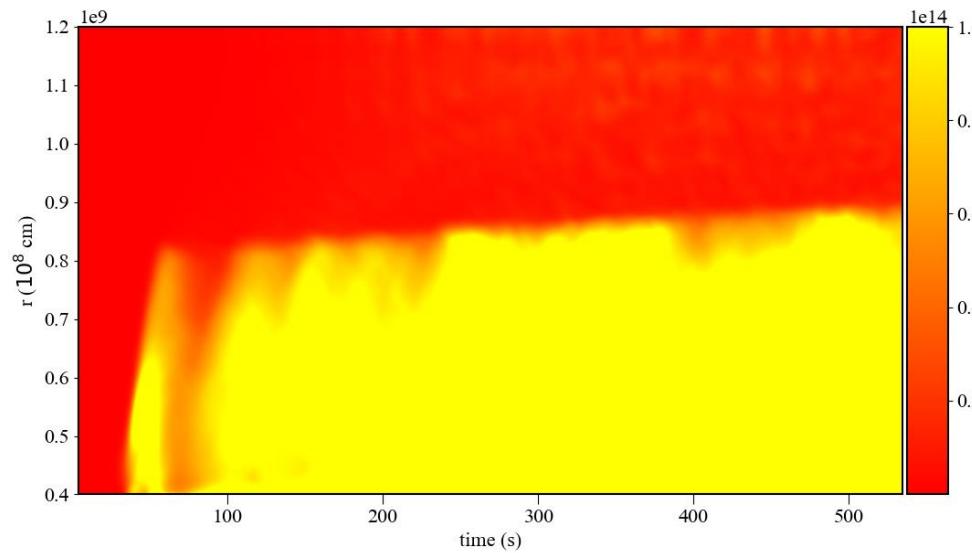
X (512x512x512) (fluid2)



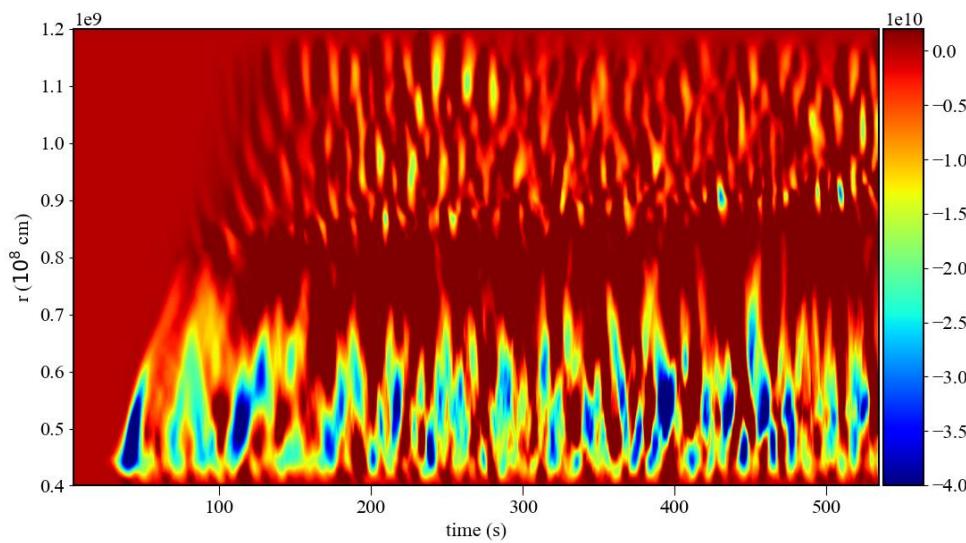
TKE 2D



TKE



f_ρ 512 x 512 x 1



f_ρ 512 x 512 x 512

