

# Week 12 Report

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# Comparing the Effect of Resolution on Simulation

- Ran two separate simulations through  $t = 1\text{s}$  for B-field evolution.
  - First simulation with regular (as implemented in prior tests) resolution (20 grid-cells in  $\varphi$  and  $\Theta$ ).
  - Second simulation with high resolution (50 grid-cells in  $\varphi$  and  $\Theta$ ).
- While the first simulation took roughly an hour and a half, the high resolution simulation took 57 hours (it was a good endurance test after disabling Automatic Suspend)!

```
step:158955; t = 9.9995e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.955611]  
step:158956; t = 9.9995e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.957353]  
step:158957; t = 9.9996e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.955901]  
step:158958; t = 9.9996e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.957643]  
step:158959; t = 9.9997e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.956192]  
step:158960; t = 9.9998e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.957934]  
step:158961; t = 9.9998e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.956483]  
step:158962; t = 9.9999e-01; dt = 6.2908e-06; 100.0 %  
[Mach = 21.958224]  
step:158963; t = 1.0000e+00; dt = 3.9352e-06; 100.0 %  
[Mach = 21.956773]  
> Writing file #1 (dbl) to disk...  
> Writing file #1000 (vtk) to disk...  
  
> Total allocated memory 135.87 Mb  
> Elapsed time 2d:12h:48m:21s  
> Average time/step 1.38e+00 (sec)  
> Local time Thu Nov 8 04:41:08 2018  
> Done
```

NORMAL RES DATA  
DB: data.D025.yfr  
Cycle: 525 Time: 0.02406  
Var: ~~operator~~Lineout/M

H RES DATA  
DB: data.D025.yfr  
Cycle: 525 Time: 0.024064  
Var: ~~operator~~Lineout/M

Value ( $\times 10^{-15}$ )

1.0  
0.0  
-1.0  
-2.0  
-3.0

0.0

0.5

1.0

1.5

2.0

Distance



