What to include to capture a Rayleigh simulation

04/09/2023

For each simulation in a suite, make a folder with appropriate name:

Within that folder, put:

1. main\_input
2. equation\_coefficients
3. grid\_info
4. jobinfo.txt
5. “custom\_reference\_binary” (if any)
6. Checkpoints/last\_checkpoint\_folder
7. [all data folders]/last output file
8. Non-dimensional numbers input/output (in text file):
   1. Put headers, where each column specifies radial level averaged over (do 1 for non-tachocline models, 3 for stable layer, overshoot layer, convection zone for tachocline models)
   2. Make text versions of my “print” routines and routines to read them into Python
9. data/:
   1. G\_Avgs trace (multiple domains for tachocline models)
   2. time-averaged averaged over equilibration:
      1. AZ\_Avgs
      2. Shell\_Avgs
      3. G\_Avgs
      4. Shell\_Spectra
   3. time-latitude traces (if magnetic or unsteady):
      1. <v>
      2. <B>
   4. time-radius traces (if magnetic or unsteady)
      1. <v>
      2. <B>
   5. m = 0, 1, 2 versions of c. and d. if it makes sense
10. plots/:
    1. energy trace (multiple domains for tachocline models)
    2. angular momentum trace (multiple domains for tachocline models)
    3. steady-state meridional-plane figures:
       1. differential rotation
       2. meridional circulation
       3. <S> and <P>
       4. torque balance
    4. steady-state line plots:
       1. differential rotation (along radial lines)
       2. radial energy flux balance
       3. latitudinal energy flux balance
       4. v’(r) and B’(r) (if magnetic—put on same row)
       5. Left: <S>\_sph and rms fluctuation about <S>\_sph, right:<P>\_sph and rms fluctuation about <P>\_sph
    5. slices (taken from last iteration):
       1. Mollweide grid of v\_r, om\_r’, and om\_z’(rows) for 3-5 radial levels (columns)
       2. Same for B\_r, B\_phi, and J\_r
       3. Equatorial cuts of v\_r, om\_r’, and om\_z’ (columns)
       4. same for B\_r, B\_phi, and J\_r
       5. Meridional grid of v\_r, om\_r’, and om\_z’(rows) for 4 longitudes (columns)
       6. Same for B\_r, B\_phi, and J\_r