Assignment 11 Progress Report

1. Problem

The problem I have been trying to tackle, for this assignment, is to simply show the wake from the DM particles in M31 and the Milky Way that is trailing behind satellite galaxy M33.

2. How the code helps

The code I have written helps solve my overall problem by showing the density of the nearby particles and so this will help guide my coding for future steps. I have also written a few lines to help show other components of M33 to help with the overall analysis.

3. Function of the Code

I have written up code that creates a 2 dimensional histogram of the DM particles (MW and M31) surrounding the COM of M33. The code takes a given radius (~20kpc) and defines a sphere around M33’s COM and stores those nearby particles. Then I have also modified code from Nico Camargo to take the particles and smooth out the density distribution. When plotted, the plot also shows the M33 COM position and the magnitude of the velocity vector of M33 in the 2 dimensions plotted. I have also created new COM files, which extend out to snap 800, instead of 700 like before and only include the DM particles of all 3 galaxies. Also, I have crudely created a phase diagram of the local particles to try to sift out any significant tendencies in motion in the DM particles.

4. Output

 