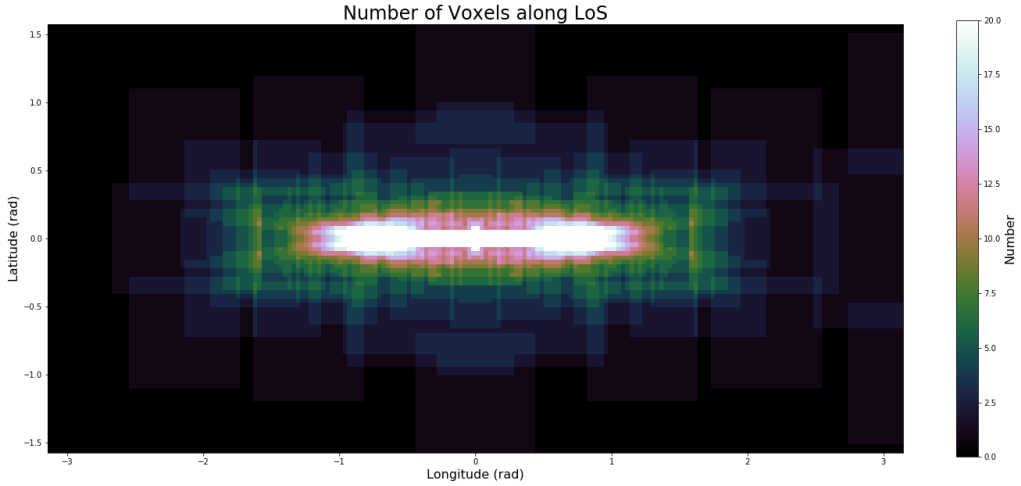
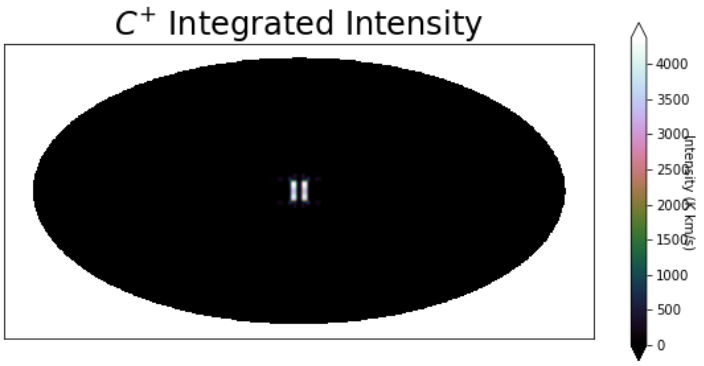
1 KOSMA-τ^3

It has been a fairly long time since I have sent you any plot or update, so I will show you some of the features I mentioned in the group meeting. The first aspect I want to show is that I am calculating the line-of-sight correctly. This can be seen in the plot below. I have run a large grid of sightlines to give this plot a high resolution. The size of each voxel is 1000 pc, so I will have to scale this to the sightline inside of the galactic disk.



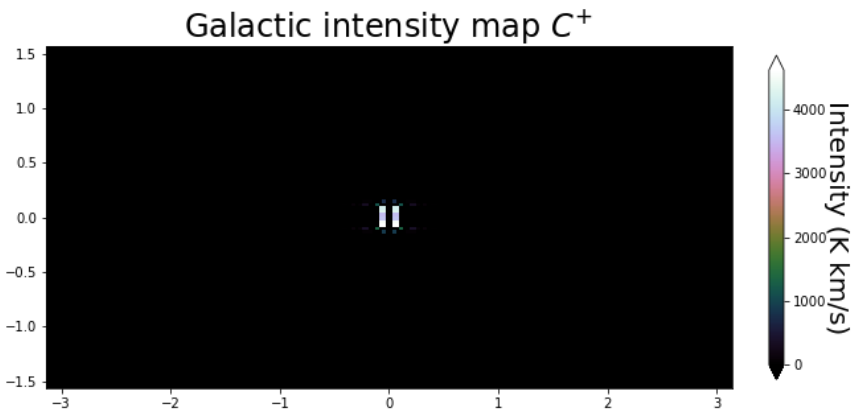
I have gridded the intensities with `cygrid` using a Mollweide projection, but all of the features are overshadowed by the galactic center. Due to the FUV distribution, this is expected. I tried limiting the colorbar to show the other features, and the features in the galactic disk are less than 10 000 times smaller than that of the core. I will try to create a figure of the C^+ intensity like in Cubick et al. (2003), but I want to get rid of these blocky features. Perhaps scaling my line of sight to the size of the disk (which needs to be done anyway) will fix this, but I need to look into it further. There is also still some asymmetry in the north-south direction that is not present in the individual voxels.

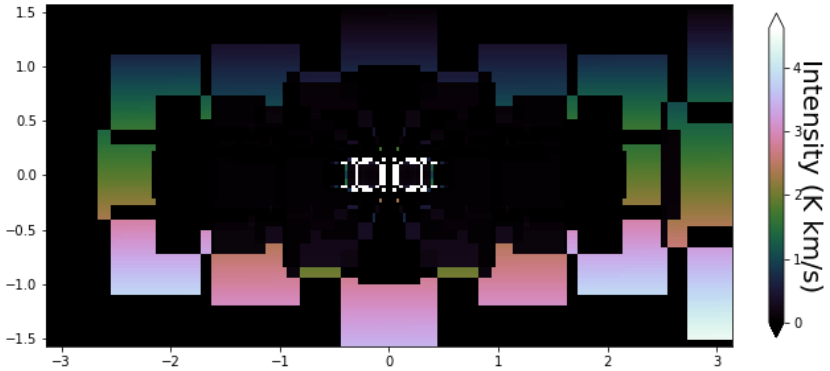

C^+ Integrated Intensity
4000
3500
3000
2500
2000
1500
1000
500
0
Intensity (K km/s)

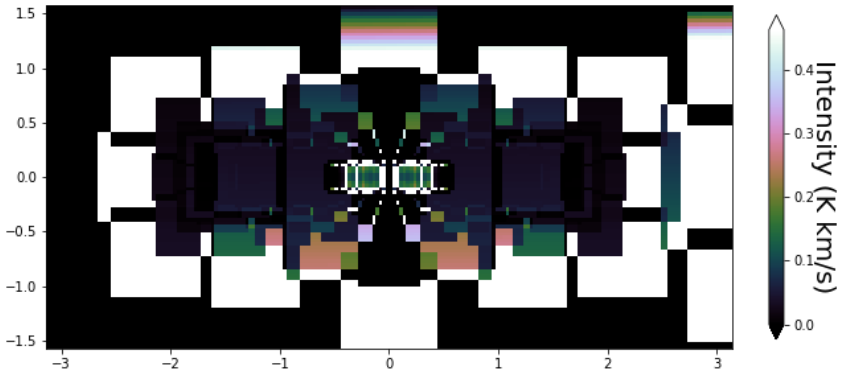

4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Intensity (K km/s)


0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Intensity (K km/s)

To see the nature of what I had regridded in `cygrid`, I plot a flat map of the observed intensities along these sightlines. It does seem a bit redundant to have so many intensities at latitudes near $\pm\frac{\pi}{2}$, but it was necessary to conform to the `fits` standard. That being said, maybe I should not use the FITS standard for the synthetic integrated intensities. I am using it at the moment to support the ND-arrays produces by `KOSMA-$\tau^3$`. It is clear that the large-scale blocky structures are an artefact of my code, and not an issue of resolution of the sightline integration. There is also some improvements I can make to determine whether a voxel is in the sightline.


Galactic intensity map C^+
Intensity (K km/s)
4000
3000
2000
1000
0


Intensity (K km/s)
4
3
2
1
0


Intensity (K km/s)
0.4
0.3
0.2
0.1
0.0