

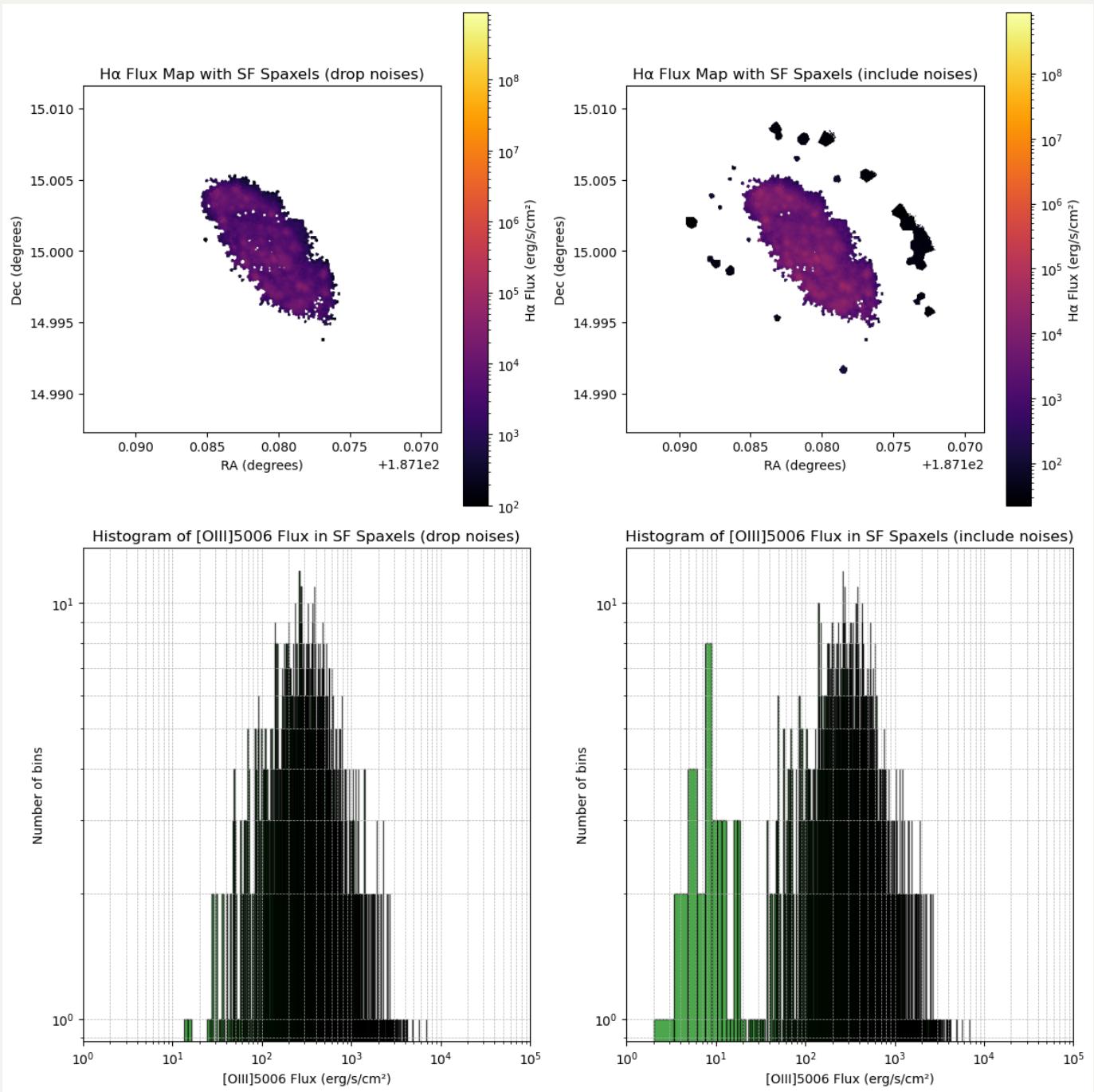
20250626 Noise Cut

Notice that even after applying a basic all lines $\text{Flux}/\text{Flux}_{\text{err}} \geq 3$ cut, I still get some annoying spaxels look like noises. They are mostly in the outskirts of the galaxies and very low flux, so they are likely the noise. Hence, I add an additional basic cut on flux to remove these spaxels: any spaxels with all 6 lines' $\text{Flux} \geq 10$ (in the unit of 10^{-20} erg/s) are signals, otherwise are noises and will be dropped. As a result, now I have a QC that $\text{Flux}/\text{Flux}_{\text{err}} \geq 3$ & $\text{Flux} \geq 10 \times 10^{-20}$ erg/s.

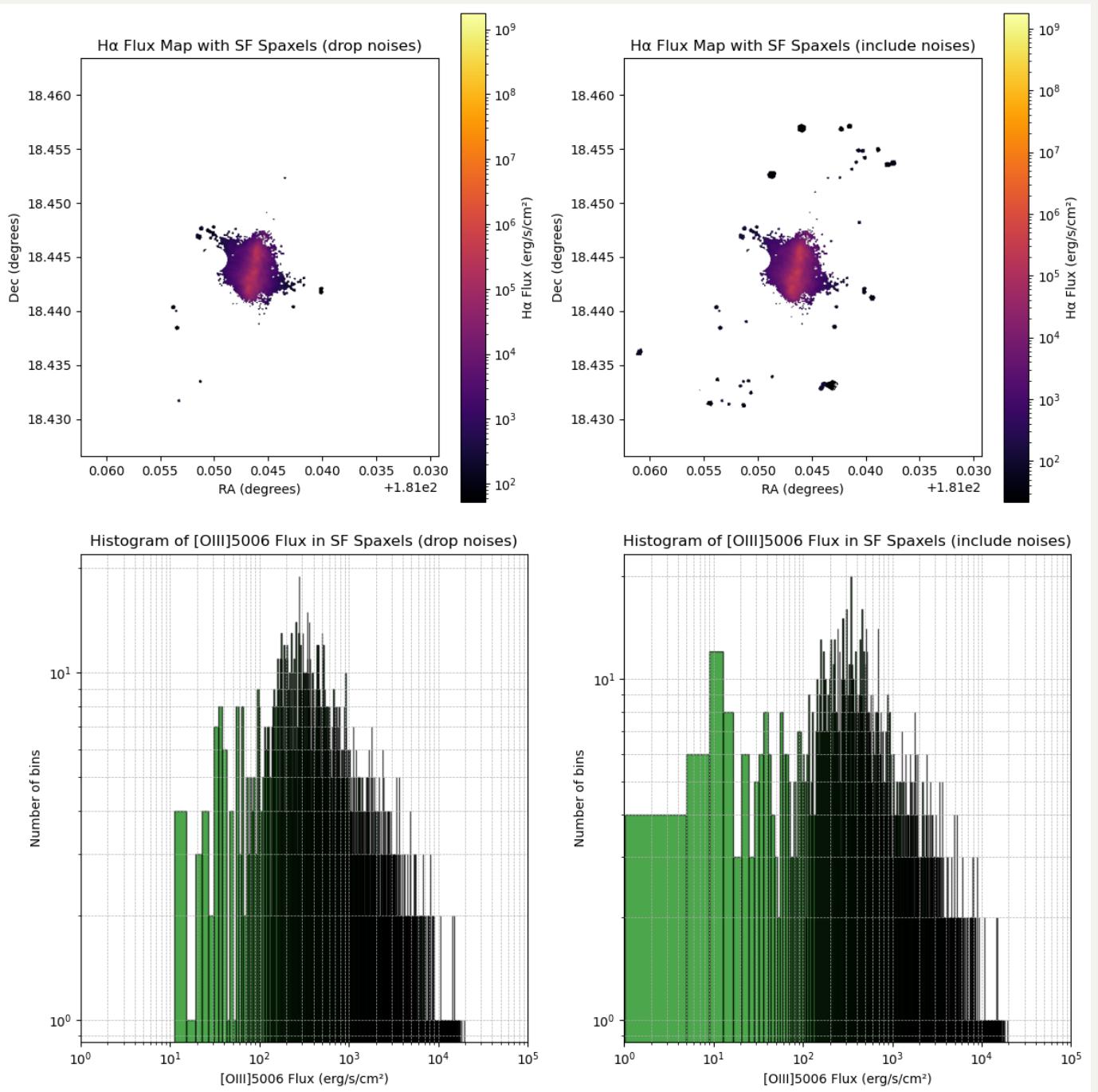
Below I show the comparison of including and removing noises (all lines $\text{Flux} \geq 10 \times 10^{-20}$ erg/s or not) in SF (all lines $\text{Flux}/\text{Flux}_{\text{err}} \geq 3$ & constraint in both BPT & classified as SF in both BPT) spaxels. Upper panels are H α flux, while lower panels are histograms of [OIII], because noises are primarily very low flux in [OIII].

I think 10 is good enough. For those galaxies that have a clear inner compact structure with some spaxels in the outer region (e.g., IC3392, NGC4064, NGC4298, NGC4330, NGC4419, NGC4694), I think this cut works well.

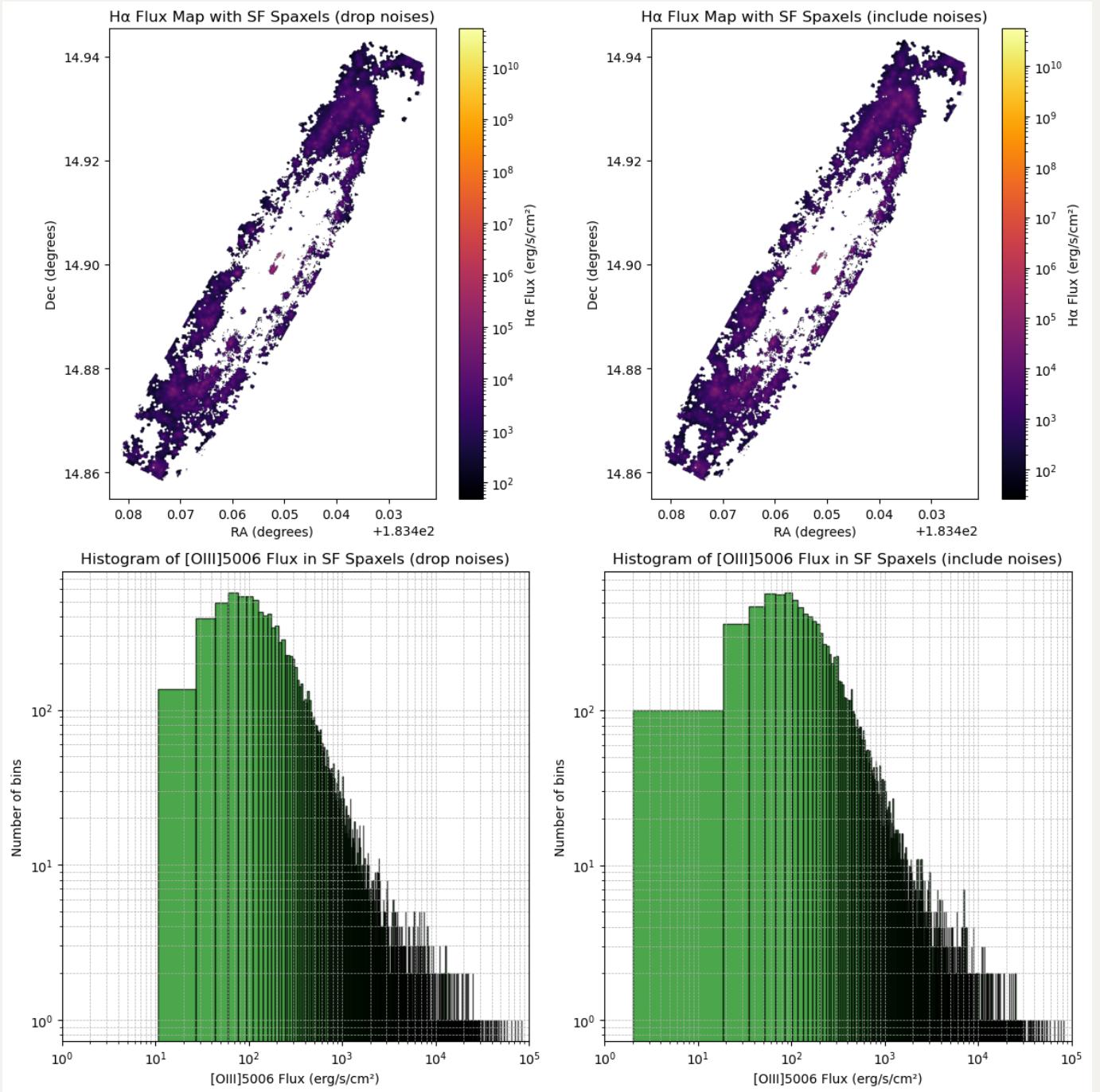
2.1 IC3392



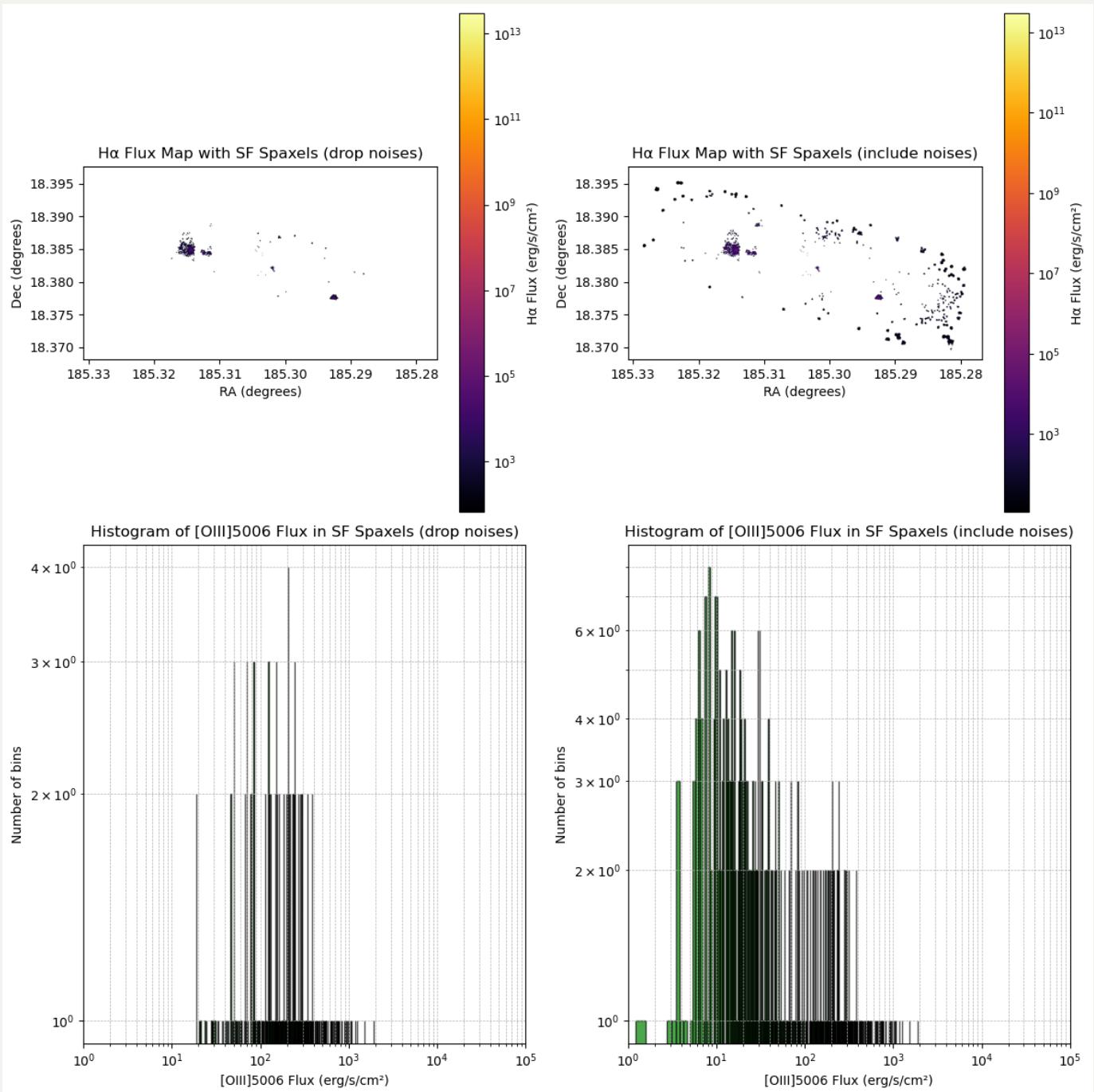
2.2 NGC4064



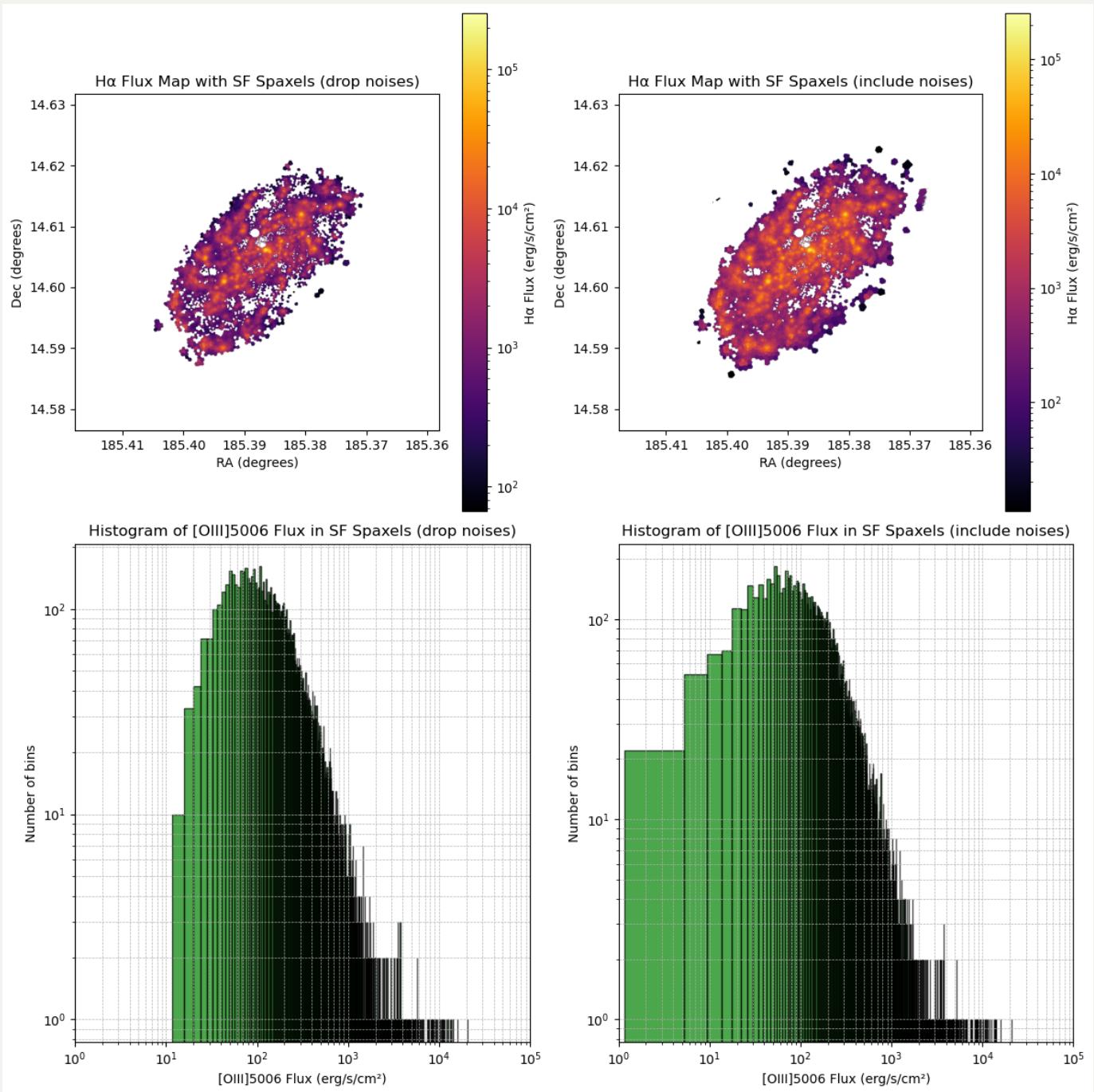
2.3 NGC4192



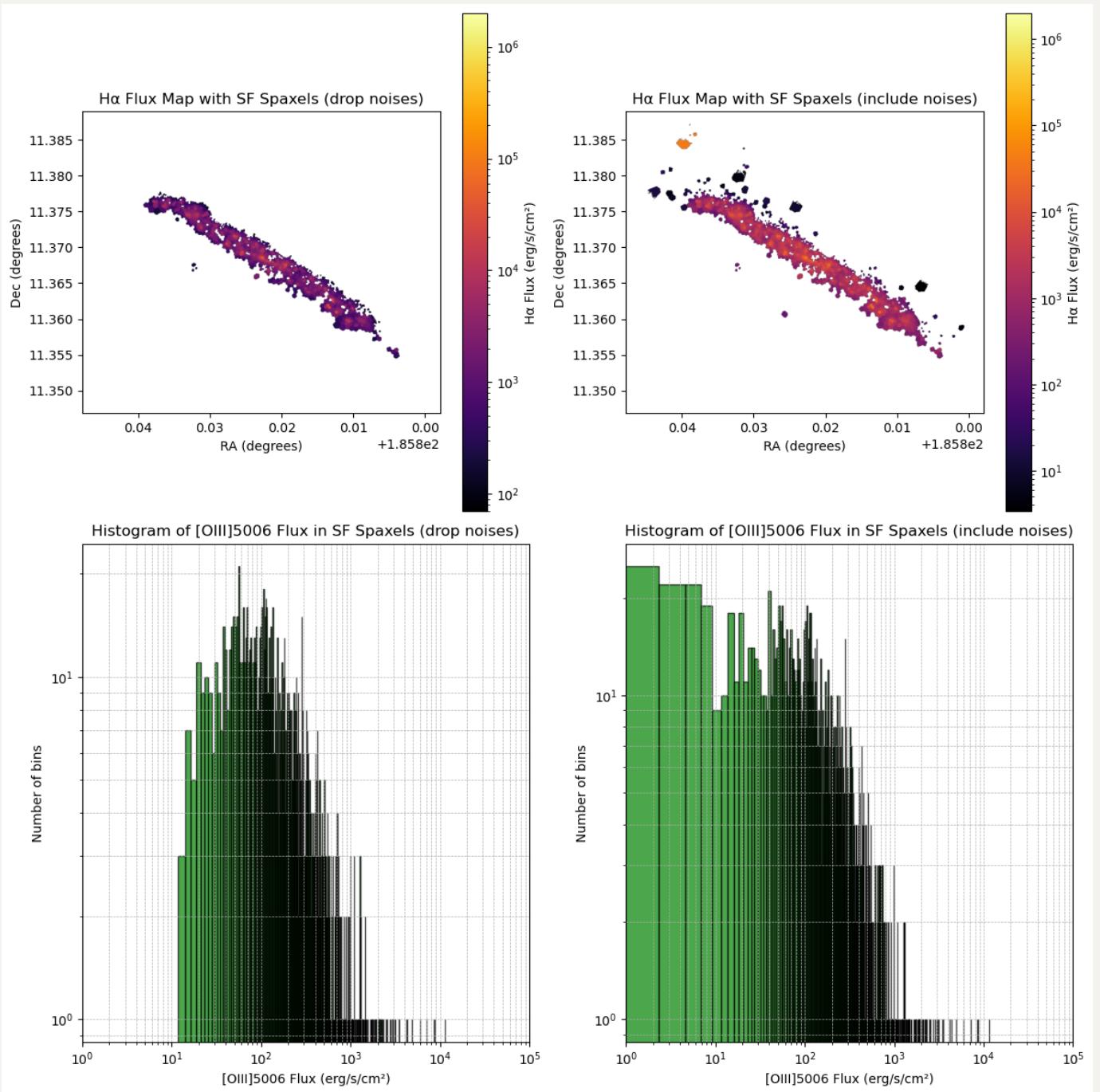
2.4 NGC4293



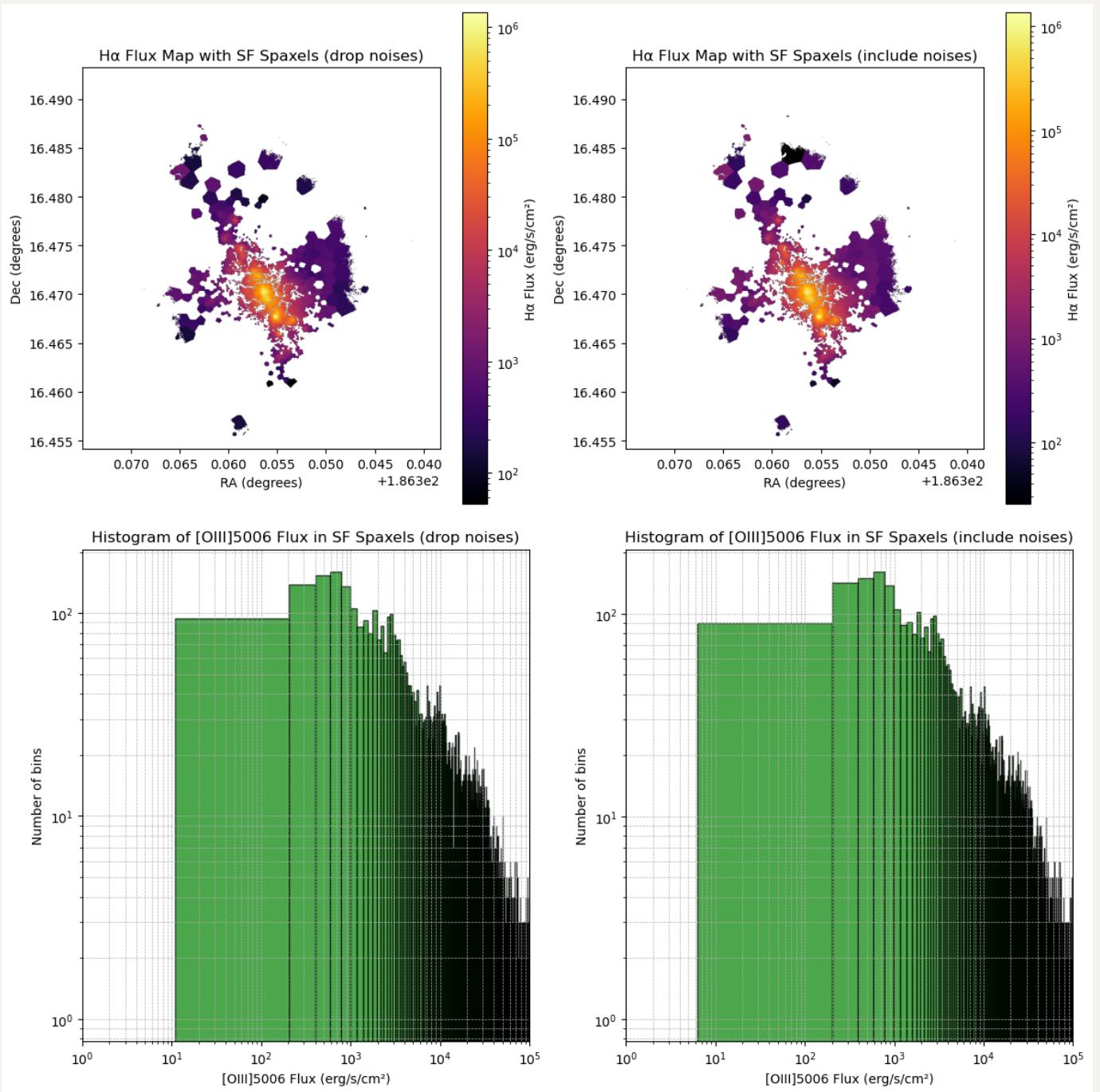
2.5 NGC4298



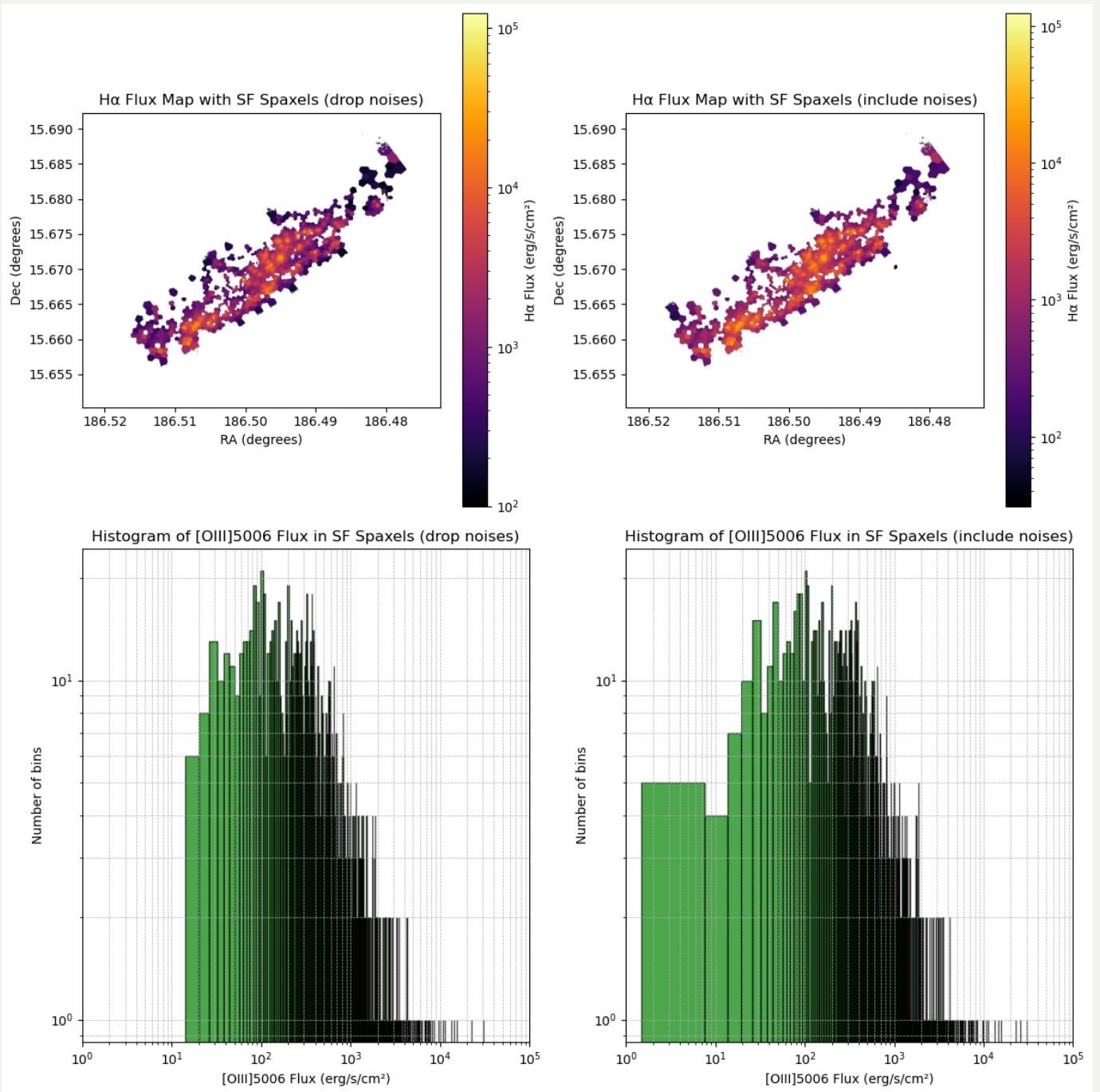
2.6 NGC4330



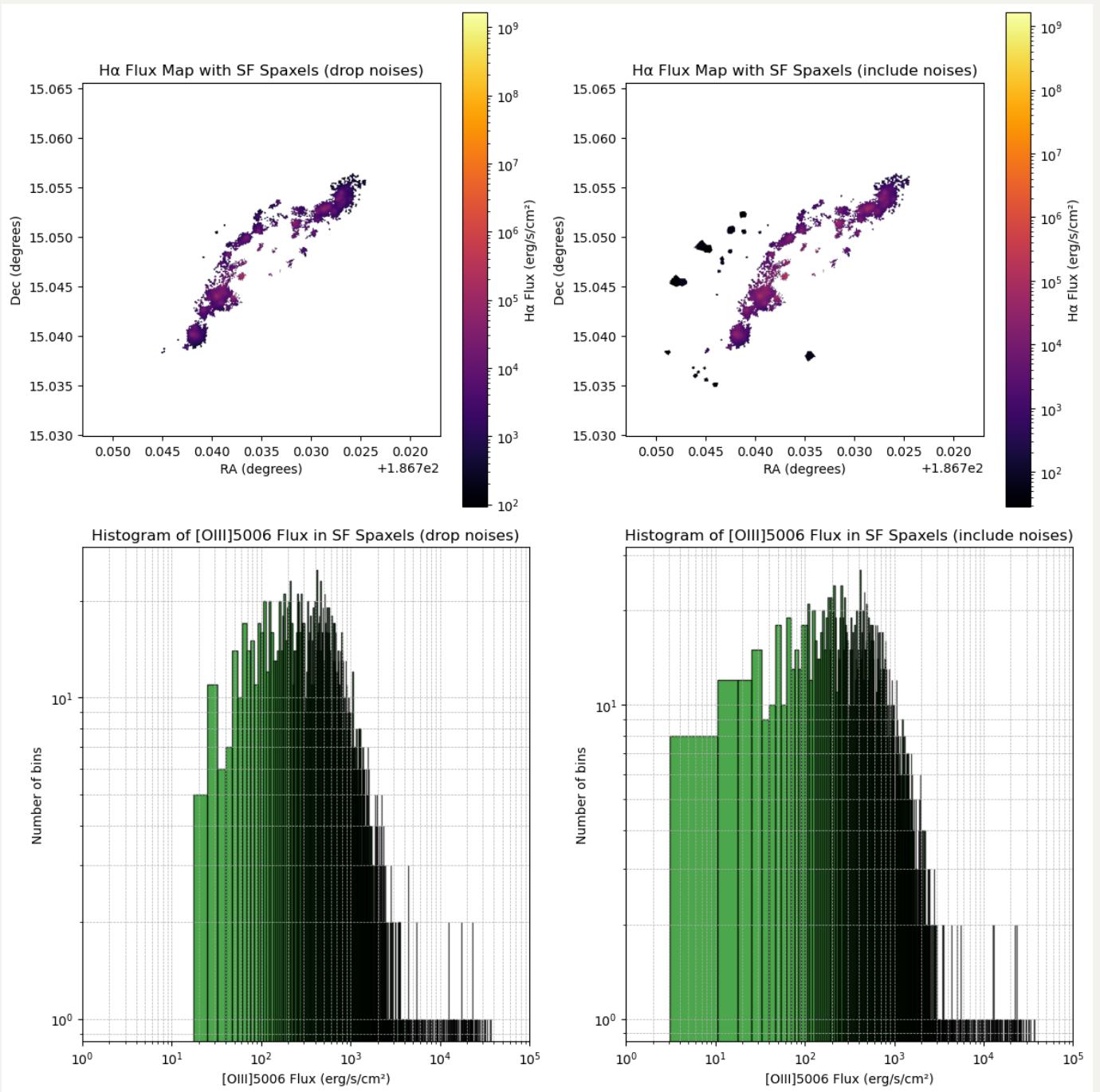
2.7 NGC4383



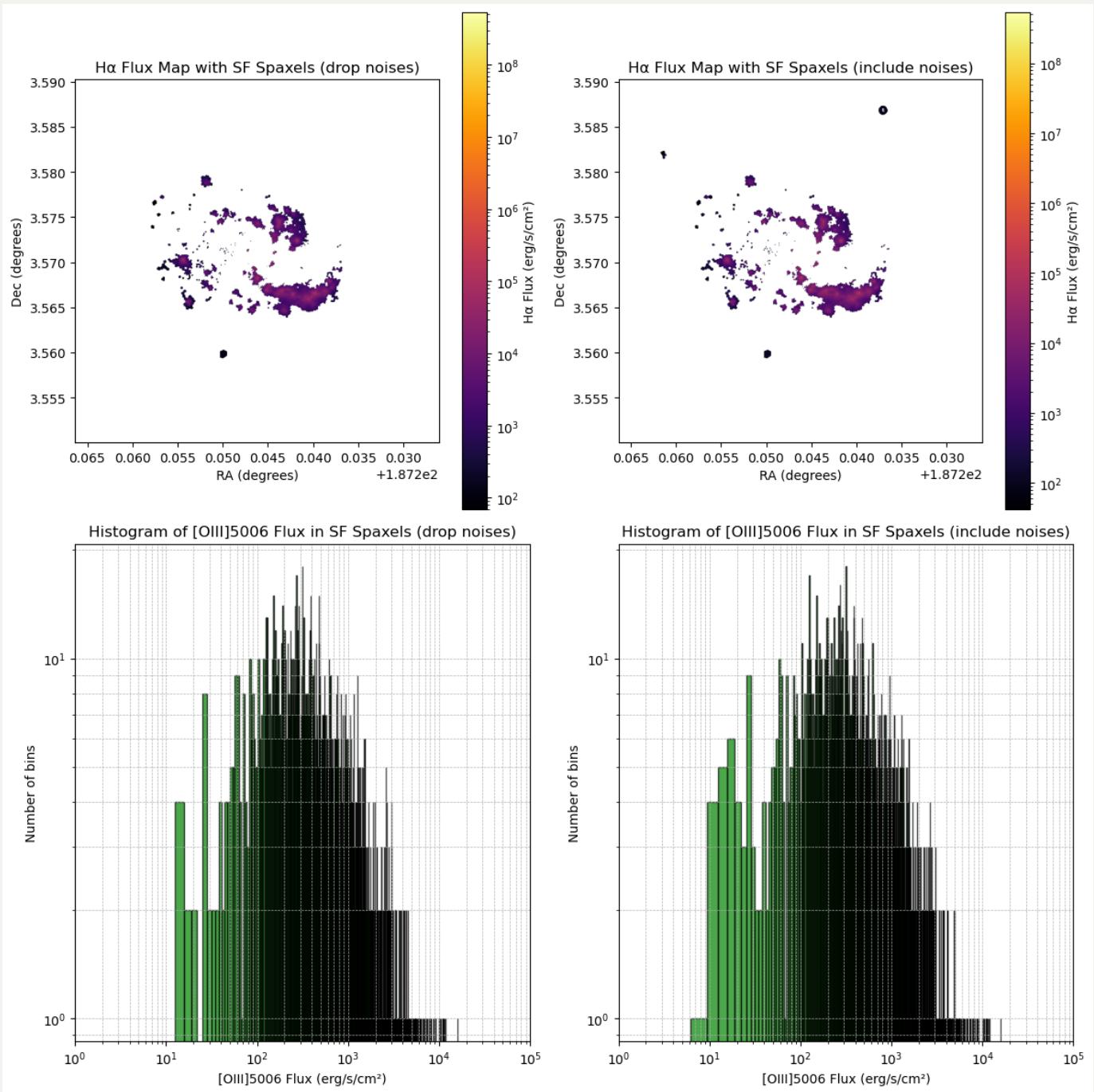
2.8 NGC4396



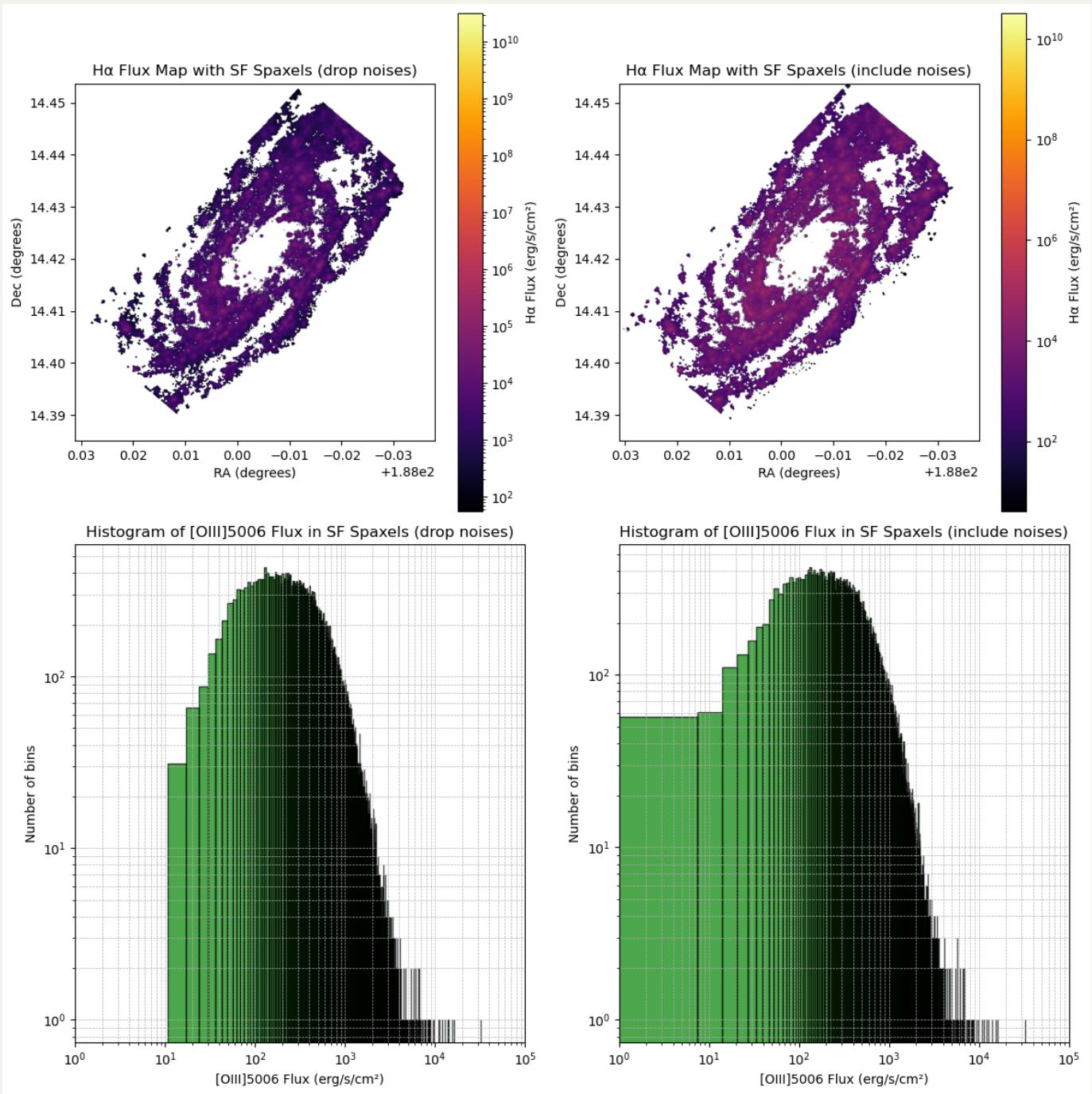
2.9 NGC4419



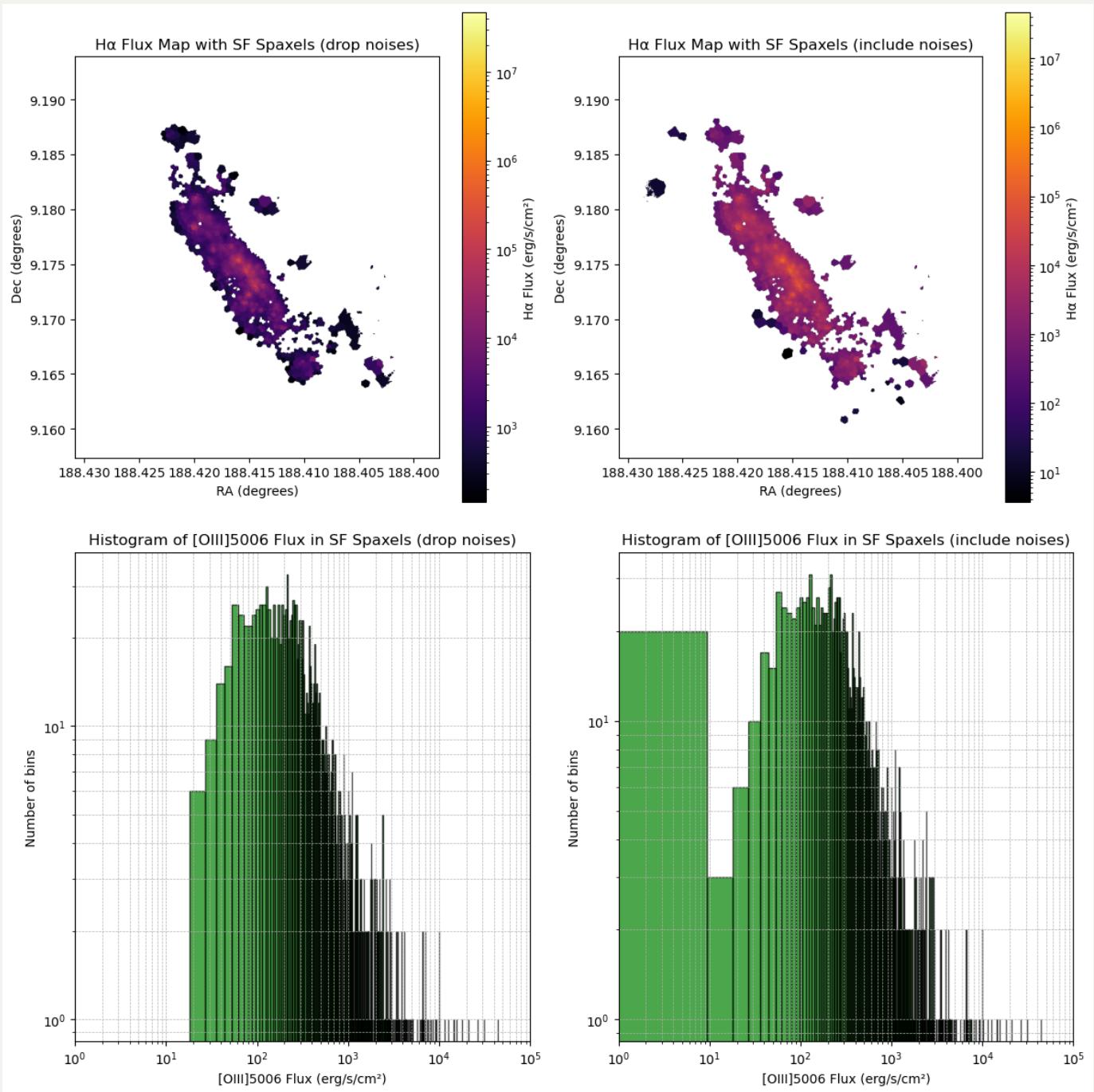
2.10 NGC4457



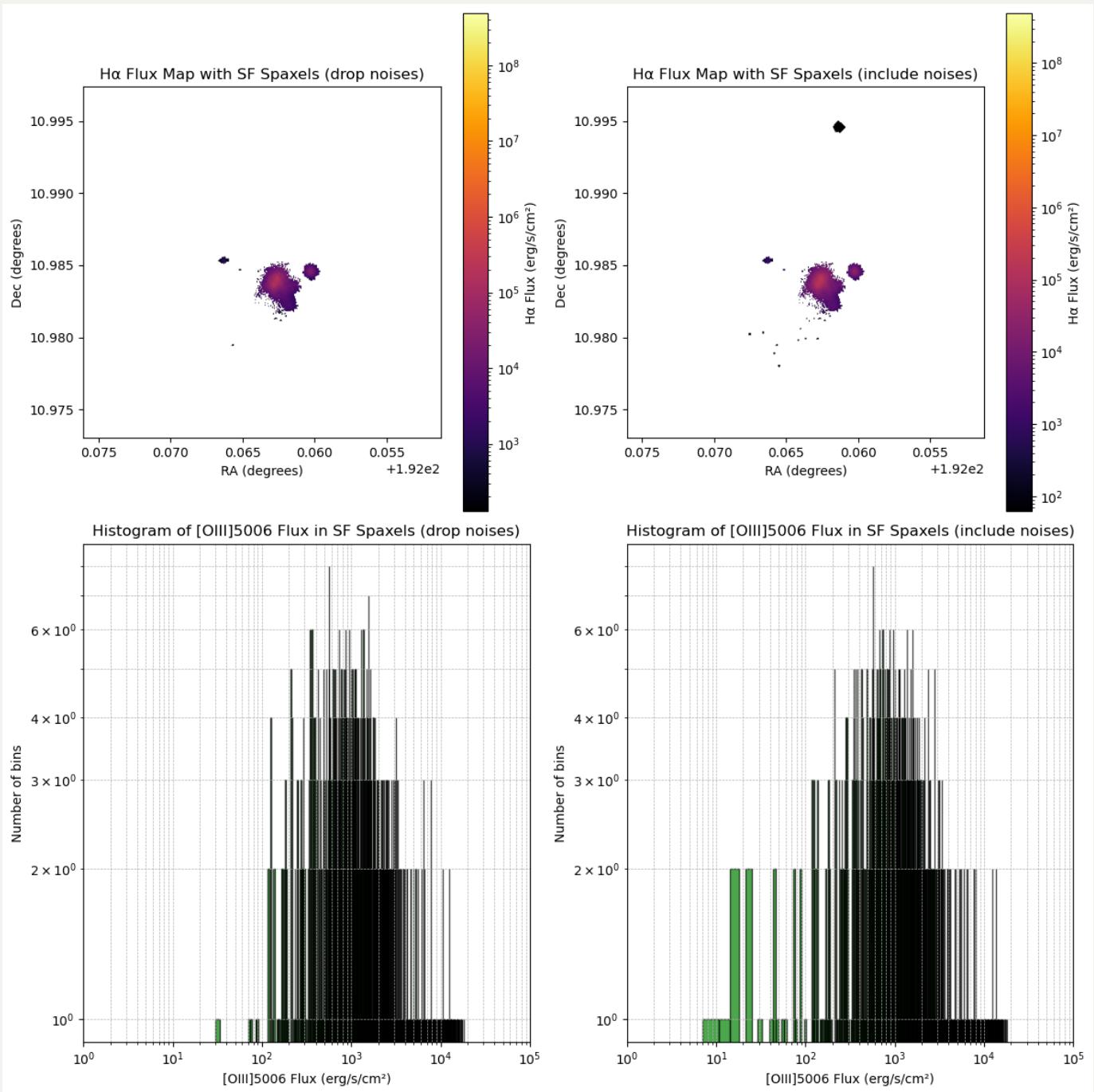
2.11 NGC4501



2.12 NGC4522



2.13 NGC4694



2.14 NGC4698

