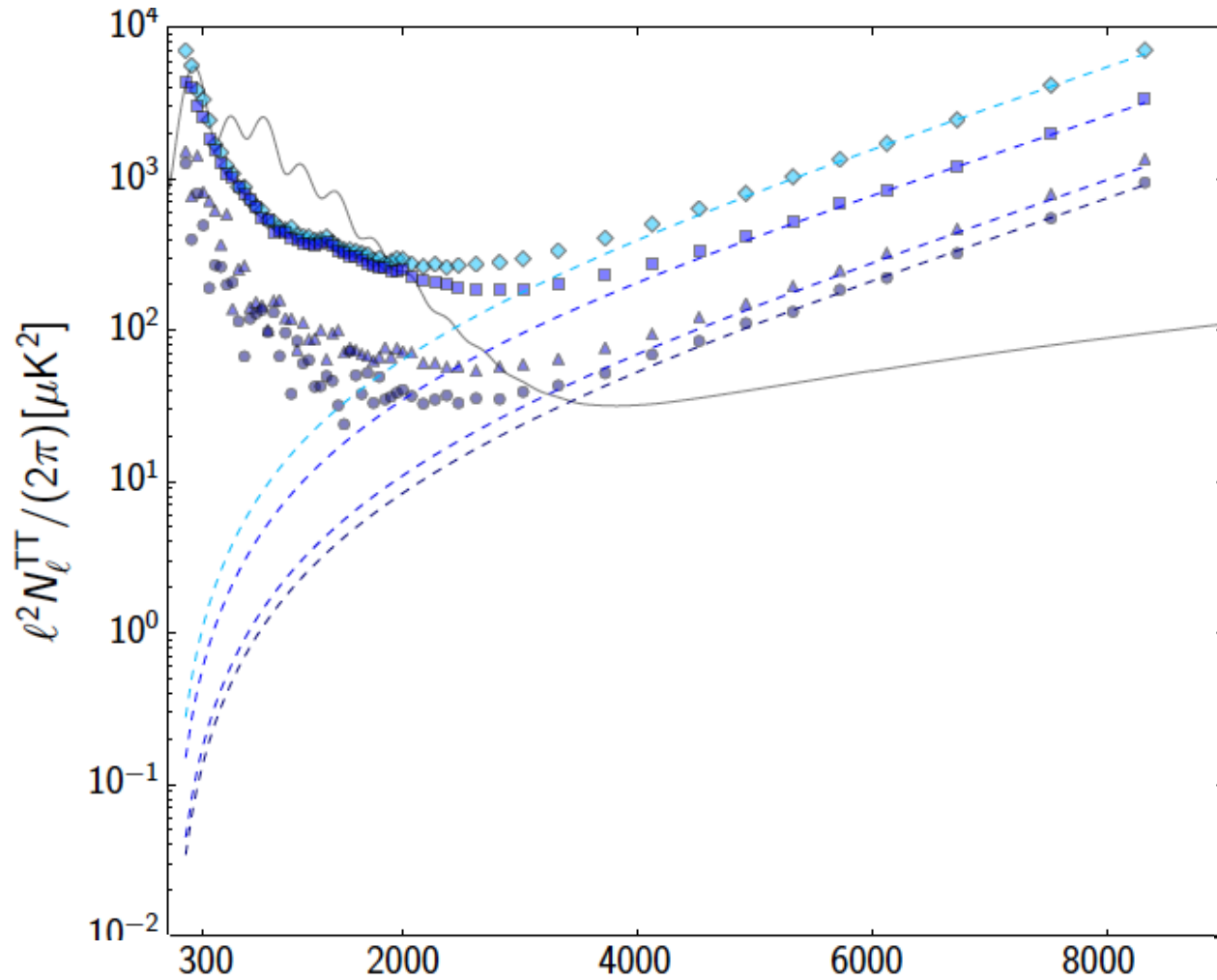


Are foregrounds important for kSZ?

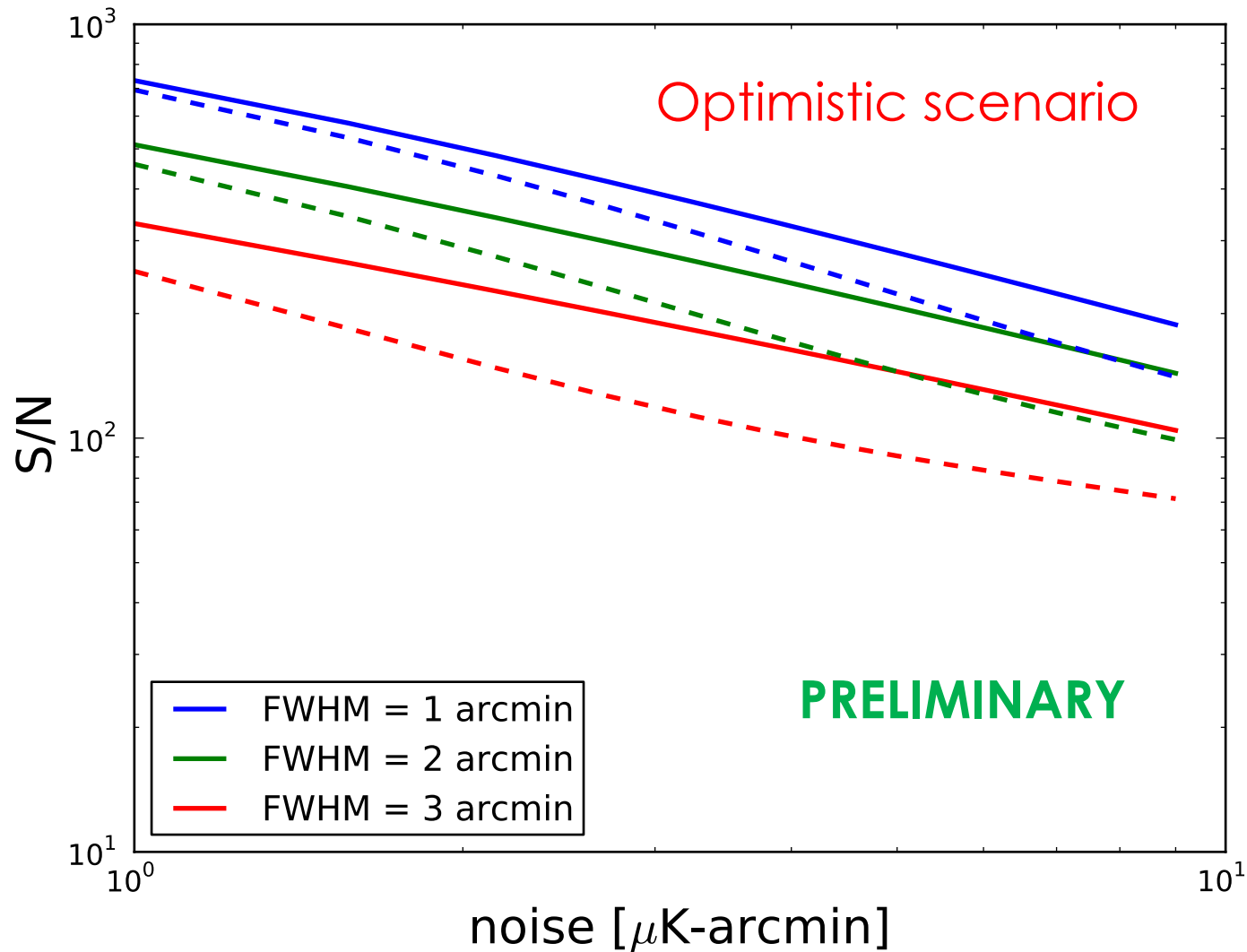
- When overlapping with *spectroscopy*, the standard estimators are differential → most components that are uncorrelated with velocities average out as $1/\sqrt{N_{\text{objects}}}$
- Turn bias into noise → may not need as good cleaning as for other science? But... how big is the extra noise? And...
- Can this fail in the high S/N regime? Yes, in a few ways!
- Cancellation can be imperfect for extreme objects (e.g. tSZ)
- Extragalactic can also impose a similar noise floor → need to estimate!
- Foregrounds can be correlated with velocity
- Projected fields, power spectrum, 4pt function: foregrounds

Atmospheric noise in T



Louis ++ 2016

Effect of atmospheric noise



Adding foregrounds + atmosphere

