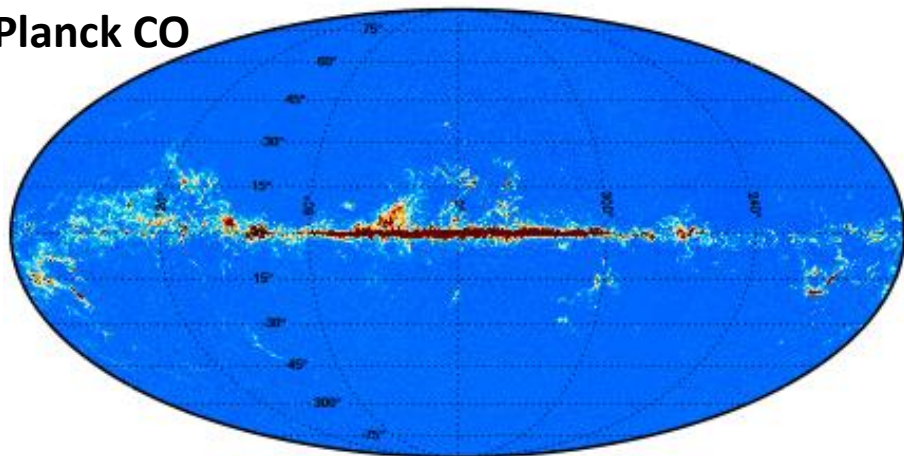


# CO lines contamination in CMB data

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Planck CO



-5.0 30.0  
K km s<sup>-1</sup> TYPE 2  $J = 1 \rightarrow 0$  map

$J 1 \rightarrow 0$  (~115 GHz)

$J 2 \rightarrow 1$  (~230 GHz)

$J 3 \rightarrow 2$  (~345 GHz)

Relevant  
lines for  
LiteBIRD  
frequency  
channels

- How they affect the data?
    - Bandpass mismatch: I to P leakage
    - Intrinsic polarization. Assuming 1% upper limit (conservative)
  - Should we use a resonant stub to notch out the contaminated frequency?
    - w HWP
    - w/o HWP
- If yes what is the required accuracy?

*Leaking signal  
VS  
tensor-to-scalar  
ratio bias*

