Complementarity of sub-orbital and orbital missions

1) Technical Heritage: COBE DMR, WMAP and Planck

All relied on sub-orbital pathfinders to demonstrate technology and techniques

2) Comparable per-detector sensitivity

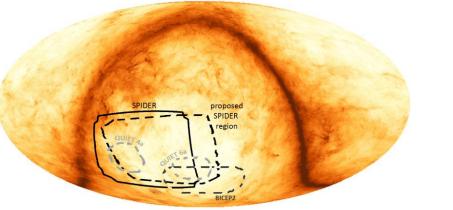
Balloon borne payloads have demonstrated loading comparable to HFI at L2

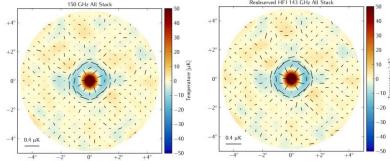
3) Targeted sky coverage

Only 20% of the full sky is plausibly clean enough for B-mode work

4) Orthogonal systematics

Cross correlations of data with comparable sensitivity

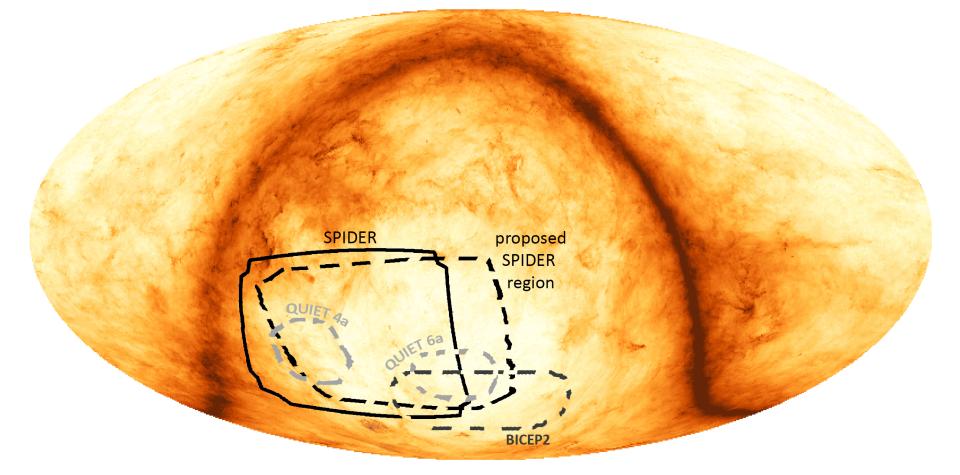




Planck HFI: Commander Thermal dust at 545 GHz

Only 20% of the full sky is plausibly clean enough to do B-mode work. Sub-orbital experiments can exceed the map depth of orbital missions in these regions, allowing valuable cross correlations of data with orthogonal systematics.

Planck HFI: Commander Thermal dust at 545 GHz



Spider 2015: radiative environment Atmospheric Spectra at McMurdo for am and ATM Models 10⁰ 10-1 10⁻² 10⁻³ 10⁻⁴ am, McMurdo at 36km am, McMurdo at 38km 10⁻⁵ ATM, South Pole 30km ATM, South Pole < 0.2 pW of optical background Spider Bands (¹/₂ of our photons are from the CMB monopole!) 10-6 10^{2}

Frequency [GHz]

Spider 2015: radiative

