

Auxiliary Material

Table A.1. Main systematic error sources for the MLS measurement of HCl in the upper stratosphere and lower mesosphere. See text for a detailed discussion.

Error Source	Error Magnitude (upper stratosphere)	HCl Error (upper stratosphere)
Antenna system transmission	0.8%	0.8%
Radiometric calibration	0.45%	0.45%
Sideband ratios	0.25%	0.25%
Channel filter shapes and position	0.3%	0.3%
Standing waves	1%	1%
Gain compression	+1%	+1%
FOV direction	0.004 deg.	0.7%
FOV shape	0.002 (beam efficiency) + 0.0015 deg. (HPBW)	0.2%
FOV scan dependence	0.25K	0.6%
HCl linewidth	3%	3%
Retrieved temperature	1%	2%
Retrieved tangent pressure	2% in O ₂ linewidth	1%
Retrieval numerics and closure	See text	1%
Retrieval a priori influence	See text	0.5%
Forward model approximations	0.5K	1.3%
Total (root sum square)		4.6%