

8 Summary

Summary comments refer to retrieved or assumed IG profiles compared to ‘truth’, excluding data prior to Nov 13th.

Residual	Ref	Summary	Possible problems	Priority
<i>Target Species</i> (T: target microwindows, O: other microwindows)				
Pressure	p.7	T: +3% 21–27 km, $-1\% \geq 30\text{km}$, O: (+10,−5,+10)% at (27,36,47)km.	Retrieval or ILS	High
H ₂ O	p.9	T: +0.5ppmv at 12km, −3 ppmv at 60km O: +3ppmv at 12km, −3ppmv at 30km	Convergence, High Alt Col or ILS	High
O ₃	p.11	T: $\pm 0.2\text{ppmv}$ 12–47km, -0.5ppmv at 52km O: (−1,+0.5,−0.5) ppmv at (30,42,52) km	High Alt Col IG or Spectroscopy	Medium
HNO ₃	p.13	T: −5 ppbv at 27km O: +10ppbv at 33km	Spectroscopy	High
CH ₄	p.15	T: -0.1ppmv at 27km, $+0.05\text{ppmv}$ at 47km O: (−0.1,+0.1,−0.1) ppmv at (18,33,47) km	Convergence	Low
N ₂ O	p.17	T: -25ppbv at 30km O: $\pm 10\text{ppbv}$ below 36km, $+30\text{ppbv}(?)$ at 47km	Convergence	Medium
NO ₂	p.19	T: $\pm 0.5\text{ppbv}$ 21–42km O: $\pm 0.3\text{ppbv} \leq 39\text{km}$, $+5\text{ppbv}(?)$ at 60 km	Climatology	Medium
<i>Contaminant Species — Variable Profiles</i>				
N ₂ O ₅	p.22	Unreasonable REC fit at 40km	Residual signature	Low
ClONO ₂	p.23	Unreasonable REC fit at 40km	Residual signature	Low
COF ₂	p.24	-0.1ppbv at 33 km	Climatology	Medium
CFC-12	p.25	-0.2ppbv at 12km	Climatology	Low
HOCl	p.26	Order of magnitude too large, except low lat.	Climatology	Low
H ₂ O ₂	p.27	(−0.05,+0.05,−0.5) ppbv at (12,27,36) km	Climatology	Low
HNO ₄	p.28	-0.1ppbv at 12km, $+0.1\text{ppbv}$ at 21km	Climatological SD	Low
C ₂ H ₂	p.29	-0.05ppbv at 15 km	Climatology	Low
C ₂ H ₆	p.30	$+0.2\text{ppbv}$ at 12km, -0.6ppbv at 15 km	Climatology	Low
ClO	p.31	$-2\text{ppmv}(?)$ at 12km, $+2\text{ppmv}(?)$ at 33 km	Residual signature	Low
<i>Contaminant Species — Fixed Profiles</i>				
SO ₂	p.33	-0.2ppbv at 12km, $+0.1\text{ppbv}$ above 36km	Climatological SD	Medium
NH ₃	p.34	Order of magnitude too large	Climatology	Medium
HCN	p.35	-0.2ppbv 30km, $+0.2\text{ppbv}$ at 39km	Climatology & SD	Low
CCl ₄	p.36	-0.1ppbv at 21km	Climatology & SD	Low
OCS	p.37	-0.5ppbv at 12km, -1ppbv at 20 km	Climatology	Low
CFC-14	p.38	-0.1ppbv at 24km, $+0.2\text{ppbv}$ at 36km	Climatology	Low
<i>Forward Model Approximations</i>				
Line-Mixing	p.40	0.5 of expected value, equat. and Feb variation	Resid. sig., Modelling	Low
Non-LTE	p.41	Unexpected seasonal/latitude variation	Modelling	Medium
<i>Spectral Derivatives</i>				
Gain	p.43	Altitude dependence, NO ₂ microwindows	Gain, NO ₂	High
Shift	p.44	Altitude dependence, NO ₂ microwindows	AILS modelling, NO ₂	Low
Spread	p.45	A,AB and B-band AILS widths deviate by $\pm 2\%$ C-band widths deviate by $\pm 5\%$	AILS modelling, H ₂ O and NO ₂	Low Medium