QA quantity (GCOS UR)	UV–VIS L2	UV–VIS L3	UV–VIS L4	TIR L2	TIR L3 (TTC)
Time period (1996–2010)	1995–2015	1996–2015	1996–2013	2008–2015	2008–2012
L2 observation frequency (daily to weekly)	Global coverage within 3 days	–	–	Both daytime and nighttime daily	–
Horizontal resolution (20–200 km)	32 to 160 km along track, 52 to 320 km across	1° by 1° (∼ 115 km at Equator)	2° by 3° (∼ 230 by 345 km at Equator)	12 km	1° by 1° (∼ 115 km at Equator)
Vertical resolution (6 km to troposphere)	Fixed grid with up to 6 km layers but ∼ 15 km kernel width and SZA-dependent tropospheric fluctuations	Fixed layers of a few km thickness	Fixed layers of 1–2 km thickness	Fixed 1 km gird but 10–15 km kernel width and strong UTLS and tropospheric fluctuations	0 to 6 km integrated column
DFS	4 to 5.5 with 0.5 seasonality	–	–	2–4 with strong meridian and seasonal dependence	–
Vertical sensitivity	UTLS peak ∼ 3 with under-sensitivity right above and below	–	–	Outliers around UTLS from −1 to 2	–
Height registration uncertainty	< 10 km	–	–	∼ 0 at 40 km to about 30 km near the surface	–
Systematic uncertainty estimated from comp. bias	Z curve with maxima at 20–40 % positive (stratosphere) and negative (UTLS)	Overall −5 % in stratosphere, ±10–30 % in troposphere	< 10 % with exception positive outlier around 5 hPa and surface, 20 % positive to negative fluctuation around UTLS (∼ 50 % in tropics)	< 10 % stratospheric bias, 20–40 % positive (UTLS) to ∼ 10 % negative (troposphere)	−25 % in NH, 30 % in Antarctica yet nearly zero around Equator
Random uncertainty estimated from comp. spread	U curve with 10 % minimum around 25 km	10–30 % in stratosphere, 20–40 % in troposphere	10–30 % in stratosphere, 20 % in troposphere	Order of bias, showing similar features	∼ 25 % in tropics to ∼ 10 % towards the poles but up to 100 % seasonality
Total uncertainty (16 % below 20 km, 8 % above 20 km)	10 % minimum at 25 km, increasing above and below	From ∼ 10 % in stratosphere at minimum to 20–50 % in troposphere	15–30 % in stratosphere at minimum, higher below	∼ 10 % stratosphere, 20 % in troposphere, higher in UTLS	∼ 25 % in tropics to ∼ 30 % towards the poles with up to 100 % seasonality
Dependence on influence quantities	Latitude and total ozone column have biggest impact, especially in UTLS and troposphere; higher SZA corresponds to larger DFS and smaller bias; small surface albedo and ECF dependence propagate to higher altitudes	Strong bias outliers in the troposphere of Arctic winter, equatorial UTLS, and Antarctic local winter and spring	L2/3 features in Antarctic spring and troposphere are strongly reduced but tropical UTLS bias remains	TC, especially in polar troposphere and tropical UTLS, agrees with sensitivity dependence; no seasonality except for Antarctic ozone hole	Strong meridian dependence and seasonality