Description	Note
Physical or chemical processes not considered	
Horizontal transport	The model is not expected to capture day-to-day variability
Photoreduction of Hg^{II} in aqueous cloud/aerosol	The air is cold and dry
Wet deposition of Hg^{II} (snowfall and diamond dust)	Large uncertainty in its parameterization
Exchange with deep snowpack Hg	The diffusive transfer is expected to be slower
Simplifications for specific species or parameters	
Free tropospheric Hg concentration	Specified based on CTMs
HO_x concentration	Estimated based on OPALE measurements, NO, and $J(NO_2)$
BrO_x concentration	Specified based on CTMs
Air turbulent diffusion coefficient (K_z)	Modeled by MAR (with an optional adjustment for warming events)
Dry deposition velocities (V_d)	Typical values from the literature
Depth of surface snow layer	Specified based on e-folding light penetration depth
Air–snow molecular diffusion coefficient (D_m)	Typical value from the literature
Air–snow turbulent diffusion coefficient (D_t)	Parameterized based on surface level turbulent kinetic energy (TKE)