

Curve in Fig. 1	UM resolution	Configuration details	Peak memory usage (GiB) 1 × 1 MPI processes without OpenMP
Green curve	N48L70 3.75° × 2.5° with 70 vertical levels up to 80 km	GA6 configuration with 27 dynamical timesteps (20 min dynamical timestep).	1.62
Black curve	N48L70 3.75° × 2.5° with 70 vertical levels up to 80 km	GA7+StratTrop configuration with 3 dynamical timesteps and 1 chemical timestep (20-minute dynamical timestep, 1 h chemical timestep).	12.13
Purple curve	N48L38 3.75° × 2.5° with 38 vertical levels up to 40 km	GA7+StratTrop configuration with 2 dynamical timesteps and 1 chemical timestep (30 min dynamical timestep, 1 h chemical timestep).	7.43
Blue curve	N48L38 3.75° × 2.5° with 38 vertical levels up to 40 km	GA7+StratTrop configuration with 2 dynamical timesteps and 1 chemical timestep (30 min dynamical timestep, 1 h chemical timestep). Only minimal diagnostic output is included.	6.84
Red curve	N48L38 3.75° × 2.5° with 38 vertical levels up to 40 km	GA7+StratTrop configuration with 2 dynamical timesteps and 1 chemical timestep (30 min dynamical timestep, 1 h chemical timestep). Only minimal diagnostic output is included and the CFMIP Observation Simulator Package (COSIP) has been disabled.	3.99