

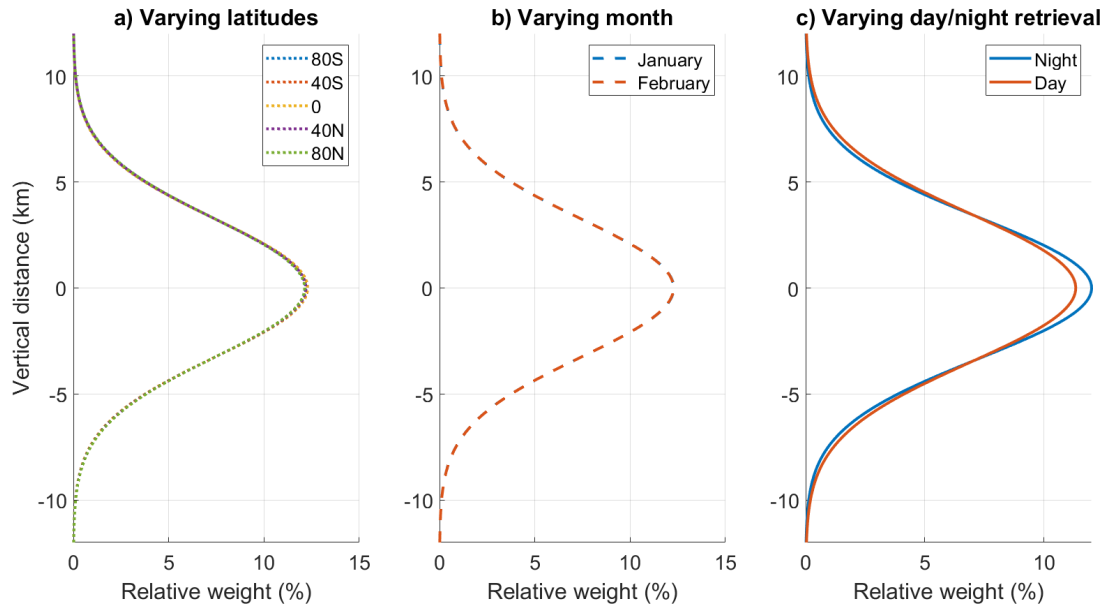


Figure S1. AIRS instrument vertical sensitivity functions (as a percentage). Panel a) shows various latitude bands for nighttime retrievals in January, panel b) shows January and February weightings for nighttime retrievals at the equator, panel c) shows nighttime and daytime weightings for January at the equator.

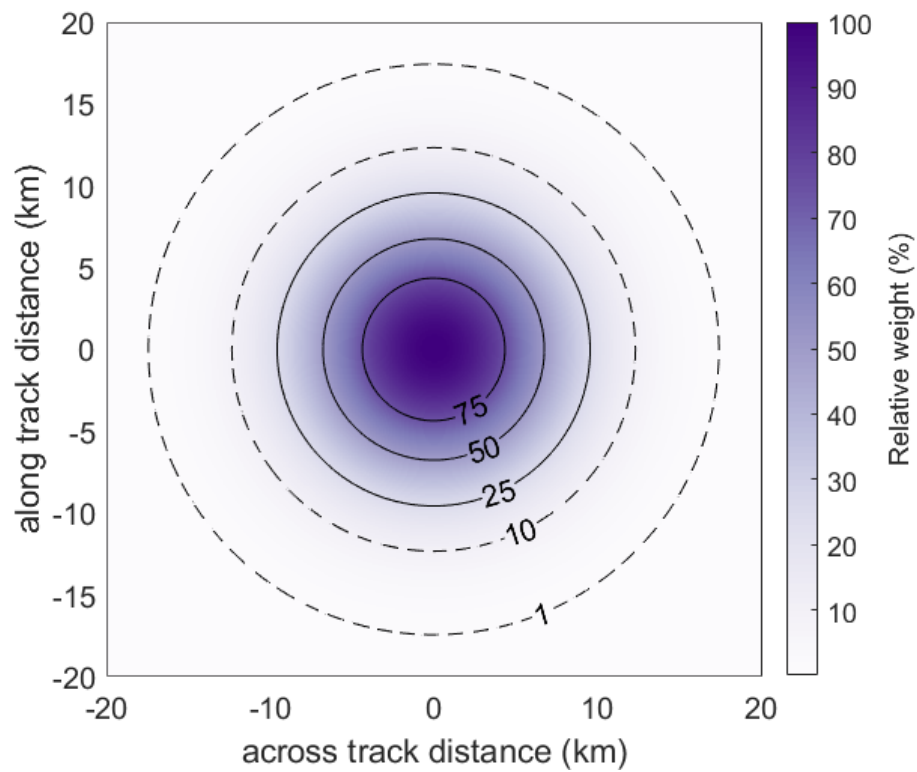


Figure S2. AIRS instrument horizontal sensitivity function (as a percentage) in the horizontal plane.

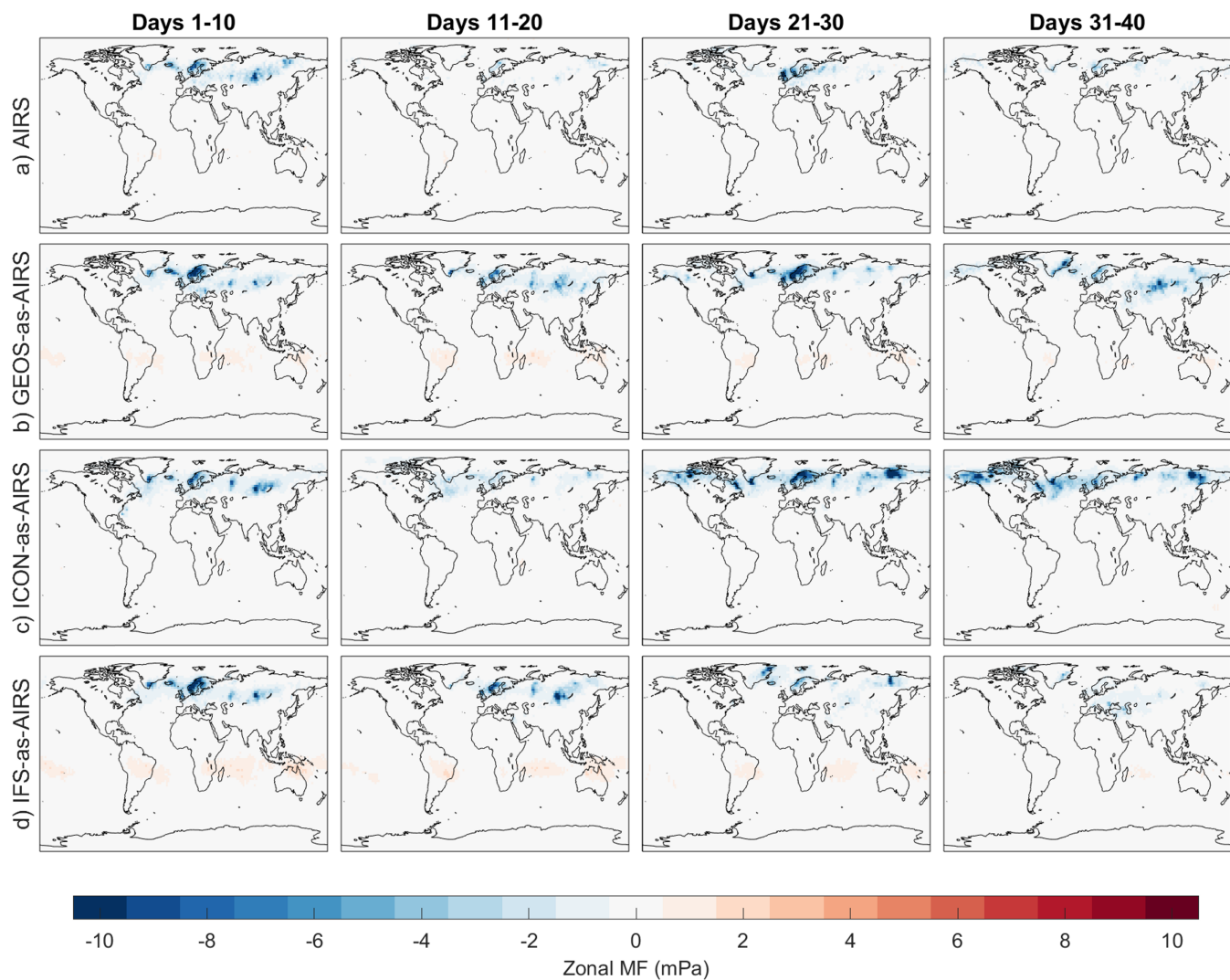


Figure S3. 10-day mean zonal momentum flux at 33km altitude for a) AIRS, b) GEOS sampled as AIRS, c) ICON sampled as AIRS, d) IFS sampled as AIRS. Day 1 the 20th January 2020 (model initialisation date).

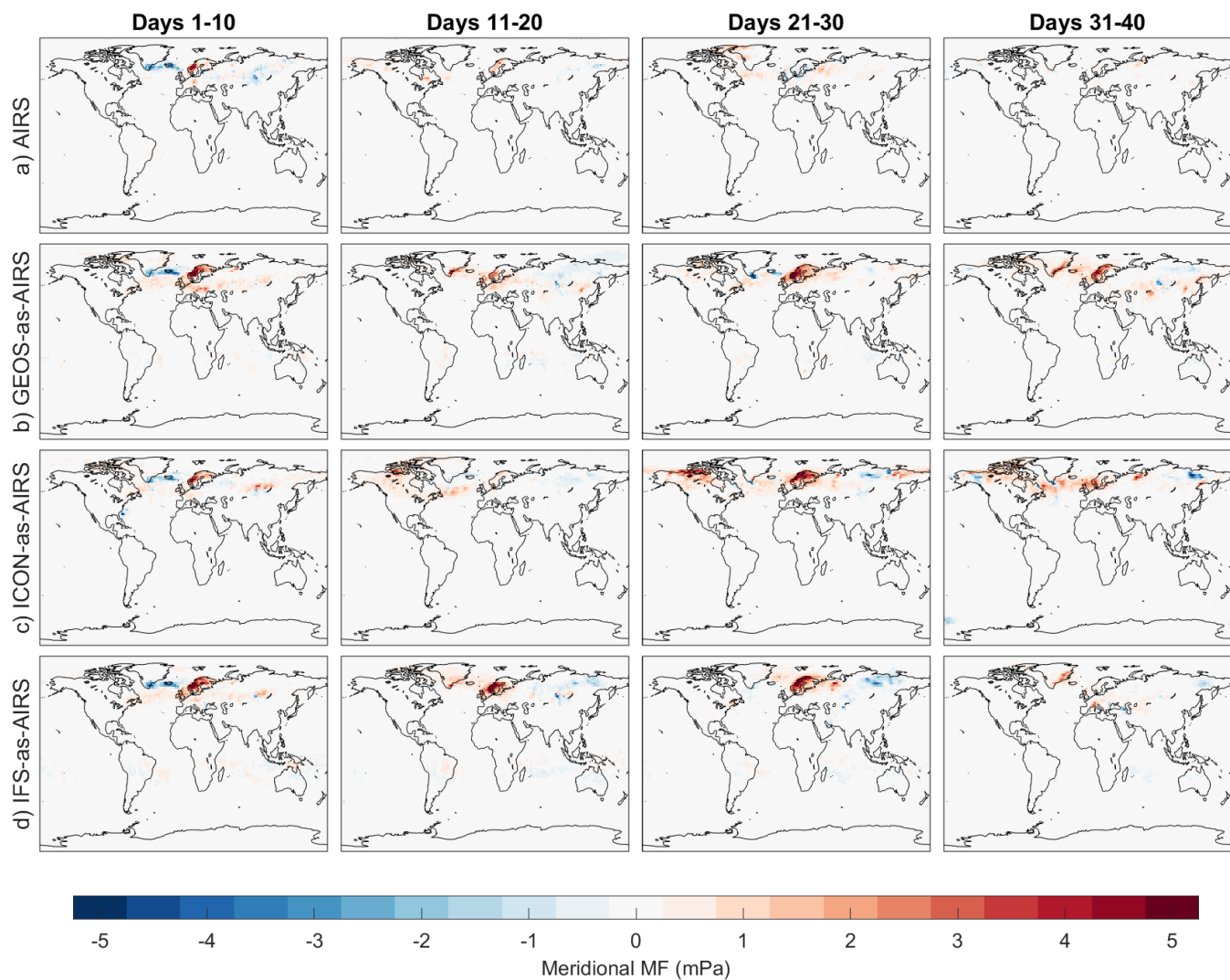


Figure S4. 10-day mean meridional momentum flux at 33km altitude for a) AIRS, b) GEOS sampled as AIRS, c) ICON sampled as AIRS, d) IFS sampled as AIRS. Day 1 the 20th January 2020 (model initialisation date).