

These slides contain difference between two years test simulations of ICON-ART by using the default solver and the new hybrid-solver. The new hybrid-solver took 15hrs approx, whereas the default solver took more than 2 days to complete two years simulations. The trade-off between error and compute time is good, means we can use the new solver for longer simulations. Indeed, the calculations of both solvers are not correct because these were test runs. In order to compare I choose the following settings:

- No emissions
- No feedbacks
- No PSCs
- 6min time-step
- mecca chemistry

Zonal O3 after 300 days

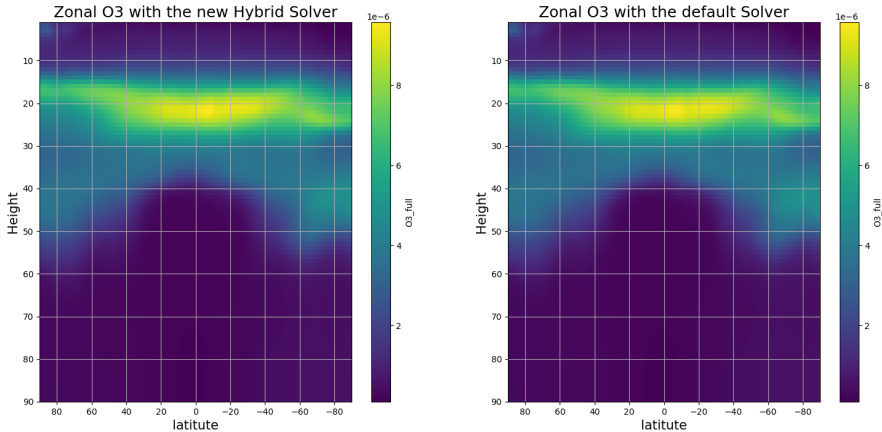


Figure: Zonal Ozone after 300 days

Zonal O3 after 300 days



Total Ozone Column after 300 days

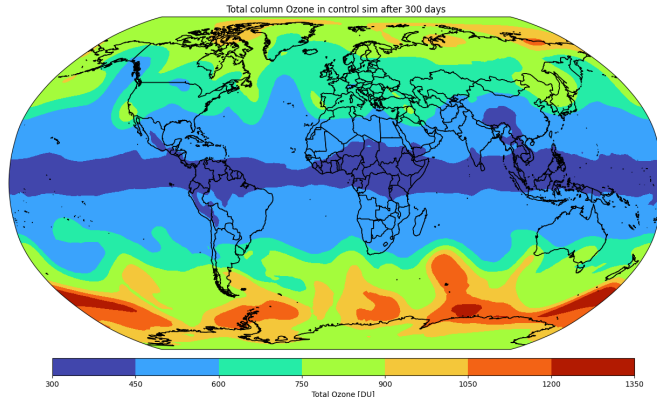


Figure: Total column Ozone after 300 days with Hybrid-Solver

Total Ozone Column after 300 days

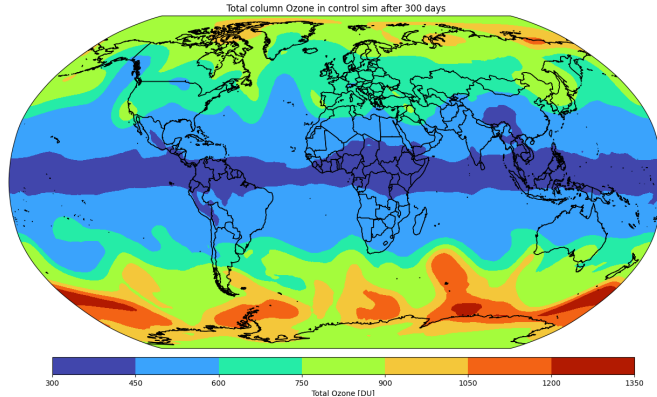


Figure: Total column Ozone after 300 days with the default solver

Total Ozone Column after 300 days

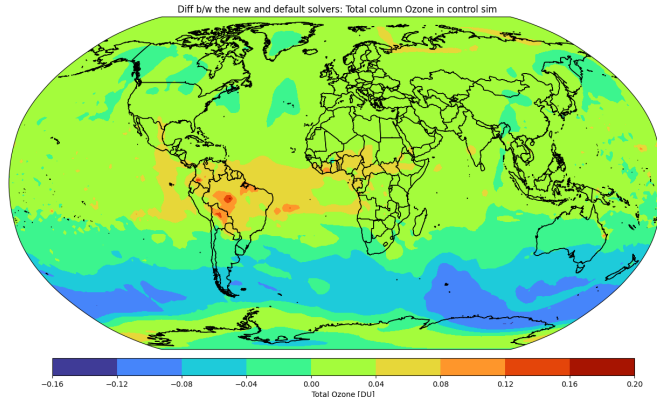


Figure: Difference in the total column Ozone after 300 days computed with the two solvers

Zonal N2O after 300 days

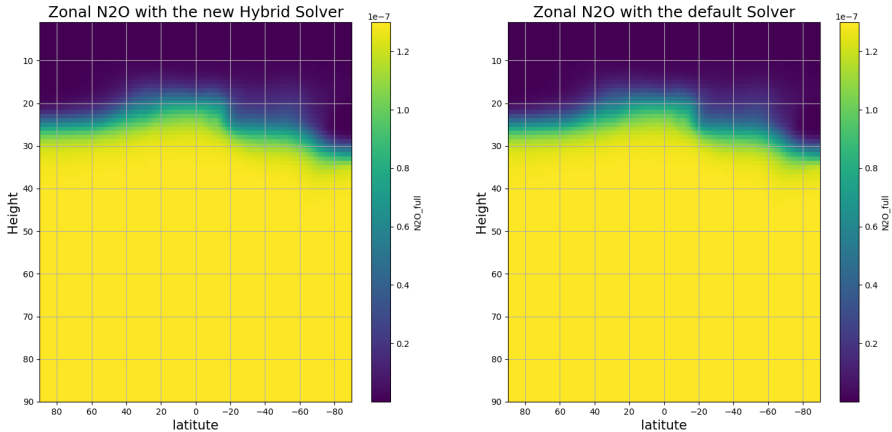
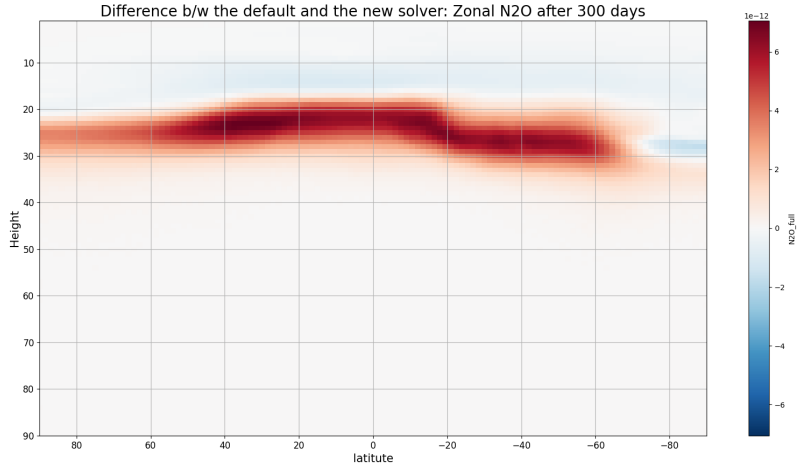


Figure: Zonal N₂O after 300 days

Zonal N₂O after 300 days



Zonal NO2 after 300 days

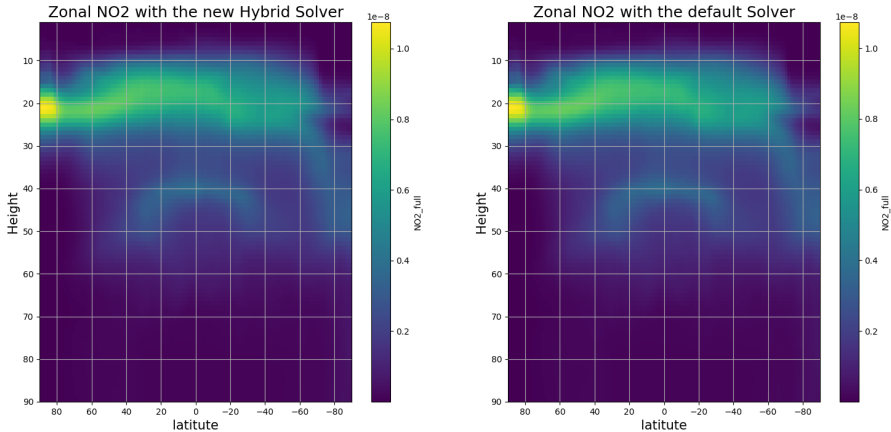
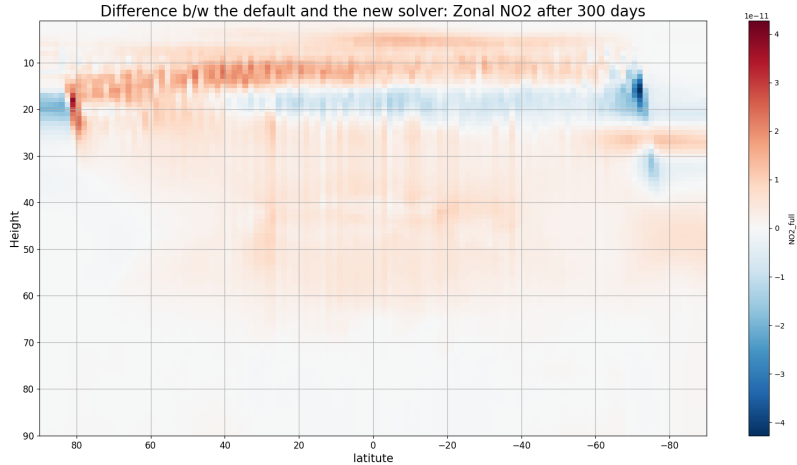


Figure: Zonal NO2 after 300 days

Zonal NO2 after 300 days



Zonal O3 after 550 days

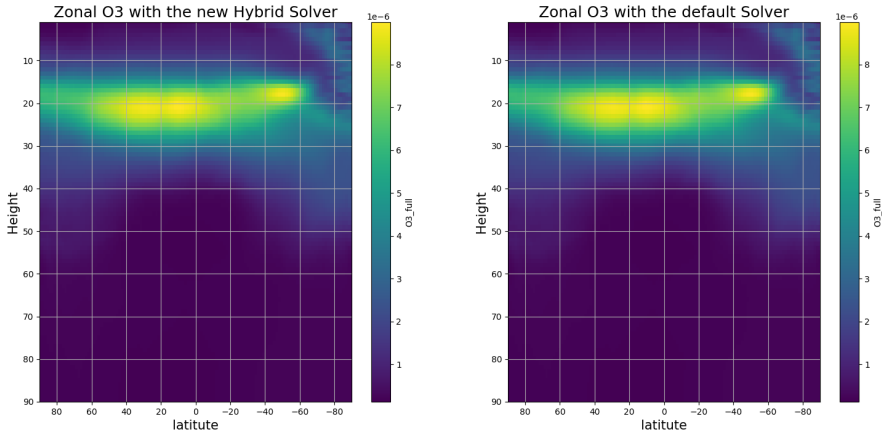
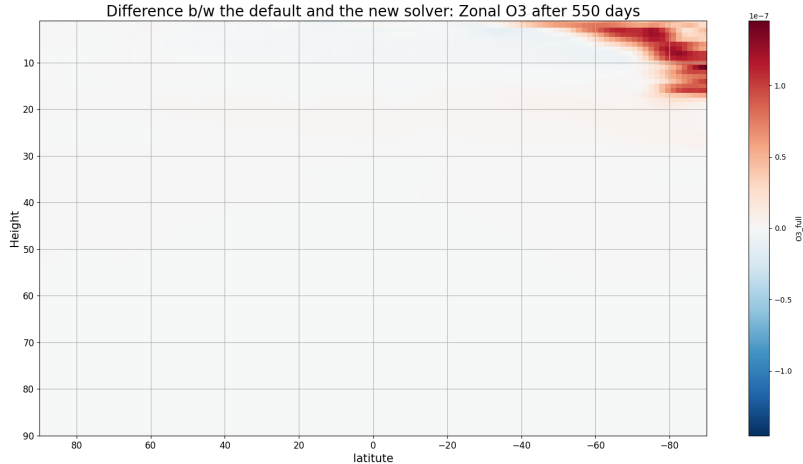


Figure: Zonal Ozone after 550 days

Zonal O3 after 550 days



Total Ozone Column after 550 days

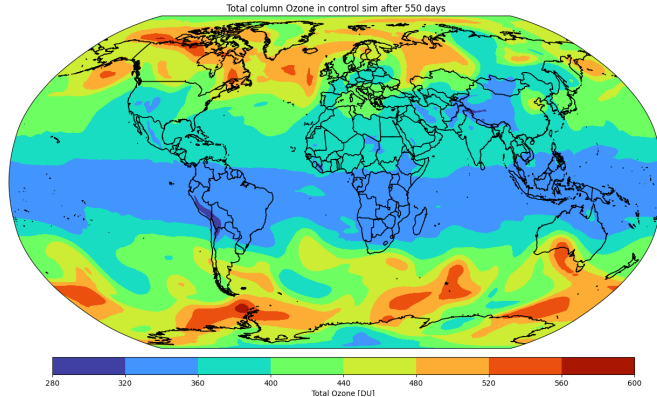


Figure: Total column Ozone after 550 days with Hybrid-Solver

Total Ozone Column after 550 days

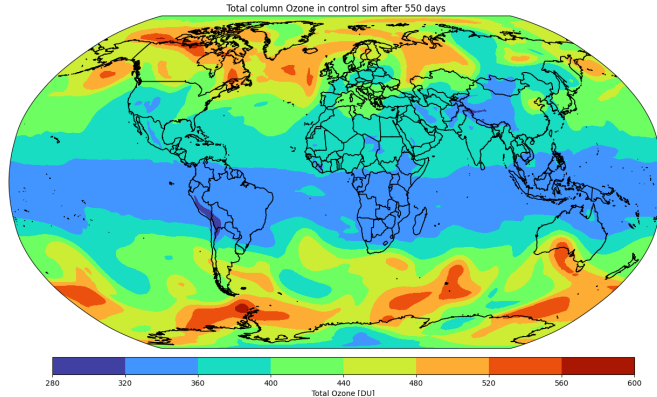


Figure: Total column Ozone after 550 days with the default solver

Total Ozone Column after 550 days

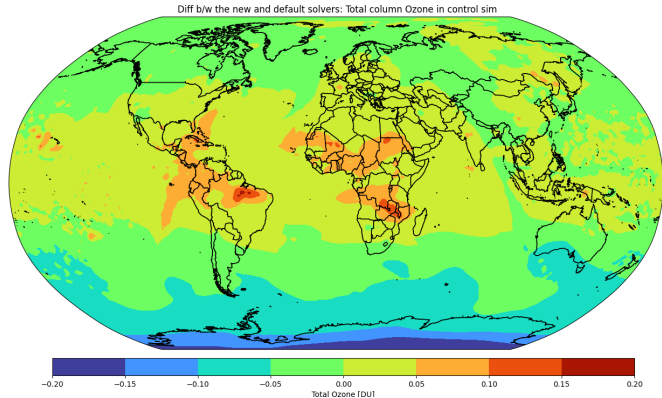


Figure: Difference in the total column Ozone after 550 days computed with the two solvers

Zonal N2O after 550 days

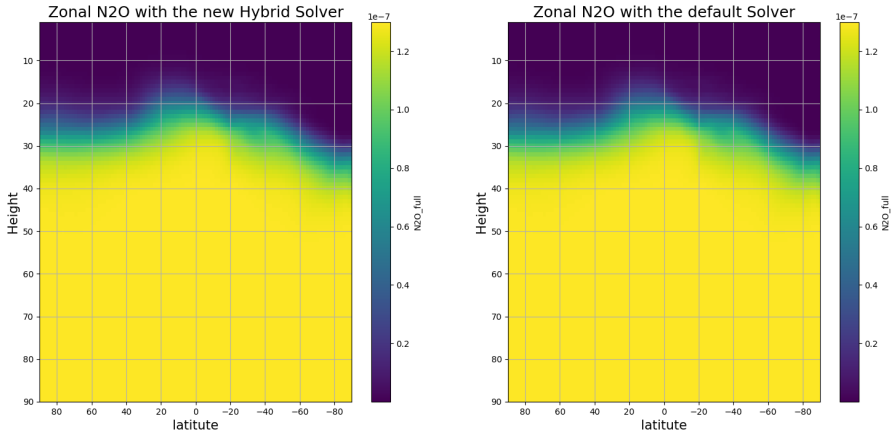
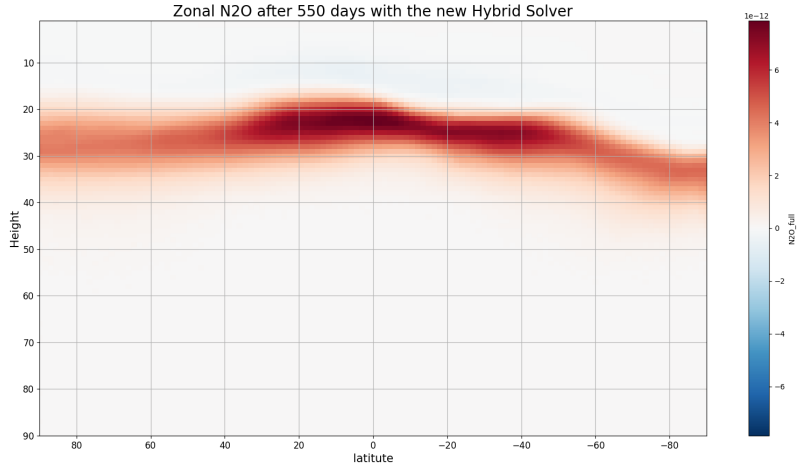


Figure: Zonal N2O after 550 days

Zonal N₂O after 550 days



Zonal NO2 after 550 days

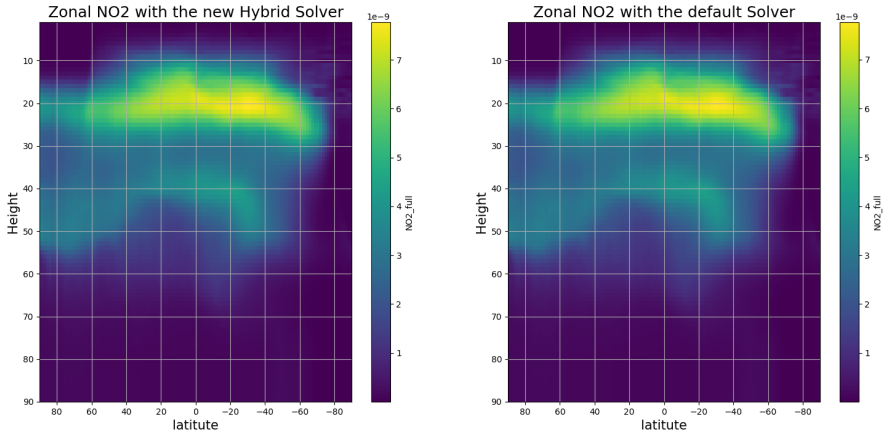
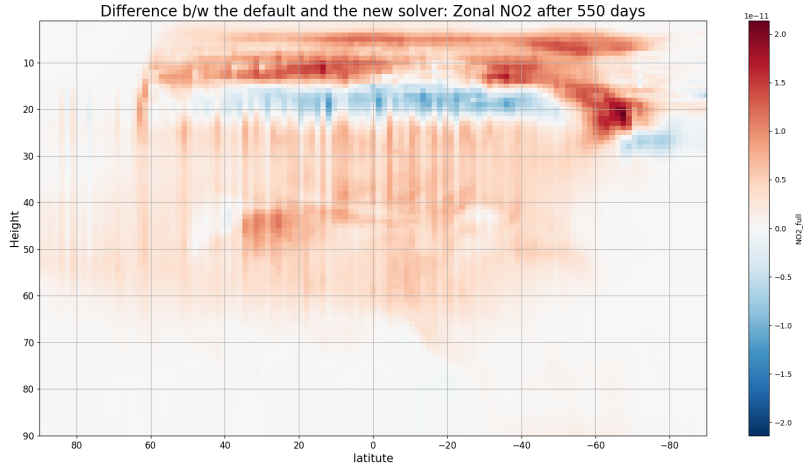


Figure: Zonal NO2 after 550 days

Zonal NO2 after 550 days



Zonal O3 after 659 days

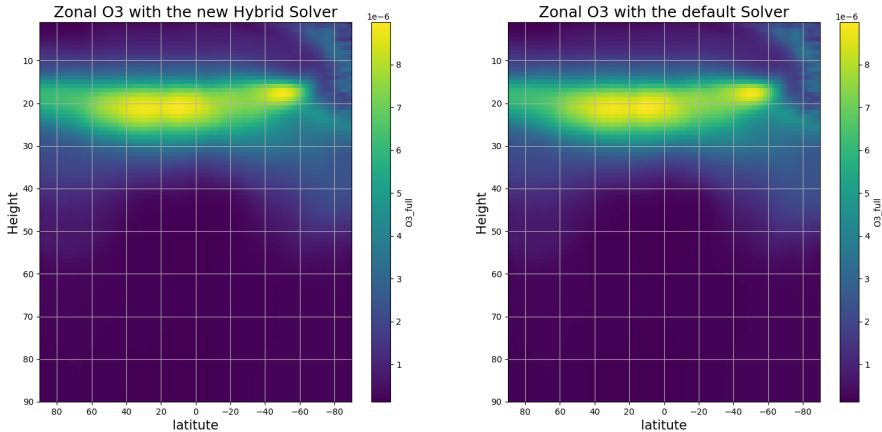
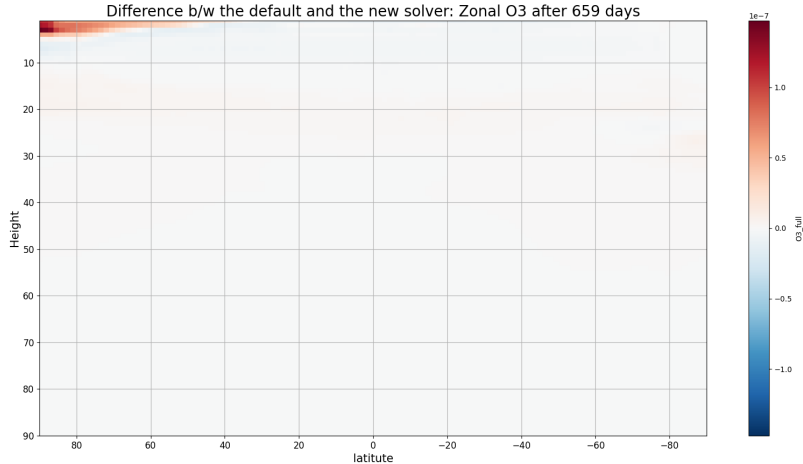
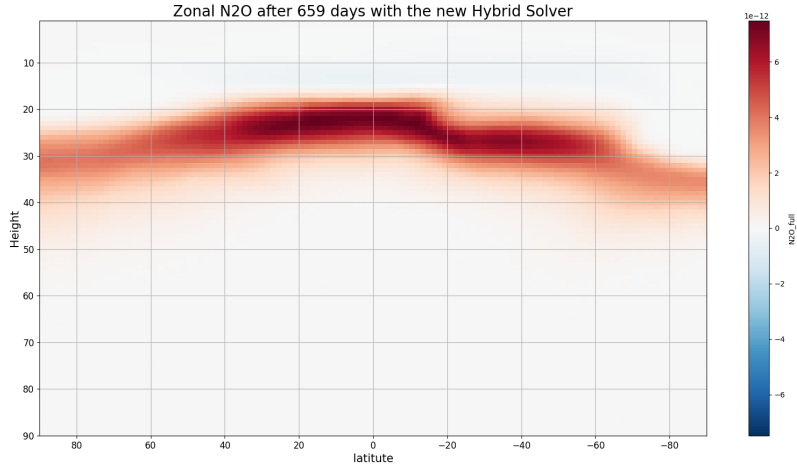


Figure: Zonal Ozone after 659 days

Zonal O3 after 659 days



Zonal N2O after 659 days



Zonal NO2 after 659 days

