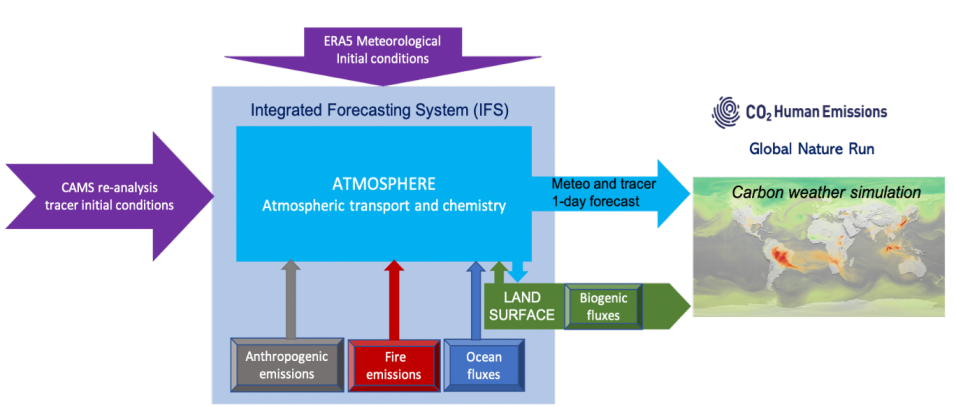
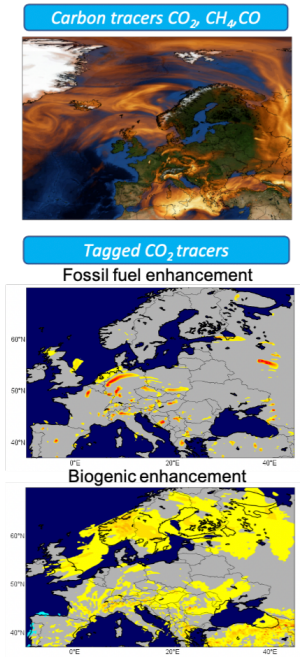
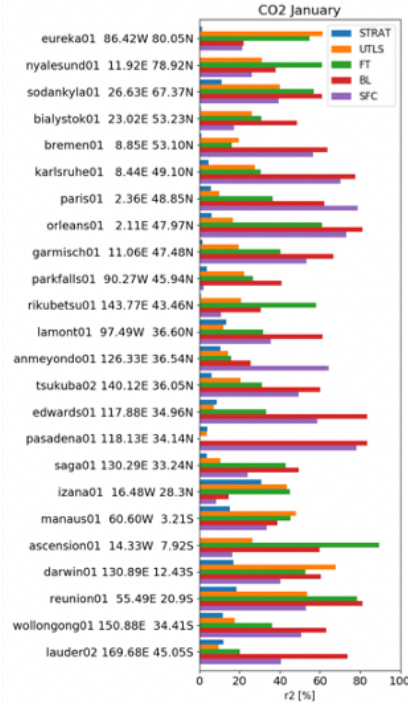
Global nature run data with realistic high-resolution carbon weather for the year of the Paris Agreement

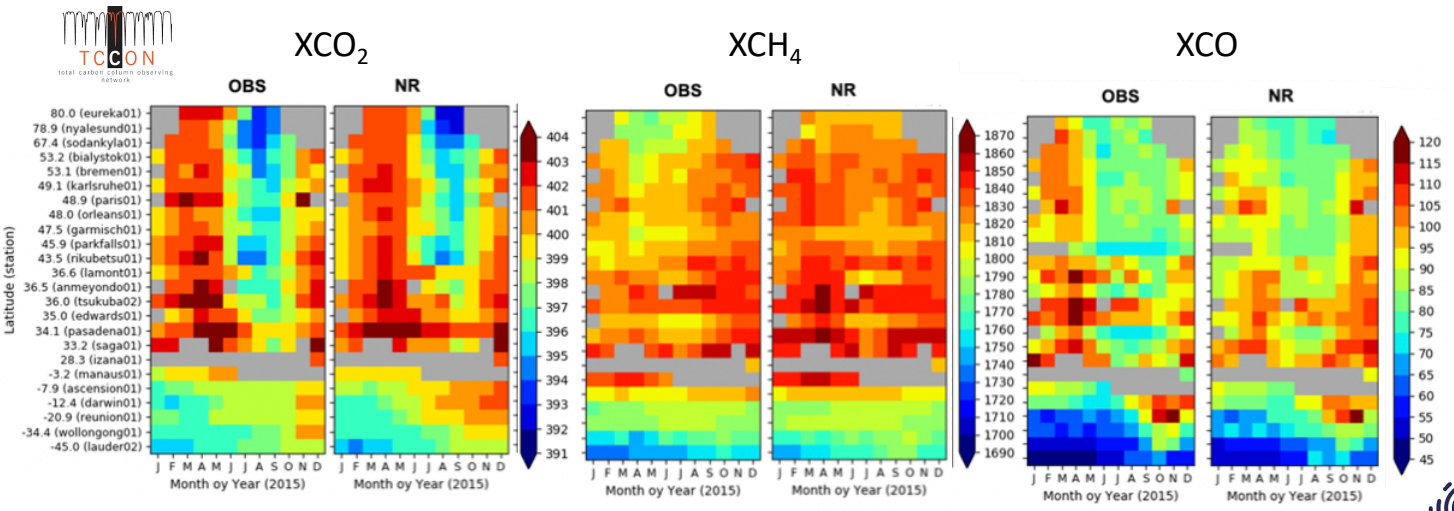
Anna Agustí-Panareda[1], Joe McNorton[1], Gianpaolo Balsamo[1], Bianca C. Baier[2,3], Nicolas Bousserez[1], Souhail Boussetta[1], Dominik Brunner[4], Frédéric Chevallier[5], Margarita Choulga[1], Michail Diamantakis[1], Richard Engelen[1], Johannes Flemming[1], Claire Granier[6], Marc Guevara[7], Hugo Denier van der Gon[8], Nellie Elguindi[6], Jean-Matthieu Haussaire[4], Martin Jung[9], Greet Janssens-Maenhout[10], Rigel Kivi[11], Sébastien Massart[1], Dario Papale[12], Mark Parrington[1], Miha Razinger[1], Colm Sweeney[3], Alex Vermeulen[13], Sophia Walther[9]

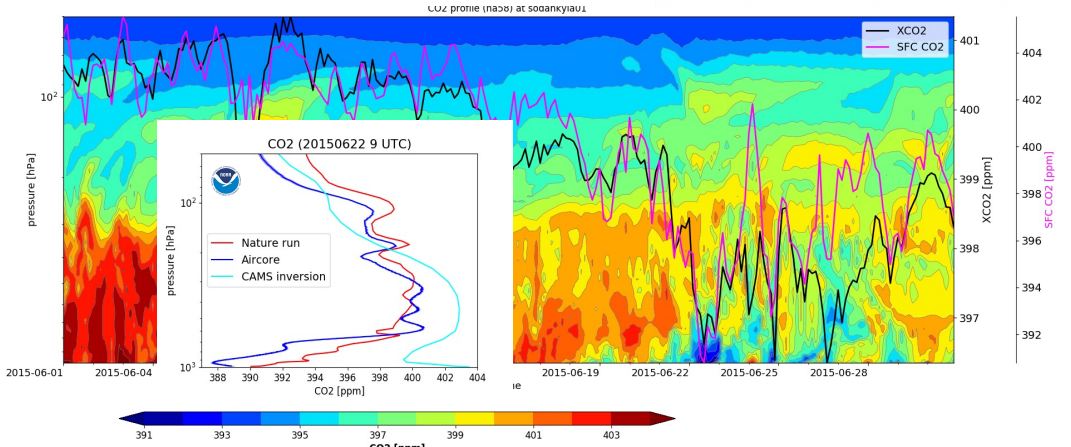




- 9km resolution CO_2, CH_4 and CO simulations in 2015 using CAMS Integrated Forecasting System at ECMWF, prescribed emissions and modelled biogenic fluxes.
- CO_2 tagged tracers can be used to investigate the detectability of the atmospheric enhancement associated with anthropogenic emissions, biomass burning and natural fluxes at the surface.
- The seasonal cycle, interhemispheric gradient and synoptic variability are well captured.
- The fine-scale complex vertical structure is also well represented by the transport model as shown by NOAA Aircore vertical profiles and the model hovmöller plots at Sodankyla (Finland).
- Total column variability of CO_2, CH_4 and CO is strongly influenced by variability in the free troposphere associated with medium and long-range transport.
- Data access: https://dx.doi.org/10.21957/w4wq-sd03







CoCO2 Prototype system for a Copernicus CO_2 service

Copernicus Europe's eyes on Earth

ECMWF

Atmosphere Monitoring