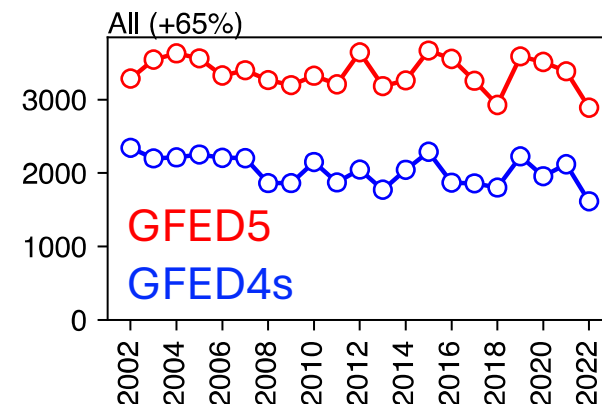
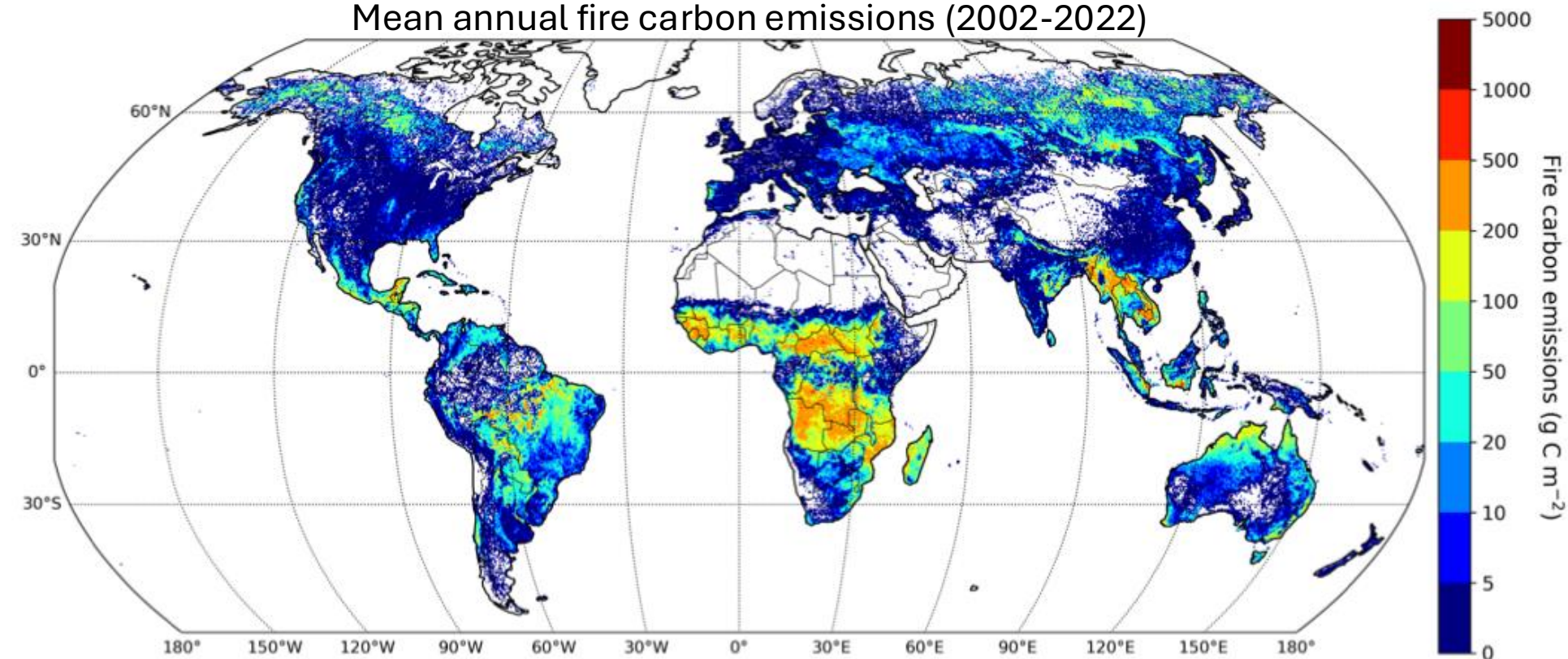


Global Fire Emissions Database version 5 (GFED5)

Guido van der Werf¹, Jim Randerson², Dave van Wees³, Yang Chen², Louis Giglio⁴, Joanne Hall⁴, Roland Vernooij¹, Minquan Mu², Samiha Binte Shahid⁵, Kelly Barsanti⁶, Bob Yokelson⁷, Doug Morton⁸

¹Wageningen University ²UC-Irvine ³BeZero Carbon ⁴UMD ⁵UC-Riverside ⁶NCAR ⁷U. Montana ⁸NASA GFSC

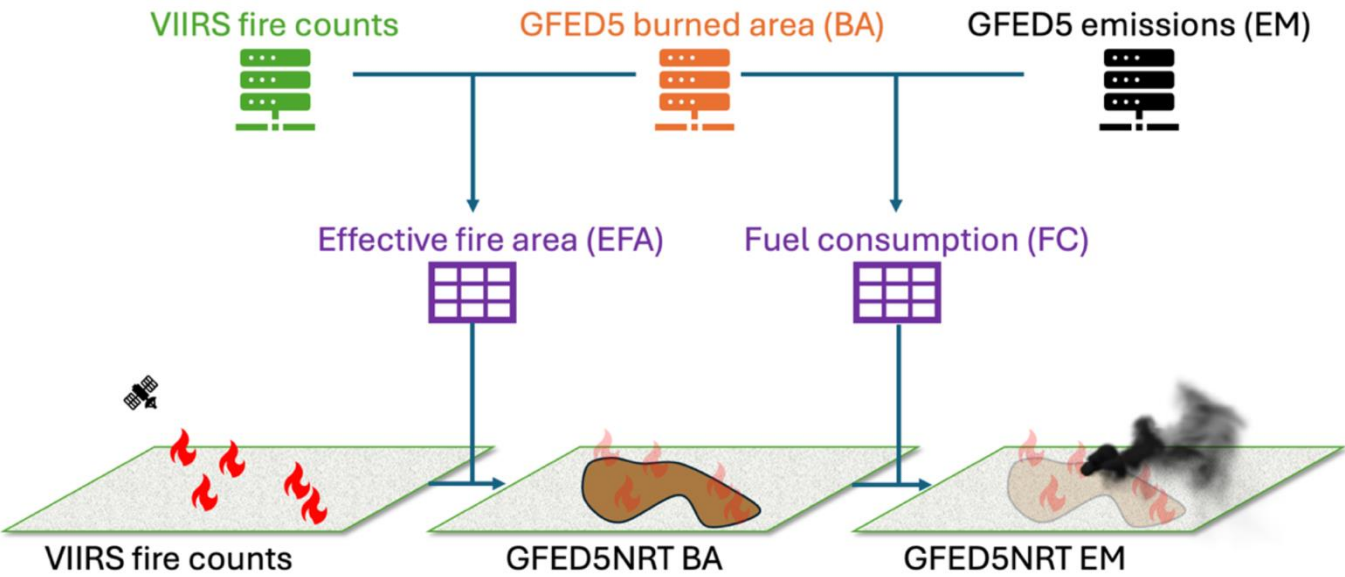
Mean annual fire carbon emissions (2002-2022)



van der Werf et al., 2025
Scientific Data

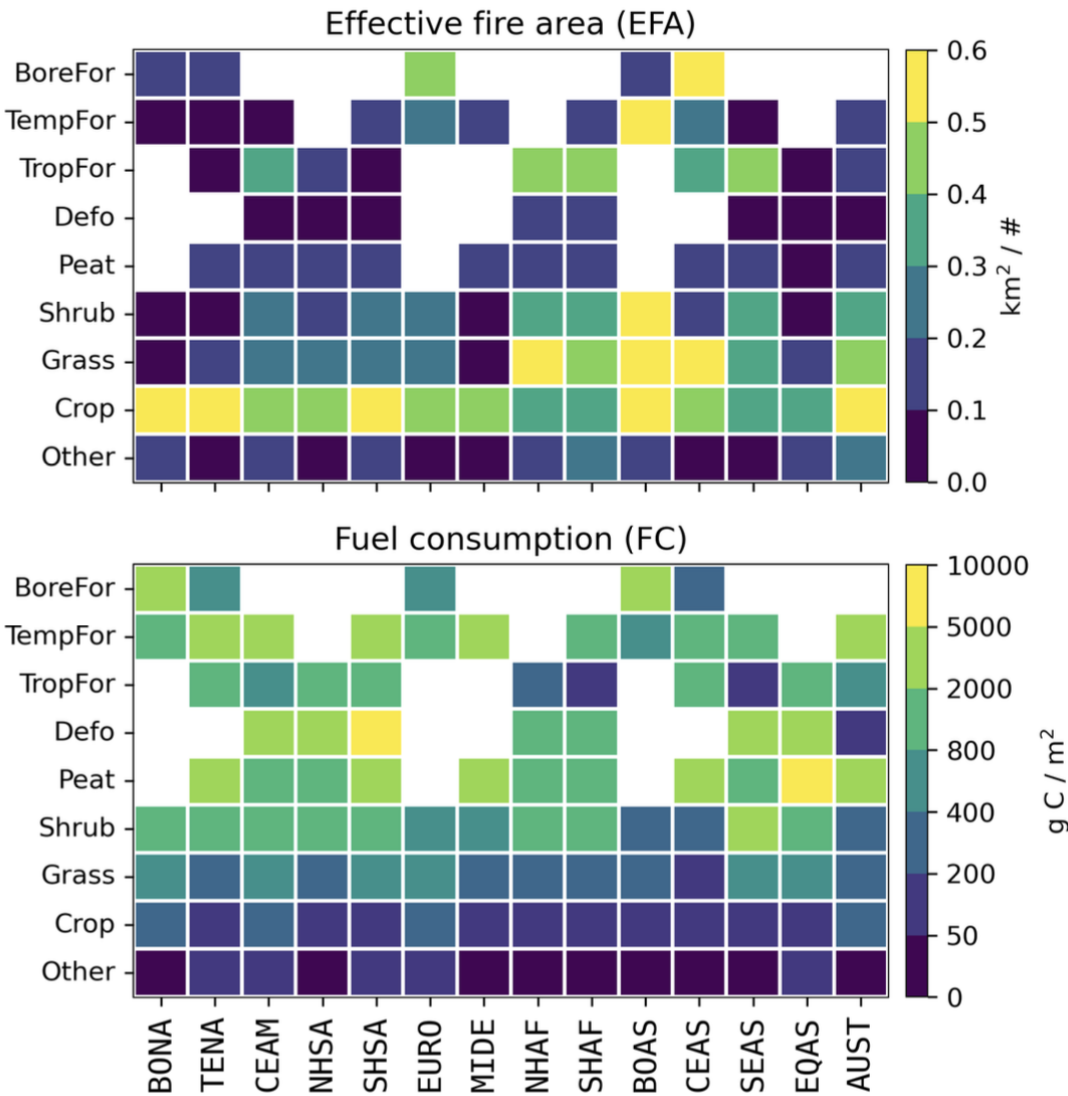
- Benchmark estimate of global fire emissions based on the full MODIS burned area & active fire dataset.
- Improvements in burned area and emissions factors boosted fire emissions by 65% compared to GFED4s.
- The MODIS data record captures periods of increasing (temperate/boreal forests) and decreasing (savannas/grasslands) fire activity, yet global emissions remained consistent during the past two decades.

GFED5 Near Real-Time (NRT) Daily Fire Emissions, 2023-present



Effective fire area: burned area per VIIRS fire count

Fuel consumption: carbon emissions per unit burned area



Data: www.globalfiredata.org

2023 Emissions CO (Tg day⁻¹)

