

Motivation

thanks to Philip Ringrose

History fossil fuels

- ▶ during industrial revolution society more & more dependent on fossil fuels
- ▶ acceleration of CO₂ in atmosphere
- ▶ widespread agreement rapidly reduce rate of emissions
- ▶ find balance anthropogenic emission & sinks
- ▶ reduction 50% needed by 2050 to avoid warming by 1.5°C
- ▶ ‘energy transition’ towards low-carbon energy
- ▶ change behavior & adapt new technologies
- ▶ extremely complex problem

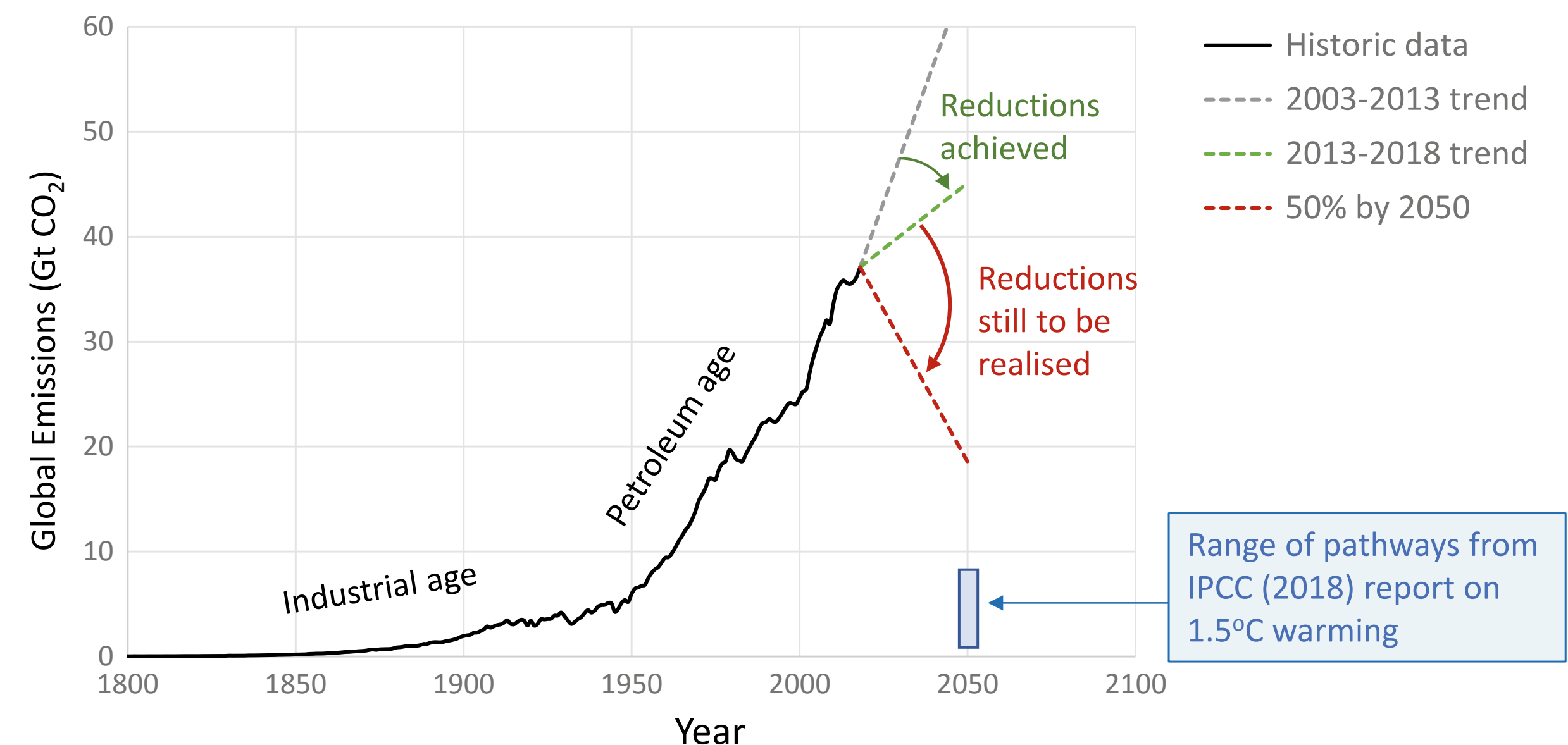


Fig. 1.1 Historical record of global CO₂ emissions compared with various projections (data sources: carbon emissions data up to 2013 from <https://cdiac.ess-dive.lbl.gov/> with 2014–2018 years estimates from www.wri.org). Figure modified from Stephenson et al. (2019)