a Change in Median Atmospheric CO_2 Concentrations (AR6 - SR1.5)

(ppm)

CO_2 concentrations lower in AR6 setup

Bigger difference in scenarios which move down a category

b Change in Median Effective Radiative Forcing (AR6 - SR1.5)

(W / m²)

Relatively little change in total effective radiative forcing

Bigger difference in scenarios which move down a category

c Change in Median Other Effective Radiative Forcing (AR6 - SR1.5)

Seemingly minor forcers (including natural forcers) have a noticeable difference with a clear trend over 2000 - 2040. No difference for scenarios which move down a category.

(W / m²)

d Change in Median Aerosol Effective Radiative Forcing (AR6 - SR1.5)

Aerosol forcing is more sensitive to emissions in the AR6 setup --> stronger forcing today and larger rebound in scenarios which cut aerosol precursor emissions.

(W / m²)

Smaller rebound in scenarios which move down a category

e Ammonia (NH_3) emissions

Lack of aerosol forcing rebound in scenarios which move down a category is driven by their high NH3 emissions. These emissions counteract reductions in sulfur emissions because MAGICC7's aerosol parameterisation includes competition between ammonia and sulfur.

(Mt NH_3 / yr)

Median (of all scenarios)

Individual scenarios

Moved down from 1.5 °C low overshoot

Moved down from 1.5 °C high overshoot

No change from below 1.5 °C

No change from 1.5 °C low overshoot

No change from 1.5 °C high overshoot

f Change in 67% Surface Temperature (GSAT) (AR6 - SR1.5)

(°C)

In the AR6 setup, warming rate is lower and the temperature distribution is narrower. The combination results in lower 67% temperatures after ~2030. **Forcing differences determine** whether scenarios change category.

g Change in 1.5°C Exceedance Probability (AR6 - SR1.5)

(dimensionless)

Changes in warming flow through to changes in 1.5°C exceedance probability, **which is what defines the categorisation**

2010 2020 2030 2040 2050 2060 2070 2080 2090 2100