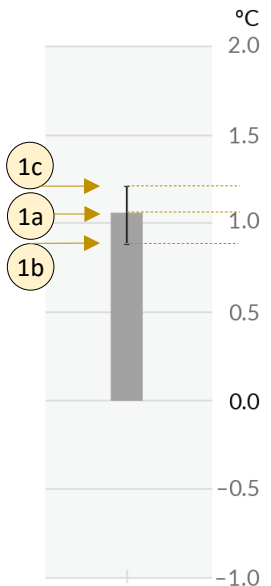


## Learning materials: Worksheet – What scientists say is causing modern-day climate change (1)

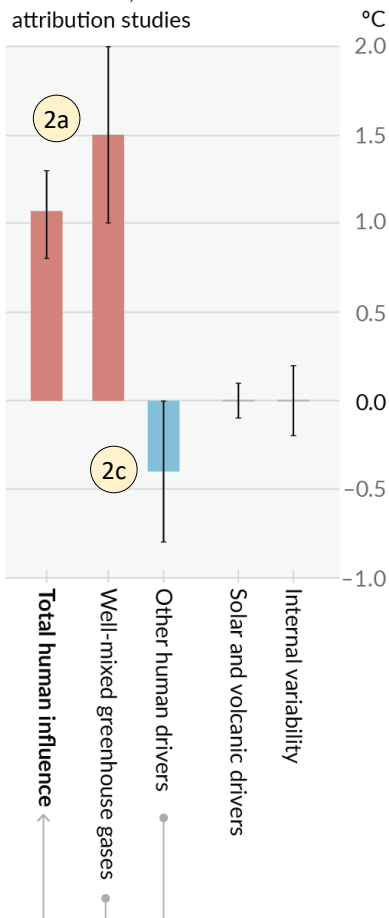
### Observed warming

(a) Observed warming 2010–2019 relative to 1850–1900

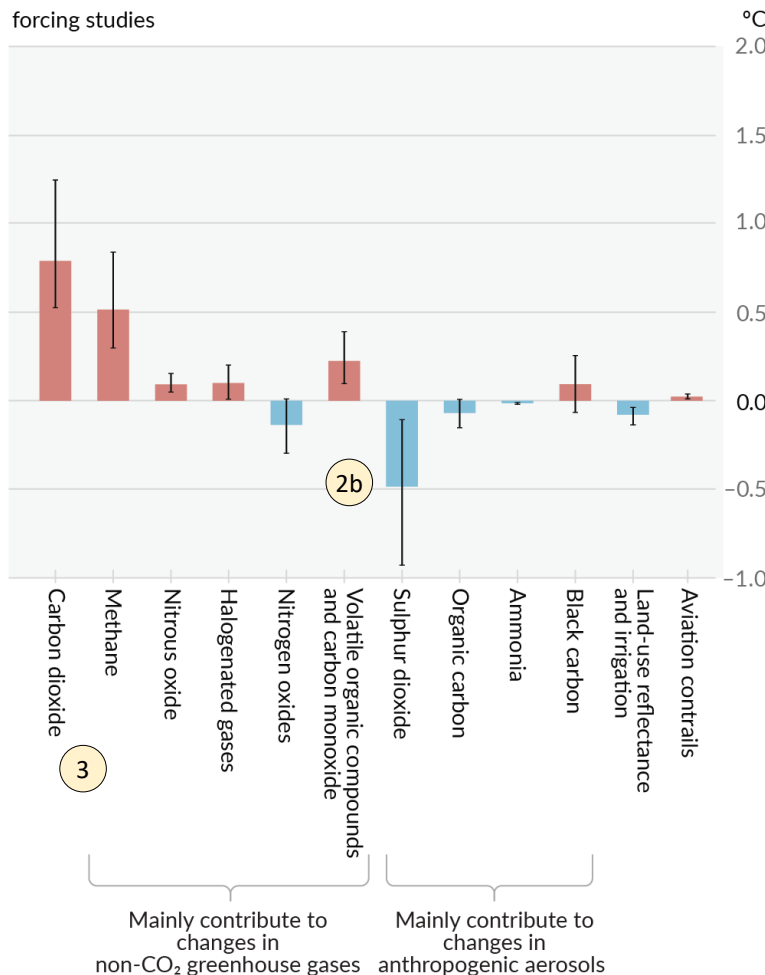


### Contributions to warming based on two complementary approaches

(b) Aggregated contributions to 2010–2019 warming relative to 1850–1900, assessed from attribution studies



(c) Contributions to 2010–2019 warming relative to 1850–1900, assessed from radiative forcing studies



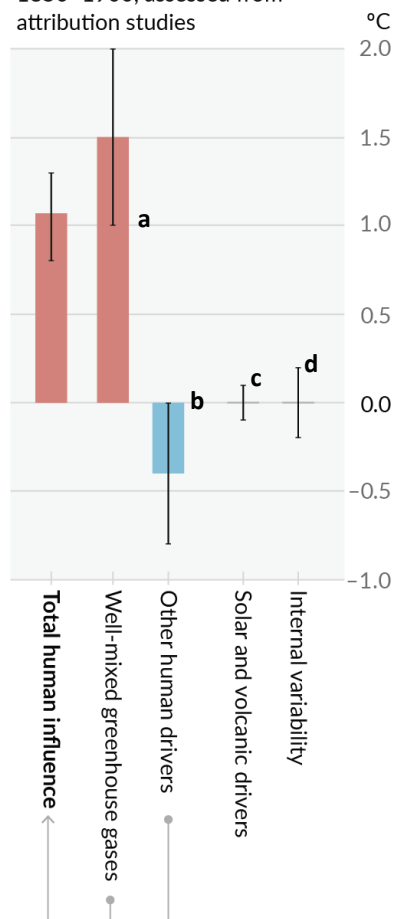
2 Effectively all this warming was due to human influence. Greenhouse gases have warmed the planet by around \_\_\_\_°C (between +\_\_\_\_°C and +\_\_\_\_°C), while other human drivers, mostly \_\_\_\_\_ have cooled the planet by around \_\_\_\_°C (between \_\_\_\_°C and -\_\_\_\_°C).

3 The two greenhouse gases that contribute most warming are \_\_\_\_\_ at +\_\_\_\_°C (between +\_\_\_\_°C and +\_\_\_\_°C) and \_\_\_\_\_ at +\_\_\_\_°C (between +\_\_\_\_°C and +\_\_\_\_°C).

1 The world is around \_\_\_\_°C warmer than the 1850-1900 average (between +\_\_\_\_°C and +\_\_\_\_°C, an uncertainty range of \_\_\_\_°C).

## Learning materials: Worksheet – What scientists say is causing modern-day climate change (2)

(b) Aggregated contributions to 2010–2019 warming relative to 1850–1900, assessed from attribution studies



4

Let's look at a hypothetical situation where we assume all the data that has come from climate models is putting too much blame on human activity.

- What is the *least* amount of warming we are sure human greenhouses are causing?
- What is the *least* amount of cooling that other human drivers are causing?
- What is the *most* amount of warming that solar and volcanic activity is causing?
- What is the *most* amount of warming that 'internal variability' (e.g. El Niño)
- Put those together and we get a warming of...**  
...with most of that still due to greenhouse gases!

+	°C
	°C
+	°C
+	°C
+	°C

5

The IPCC has therefore concluded it is **unequivocal** that humans are to blame for modern-day climate change. Discuss what you think this means.

Combine what you have learnt today about the IPCC, how they work, and the data you have seen. How much do you trust the scientific conclusions made? Comment on what you think and why.

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