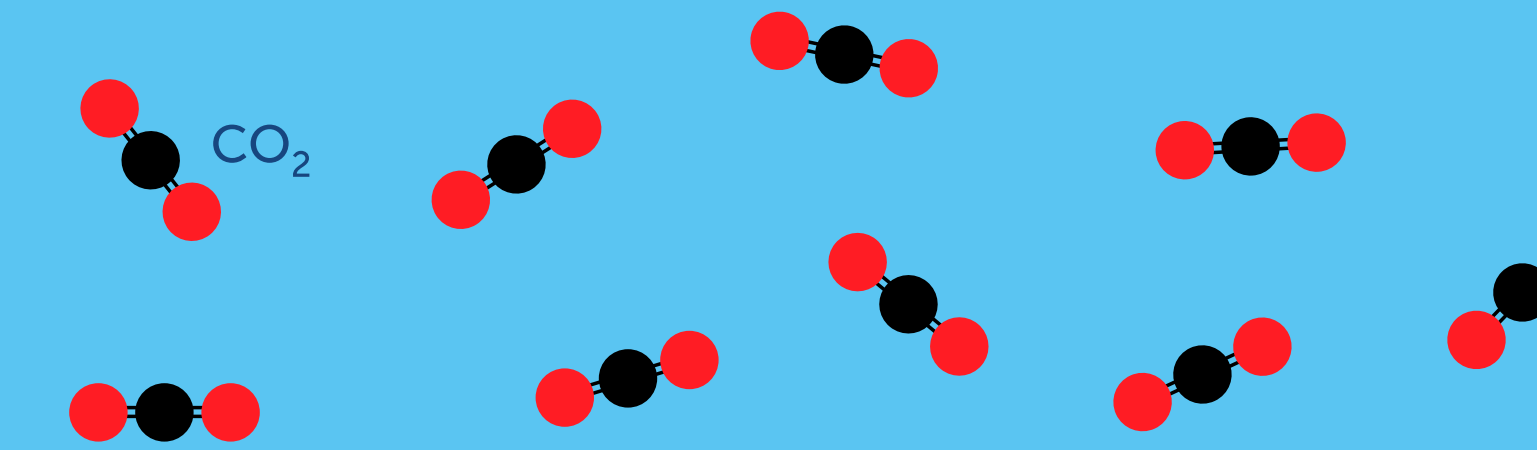


# THE CLIMATE IMPACTS OF AVIATION

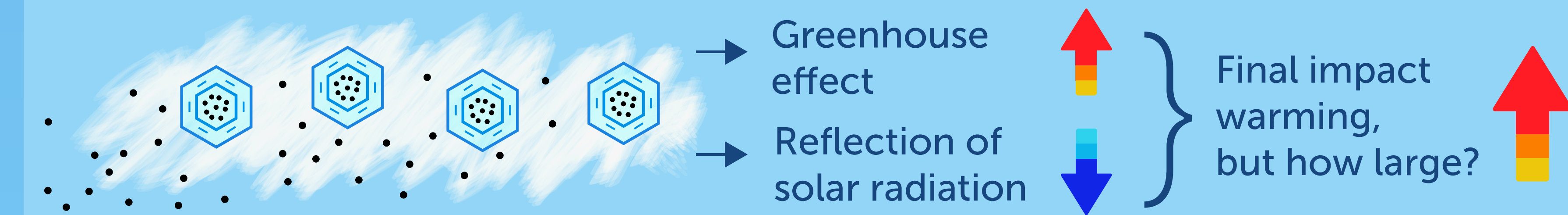


## Greenhouse effect from CO<sub>2</sub> emissions

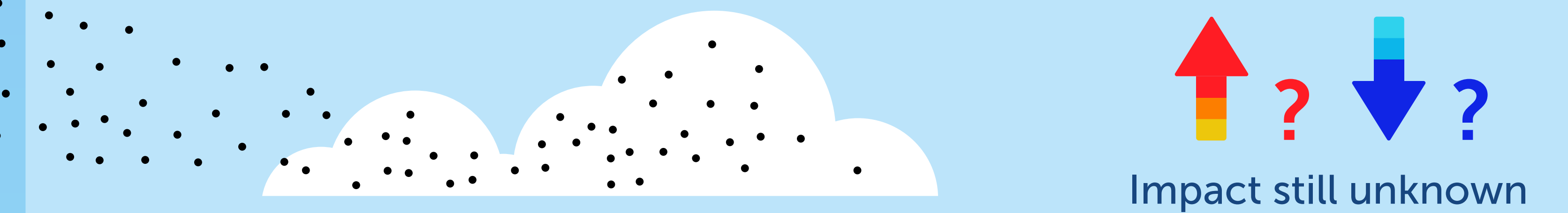


↑  
Warming  
(greenhouse effect)

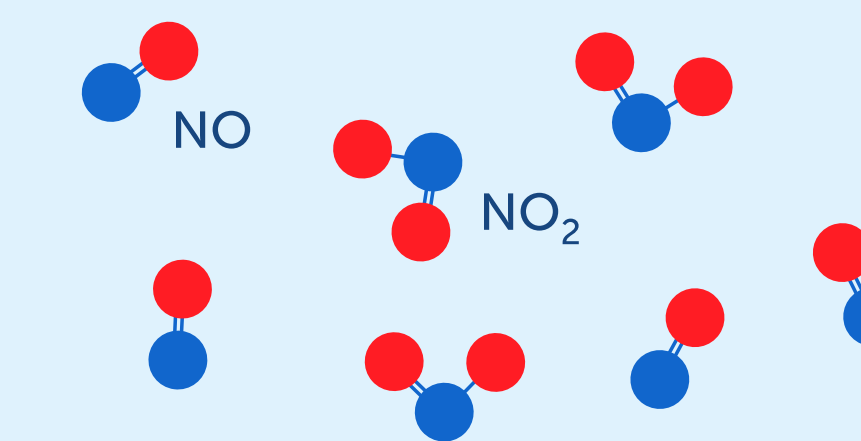
## Formation of contrail and cirrus clouds by water vapour and soot emissions



## Modification of natural clouds by transported soot



## Perturbation to atmospheric chemistry by nitrogen oxide (NO<sub>x</sub>) emissions

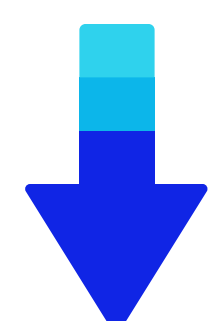


→ Ozone increase (O<sub>3</sub>) ↑  
→ Methane decrease (CH<sub>4</sub>) ↓

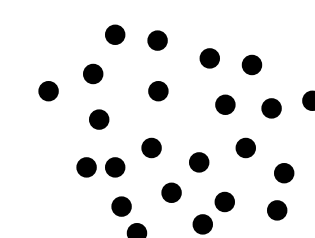
} Final impact, warming or cooling?



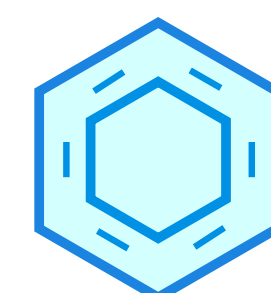
Climate warming



Climate cooling



Soots



Ice crystals

