

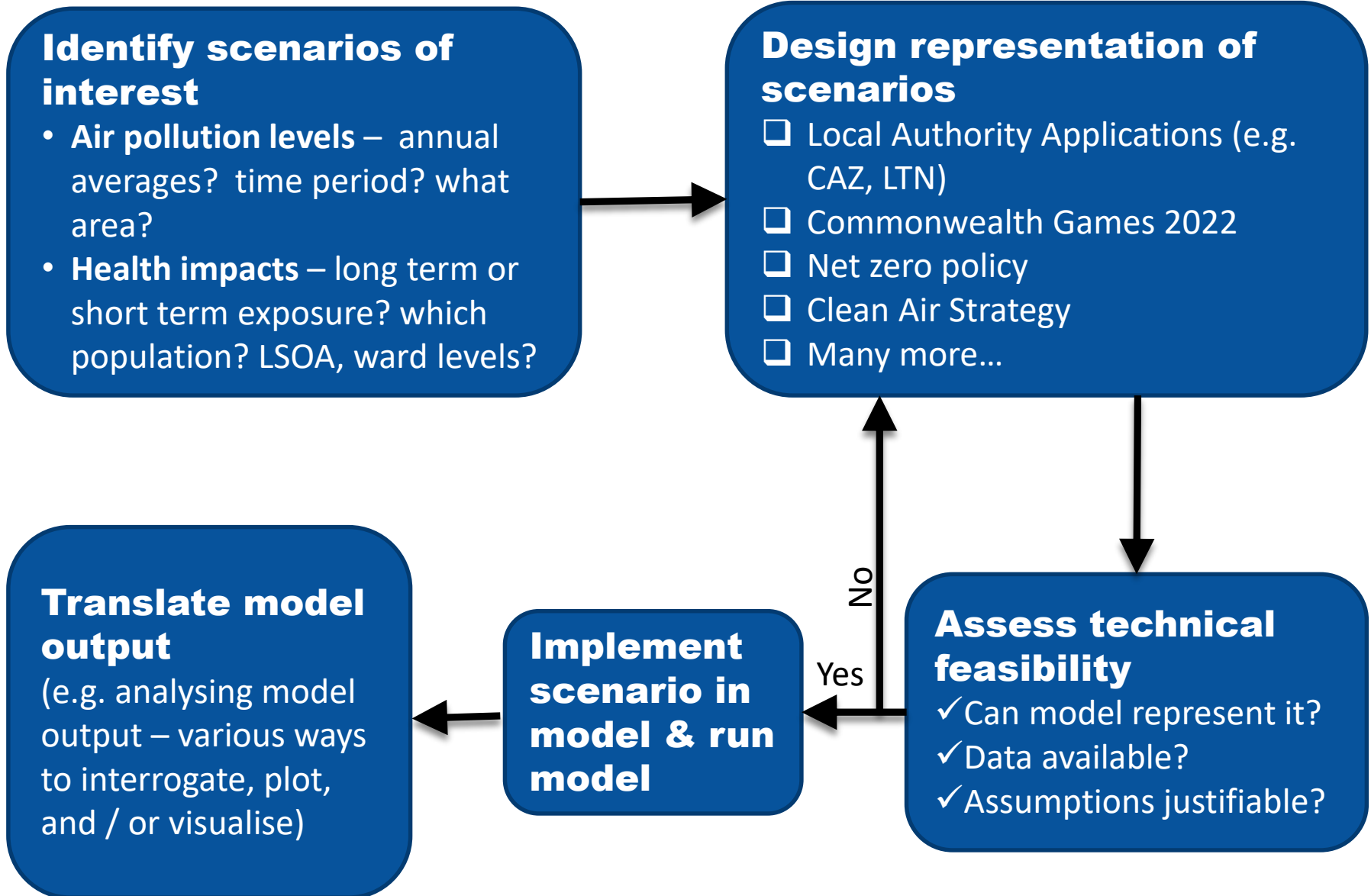
Modelling Scenarios

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WM-AIR
CLEAN AIR SCIENCE FOR
THE WEST MIDLANDS



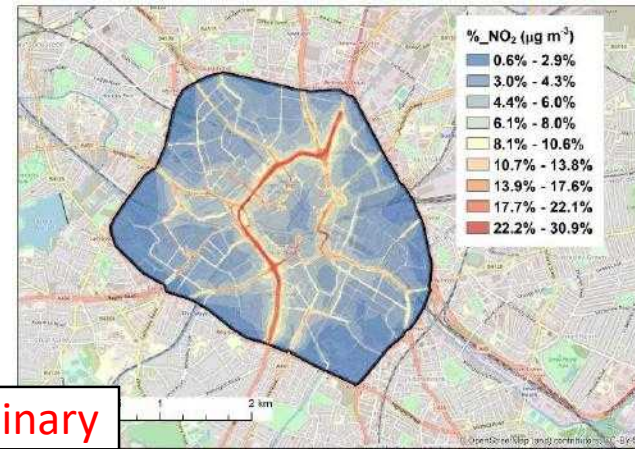
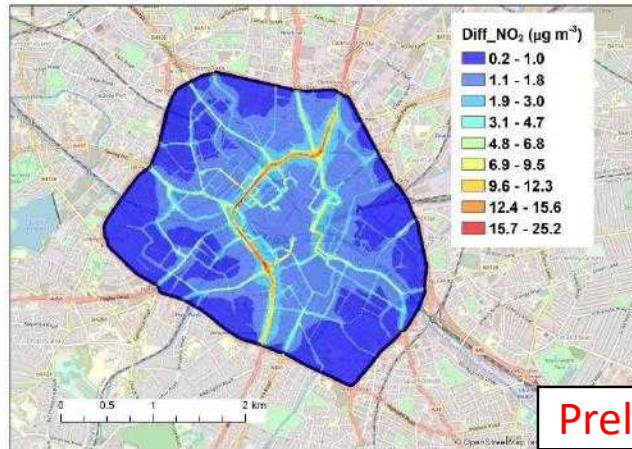
Scenario modelling: the approach



Local (ADMS) Model - Local Authority Applications

(a) Drop in annual NO₂ map

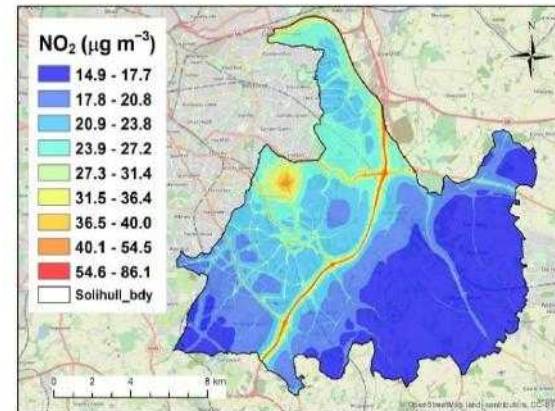
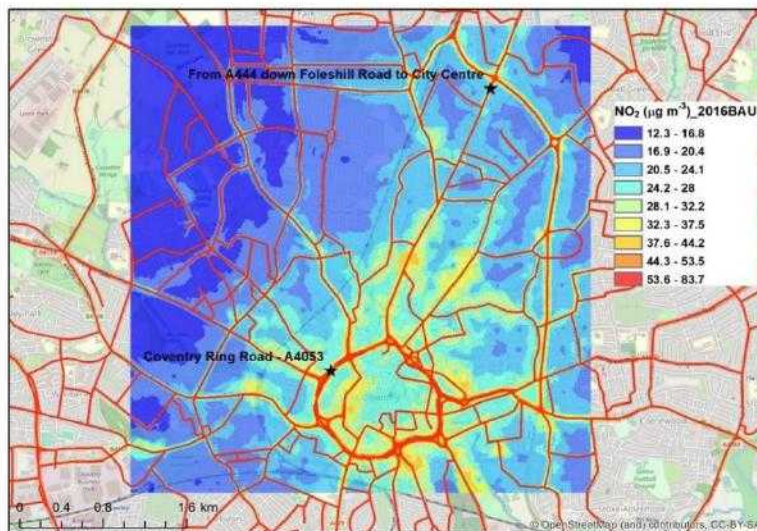
(b) Relative drop (%) in annual NO₂ map



Preliminary

Birmingham Clean Air Zone – NO₂ reduction if all non-compliant vehicles upgrade (2021 BAU)

Coventry 2016 BAU



Solihull 2016 BAU

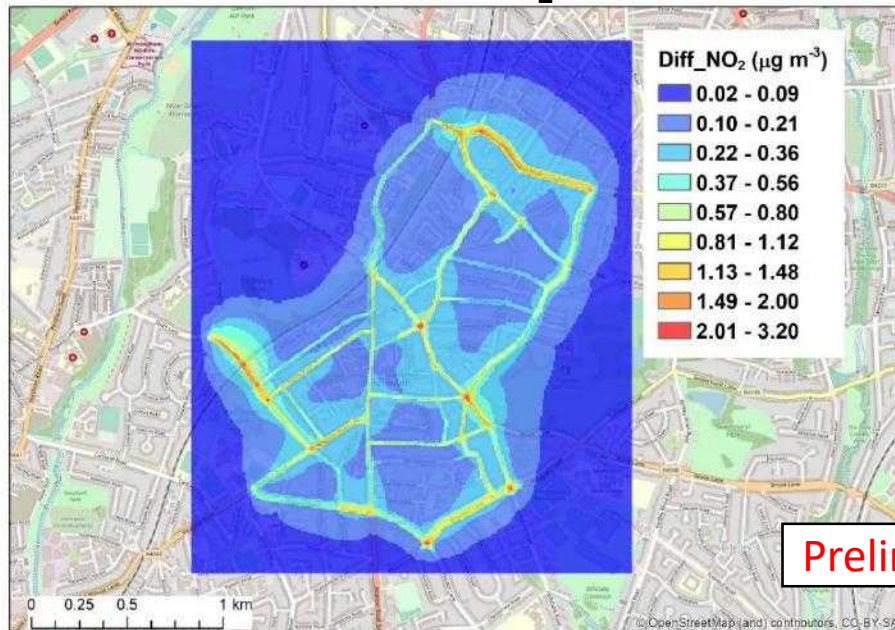
Local (ADMS) Model - Kings Heath Low Traffic Neighbourhood (LTN)

- Active Travel / “Build back greener”

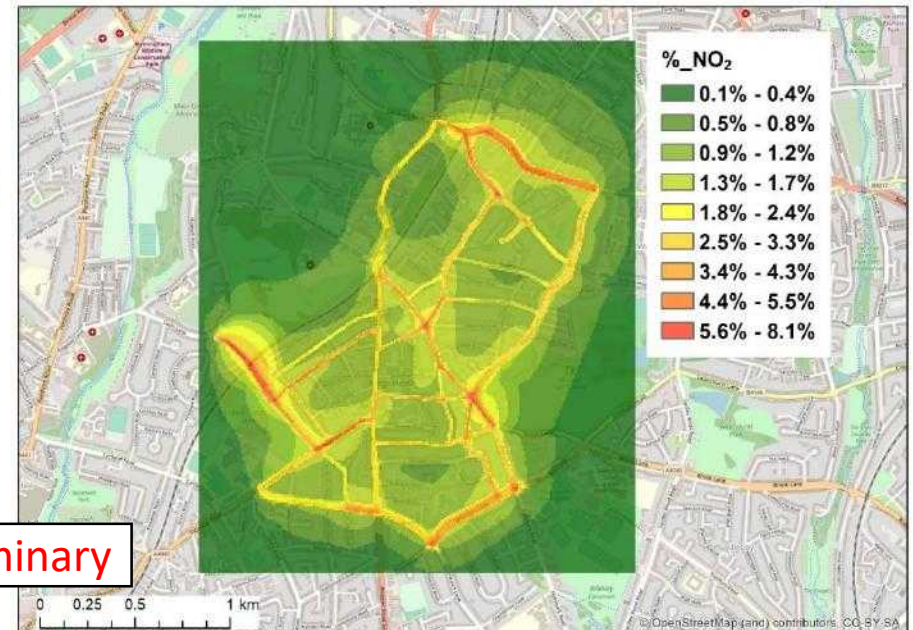
⇒ BCC Emergency Transport Plan: Low Traffic Neighbourhoods

⇒ WM-Air inputs: What are the air quality benefits associated with LTNs ?

(a) Drop in annual NO_2 map



(b) Relative drop (%) in annual NO_2 map

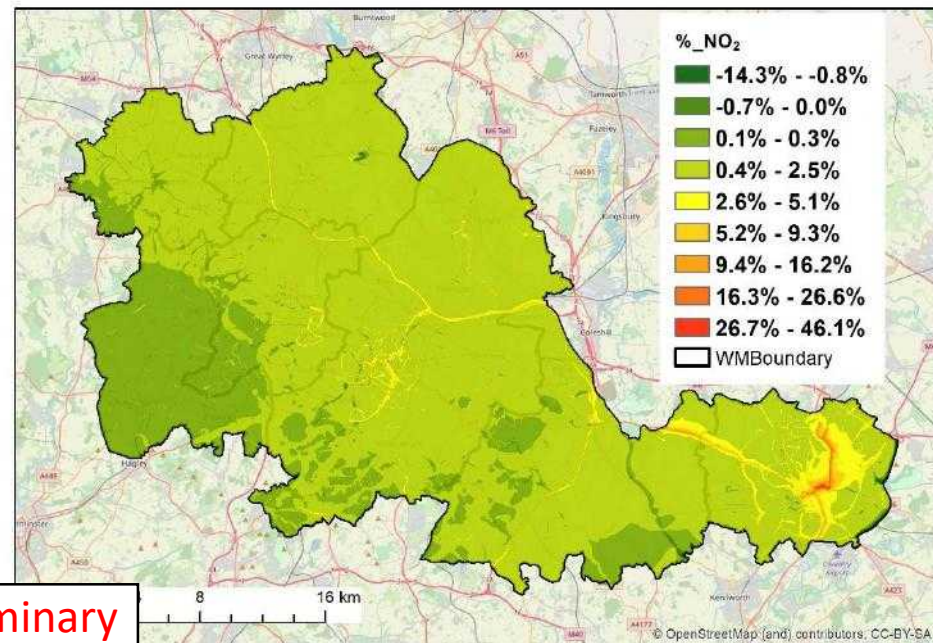
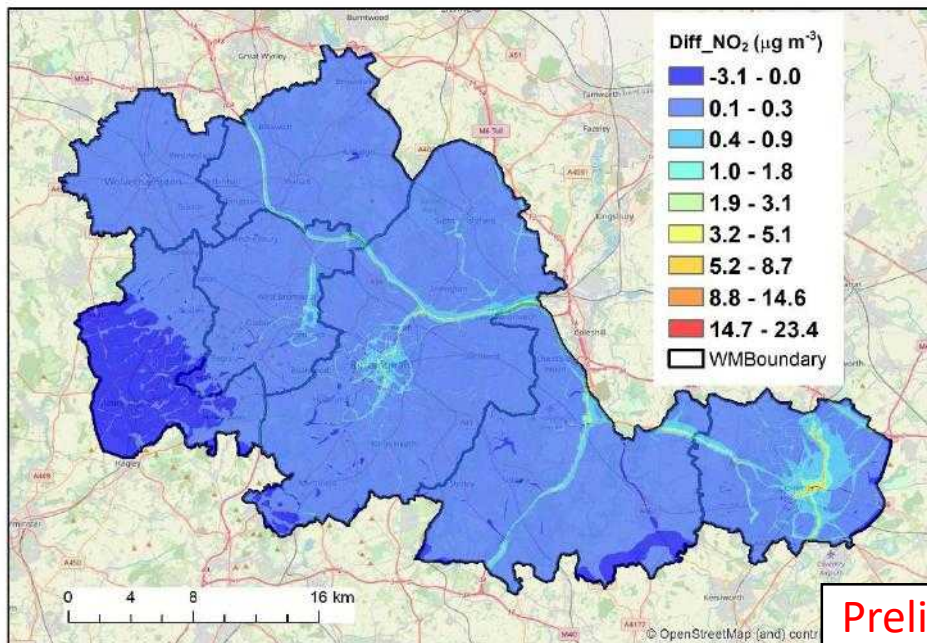


Preliminary

Local (ADMS) Model - Commonwealth Games 2022

(a) Change in annual NO₂ map
Case Day1 AM- Case Ref AM

(b) Relative change (%) in annual NO₂ map
(Case Day1 AM- Case Ref AM)/Case Ref AM



Preliminary

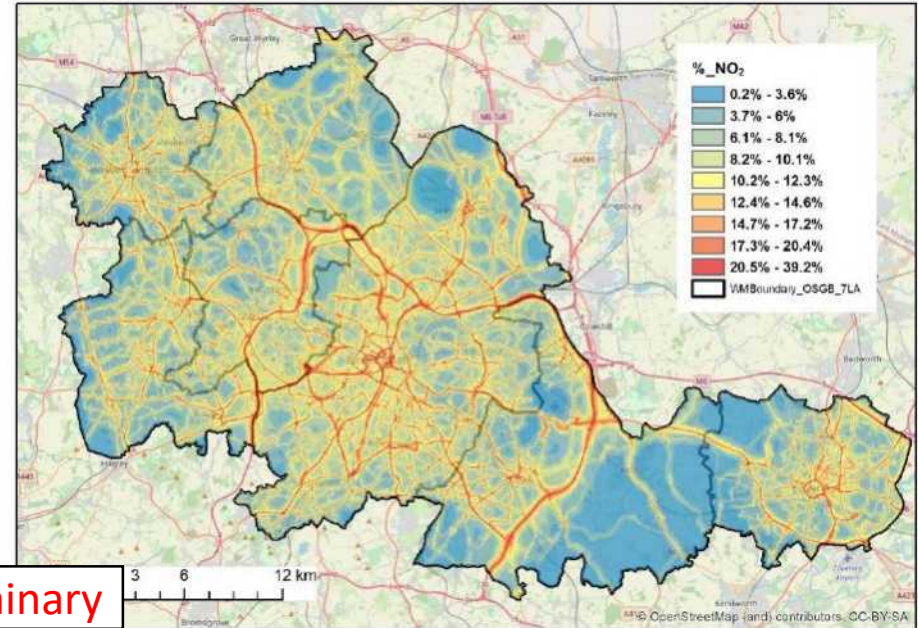
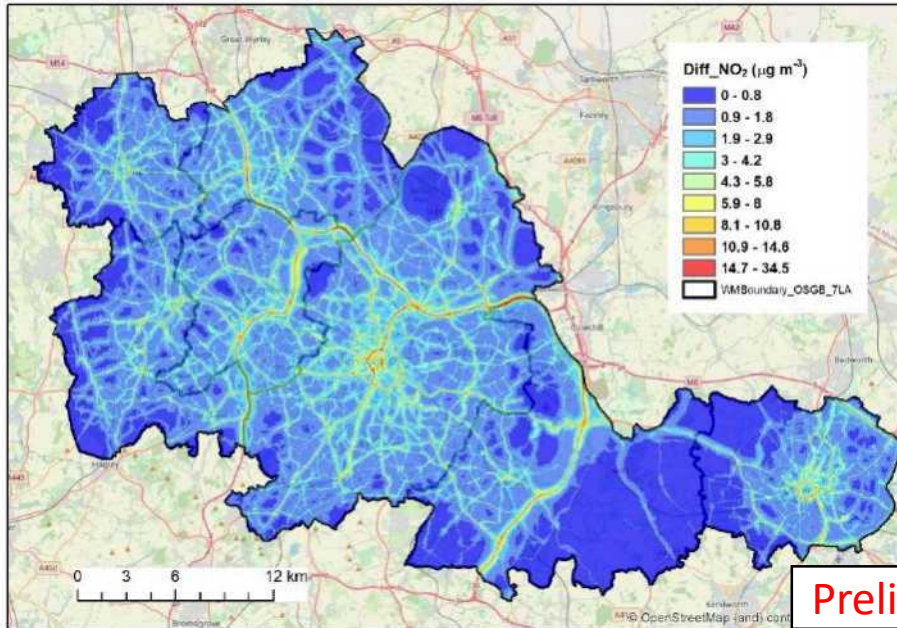
Local (ADMS) Model - Net zero policy: WM transport strategy

Air-quality co-benefits

Impact of bus electrification + 50% light vehicle electrification

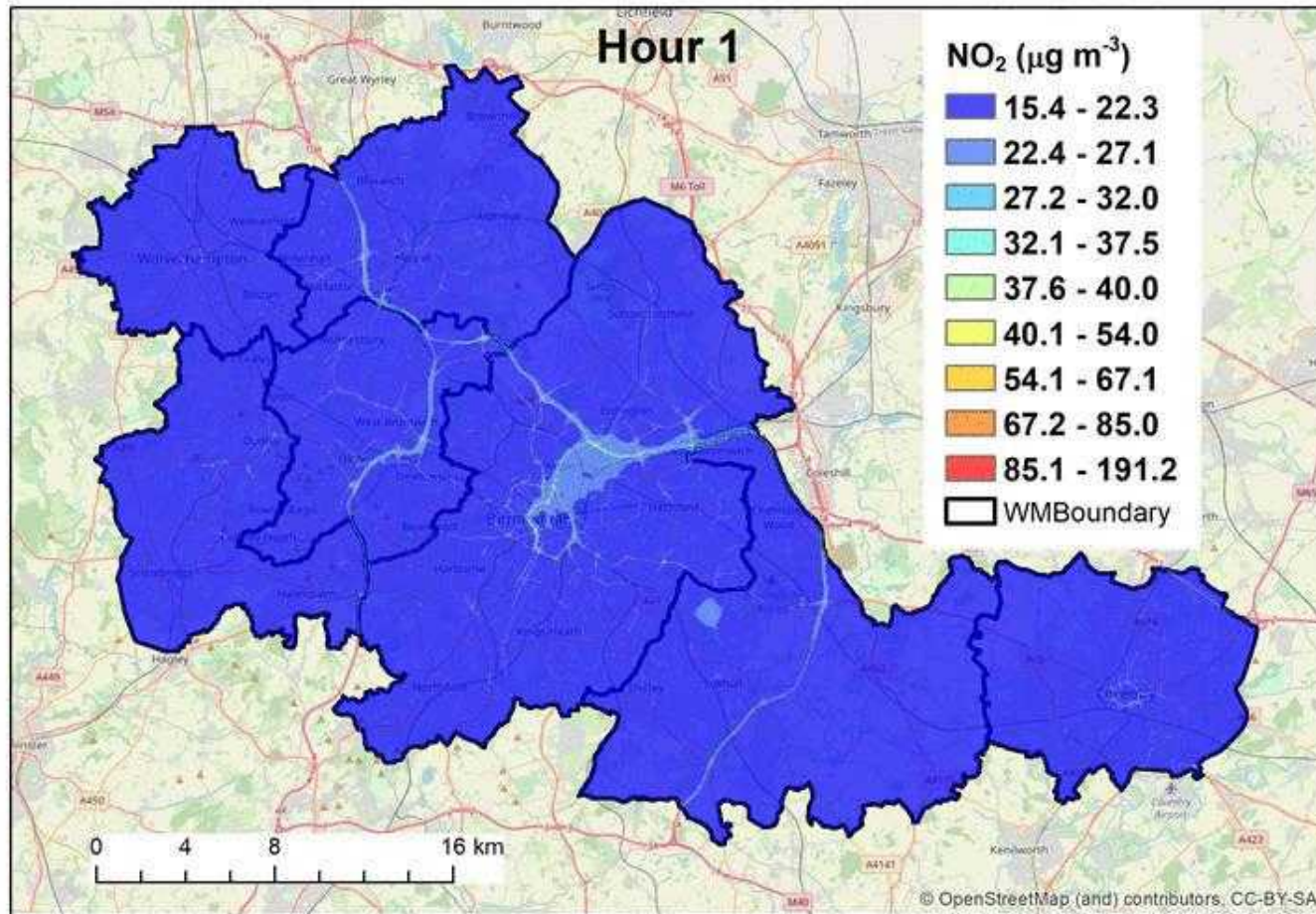
(a) Drop in annual NO₂ map

(b) Relative drop (%) in annual NO₂ map



Preliminary

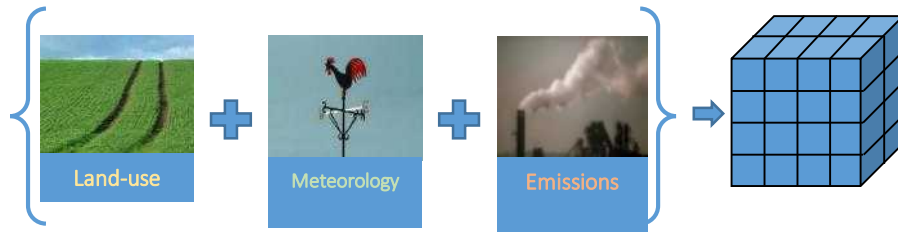
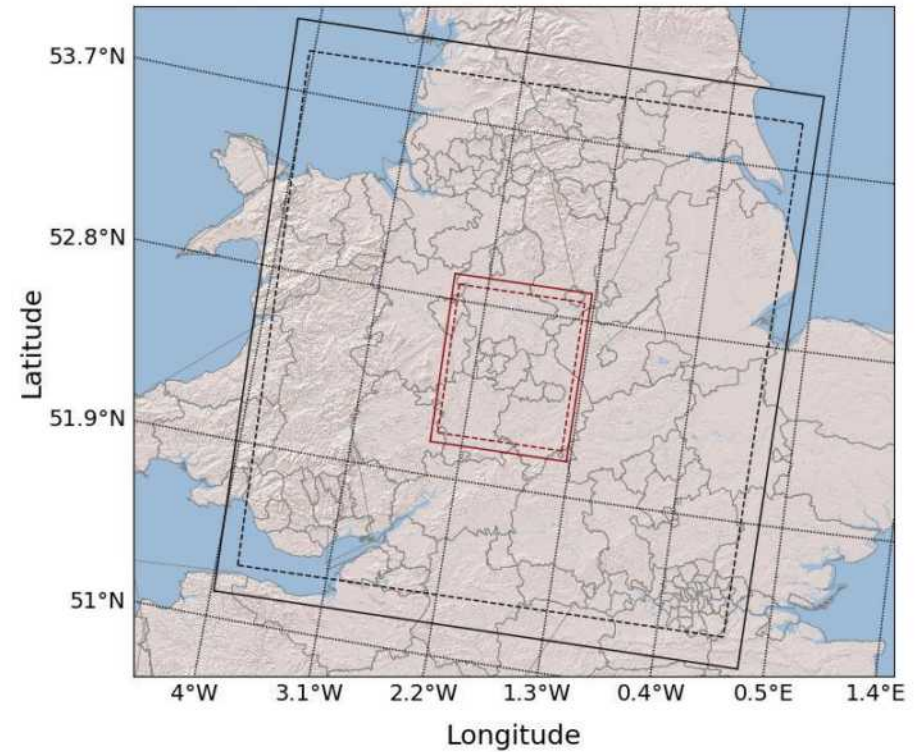
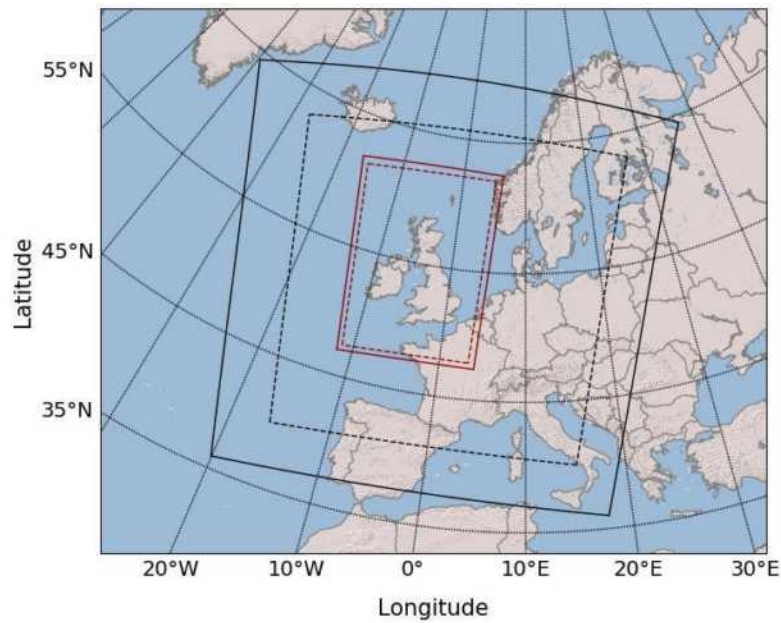
Local modelling animation



2016 BAU (Zhong et al, 2021)

Regional/National Modelling to be continued...

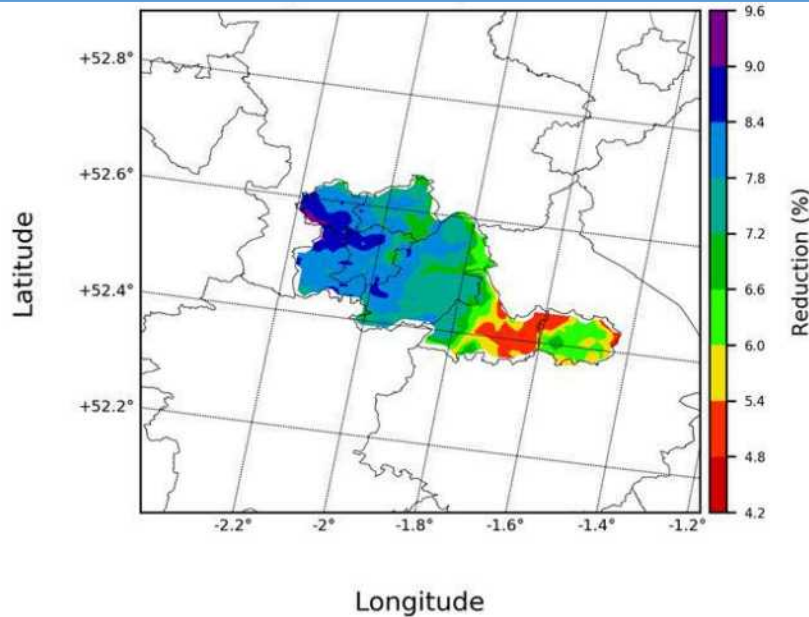
Regional/National Modelling



Initial Scenarios– sensitivity to within-region policy changes

- **Scenarios Design:** anthropogenic emissions reduced only inside the West Midlands area according to the Clean Air Strategy 2019 (3x3, 1x1 domains)

Reduction of agricultural emissions within the region (by 30 %)



Reduction of “wood burning” emissions within the region (by 85 %)

