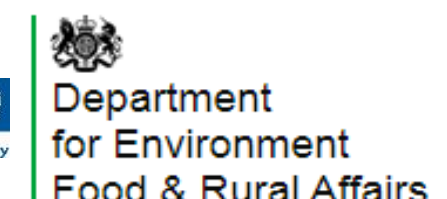
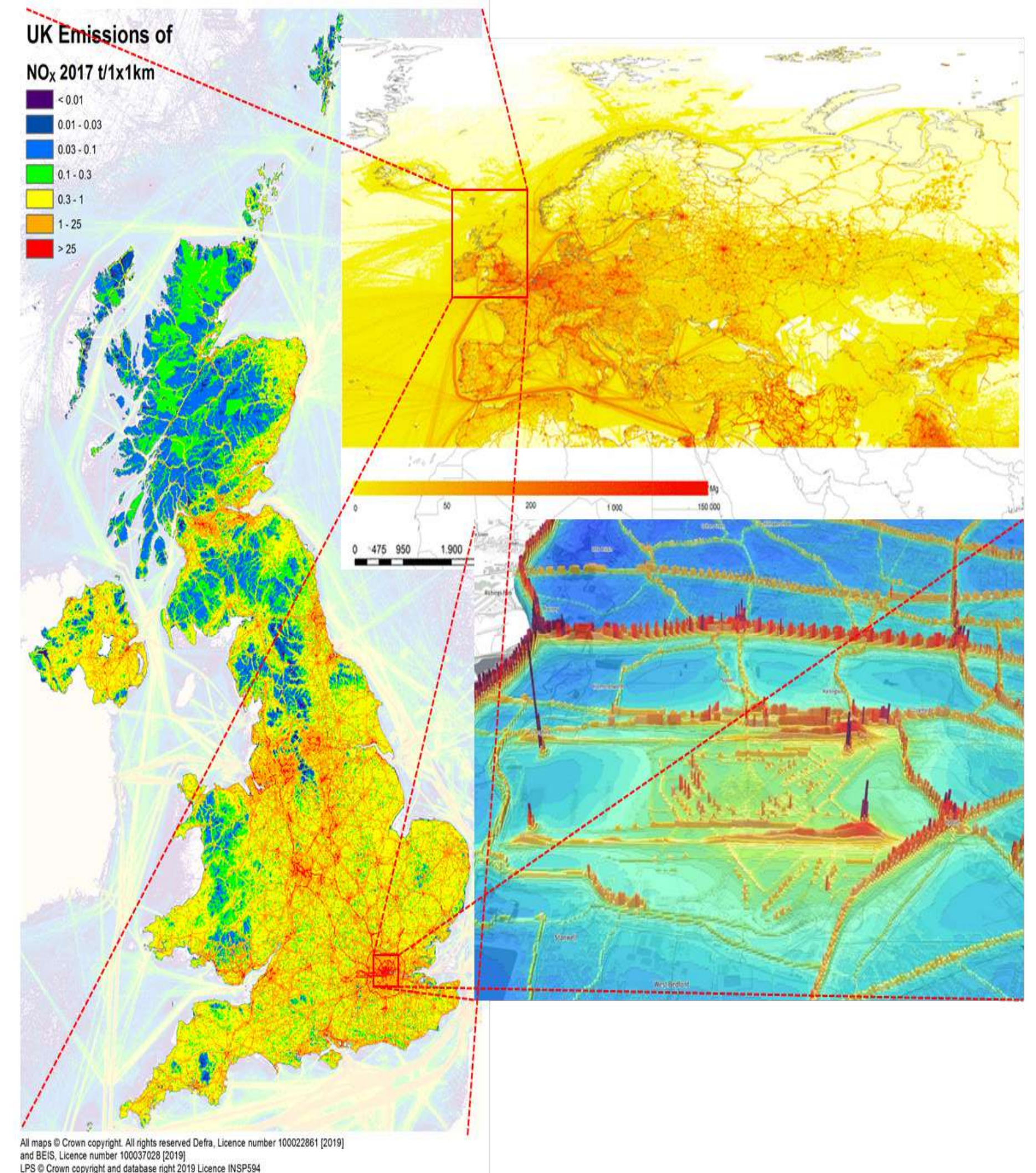


Developing a UK Community Emission Modelling System (DUKEMS)

UKRI SPF Wave 1 – UK MetOffice CA19/3:
Clean Air Programme - UK Emissions Modelling System

SPF CA Champions Roundtable update 15 Feb 2022

January 2020 – **June 2022**

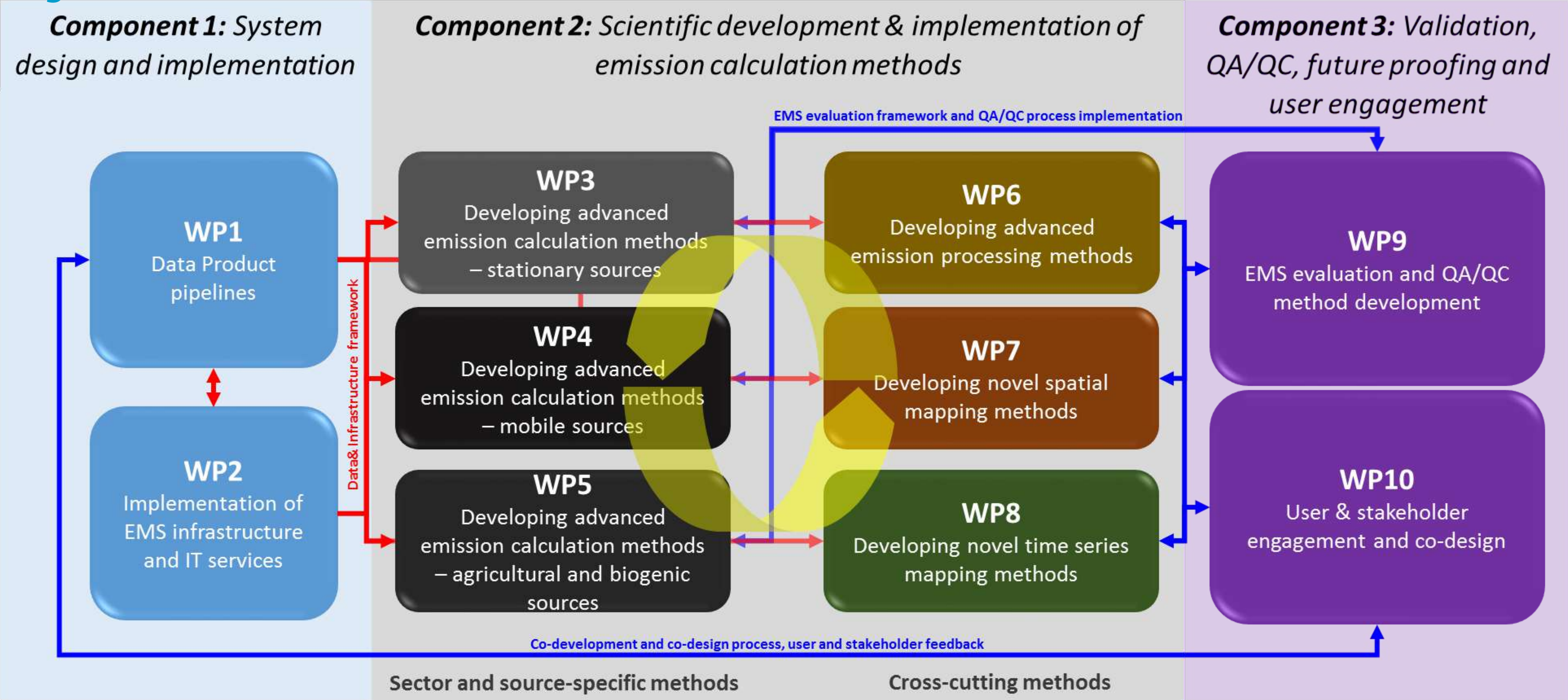



The Clean Air (W1) programme is led by NERC and the Met Office, with Innovate UK, EPSRC, ESRC, MRC, NPL & Defra as delivery partners.

Key deliverables

- ❑ **D1:** An **operational framework** for a flexible, scalable and future-proof community Emission Modelling System (EMS) implemented on **JASMIN**
- ❑ **D2:** A process for a **community-driven, co-designed** UK-EMS enabling the atmospheric modelling community to **generate emission input data at the spatial, temporal and substance resolution required** for a wide range of use cases
- ❑ **D3:** An open, accessible **system and demonstrators for the integration of novel emission calculation methods**, including approaches for future expansion.
- ❑ **D4:** The operational **integration of anthropogenic and biogenic emissions** into consolidated output datasets.
- ❑ **D5:** A consistent approach for the provision of **temporally and spatially resolved emission data** across a range of scales.
- ❑ **D6:** A demonstrated **output generation process for frequently used data formats**, including meta-data and supporting documentation of the calculations included, and **open for future extension to new formats**.

Project structure



 Methodology integration across work packages and tasks

 IT and systems framework implementation

 Emission science & methods

Progress update

- ❑ A third User Group meeting was held on December 2nd in order to present and discuss the processes and workflows of DUKEMS with the model user group, and a summary piece has been published on the project website. 1:1 meetings with each work package were also held in late November and early December.
- ❑ Focus now is on implementing a beta-version of the UK-EMS to engage the user community again in late March/early April and gain insights into the final delivery of a functioning system with a launch envisaged for June 2022.
- ❑ In parallel, final developments in the individual science work packages will be wrapped up and integrated into the UK-EMS, as well as developing the longer-term vision of potential development priorities beyond the current project stage – with strong community input.

Progress update

- Substantial effort (including through additional funding made available by the MO) dedicated to support two key development activities, which go beyond the core UK-EMS development:
 - Contributing to the development of a robust concept for the long-term governance of UK-EMS and the wider SPF/MetOffice CA Framework
 - Close collaboration with NPL in the context of uncertainty handling and data/meta-data transmission from emissions all the way to the quantification of health impacts.
- These topics have emerged through the collaborations across the SPF activities and highlight the particular opportunities which emerge from cross-disciplinary funding.