An Overview of Persistent Organic Pollutants (POPs) Research at Birmingham

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SCOPE

- Covers many aspects of the sources, environmental fate and behaviour of POPs, with a particular focus on human exposure assessment

- Compounds covered include:
  - PCBs
  - PBDEs, HBCDs, TBBP-A
  - NBFRs
  - OPEs
  - PFASs
  - PAH
COLLABORATIONS

- A-TEAM (exposure assessment for consumer chemicals)
- INFLAME (FRs indoors)
- ELUTE (environmental fate/metabolism BFRs)
- HEXACOMM (indoor contamination with PAH/PM)
- INTERFLAME (FRs in the environment)
  - Involve many partners from: Australia, Belgium, Canada, China, Germany, Japan, the Netherlands, Norway, & Sweden
- Non-academic collaborators/sponsors
  - CEFAS, FERA, FSA, Greenpeace, Ricardo-AEA, Tata Steel & ThermoFisher
End-of-life management

Cassie, Alice, Jiangmeng, Sandra, Yessica, Layla, Yuning, Temi, Ana, Gopal, Mohamed (ADAPT, A-TEAM, HEXACOMM, INFLAME)

Indoor Environment

City

Region

Terrestrial Food Web

Fruits, Vegetables, Animal Products

Aquatic Food Web

Air, Dust & Products

Air & Soil

Fish & seafood

Human Exposure (and Metabolism)
SPATIAL VARIATION IN PBDE CONCENTRATIONS (pg m^{-3}) IN OUTDOOR AIR ACROSS BIRMINGHAM
End-of-life management

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Billy, Salim, Iryna, Alice, ELUTE

Terrestrial Food Web

Fruits, Vegetables, Animal Products

Aquatic Food Web

Fishes & seafood

OPAL, ELUTE

Human Exposure (& Metabolism)

Air, Dust & Products

Indoor Environment

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HOW DOES ALL THIS VARY WITH TIME?
How does environment respond to changes in use?
PCB (L) & TBPH (R) trends in dated sediment cores at Edgbaston Pool
TBPH concentrations exceed those of PCBs at their peak!
In ELUTE, will test hypothesis that use of PBDEs has led to increased contamination with PBDD/Fs
FUTURE CHALLENGES

- Keeping track of the fast changing “chemical landscape” – ever more targets to monitor and understand
- Building our understanding of the fate and behaviour of chemicals once in the waste stream