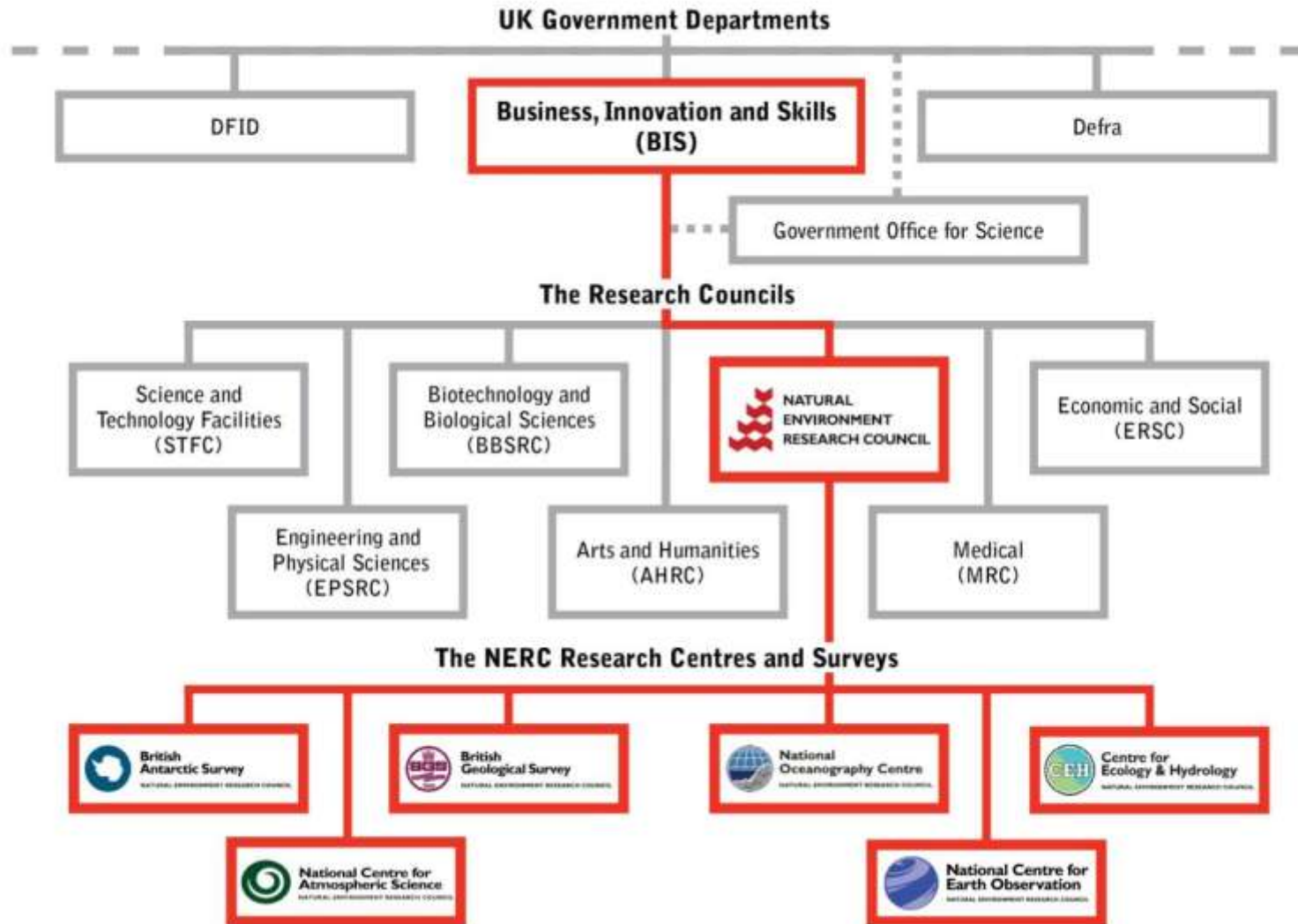


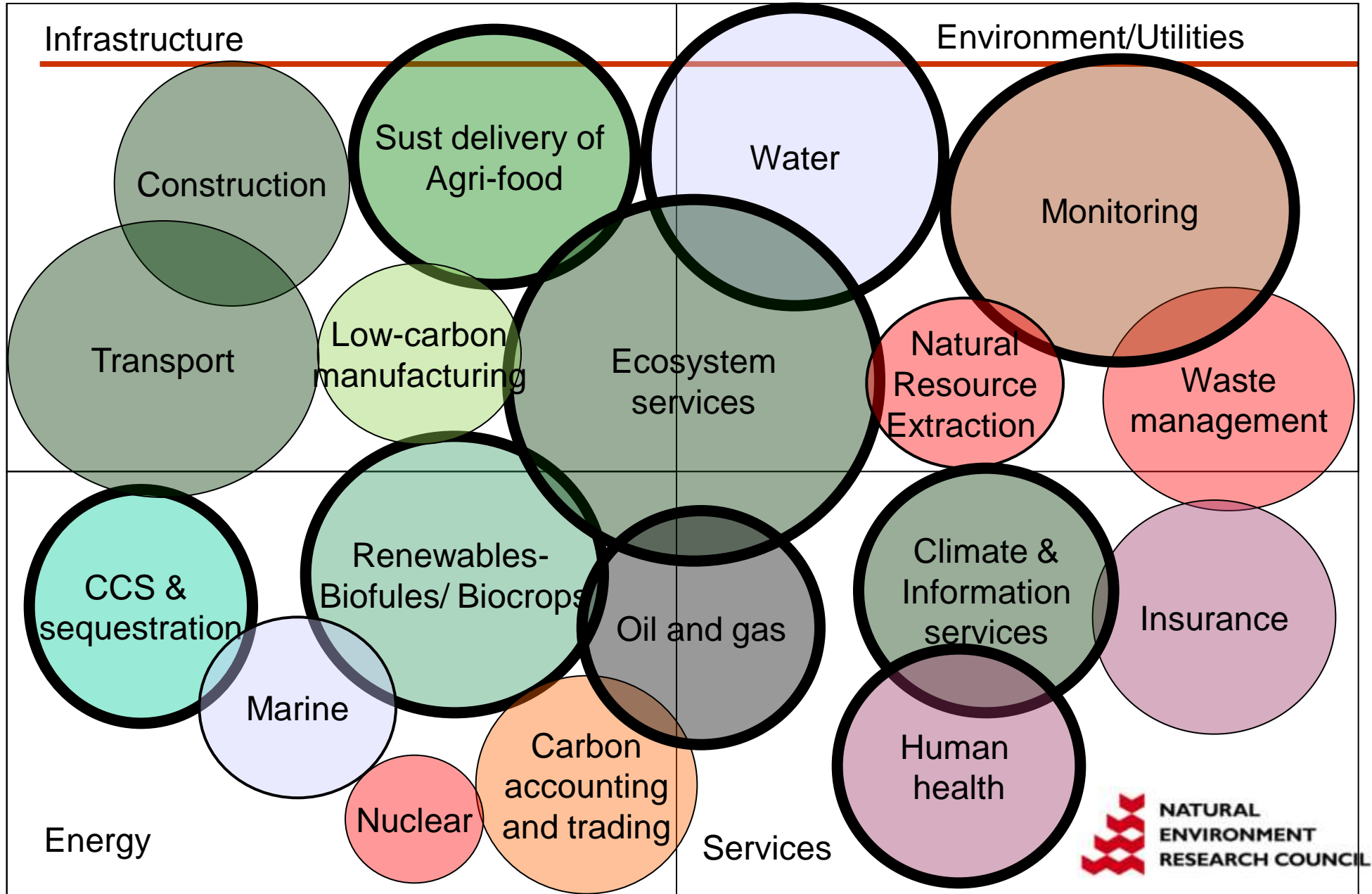
NERC in a UK Government Setting



NERC's main activities

- National capability (Centres, Infrastructure, Skilled People) ~£140M GBP pa
- Research Programme ~ £80M GBP pa
- Responsive mode ~ £80M GBP pa
- Training
- Knowledge exchange for Innovation

Excellence with Impact – the Green Economy



Biodiversity and ecosystem processes in human modified tropical forests

Tropical forests are hot spots of biodiversity and provide crucial ecosystem services including large scale climate and air quality regulation

High priority for UK policy under UN Convention on Biological Diversity

Biodiversity and biogeochemical cycling are typically studied in isolation. This action adopts an integrated approach.

- Intensive field study. SAFE site (Malaysia)
- Interaction of biodiversity with biogeochemical cycles. Upscaling/modelling
- Impact of potential forest management options
- New technology for long term observations
- Application to other tropical forest regions
- Committed use of FAAM146 aircraft



Programmes Goals

1. Improve understanding of the role of biodiversity in major forest biogeochemical cycles (C, N & P) through the integration of experimental and observational data with models linked through up-scaling studies to explore the potential regional impacts of environmental change;
2. Explore the spatial correlations between ecosystem function in terms of biogeochemical cycles and the distribution of species of conservation concern;
3. Critically assess the potential of forest management and policy options (e.g. REDD+) to protect both key ecosystem functions (biogeochemical cycles) and biodiversity;
4. Develop and test new technological capability for sustainable long-term observations of biogeochemical cycling that may be deployed as a legacy of the programme across a range of tropical environments;
5. Explore whether the methodologies and approaches adopted by the programme at the Sabah site can provide insights into comparable biodiversity and ecosystem function issues in contrasting tropical locations.

Biodiversity and ecosystem processes in human modified tropical forests

- £6.3 M commitment to programme, Sabah experiment in 2014/15/16.
- £1.6 M approx. for joint FAPESP work, in Brazil
- Identify UK contributions to existing international or Brazilian activities which add value and support overarching programme aims.
- Specific investment in new technology for long-term observations in tropical forests.

Timescales and process

Call for expressions of interest already published

Closing date 17th August 2012

Workshop / sandpit event- aim to build a coherent programme around the submitted Eols

Invited applicants apply with full programme end of 2012.

Grants start 2013

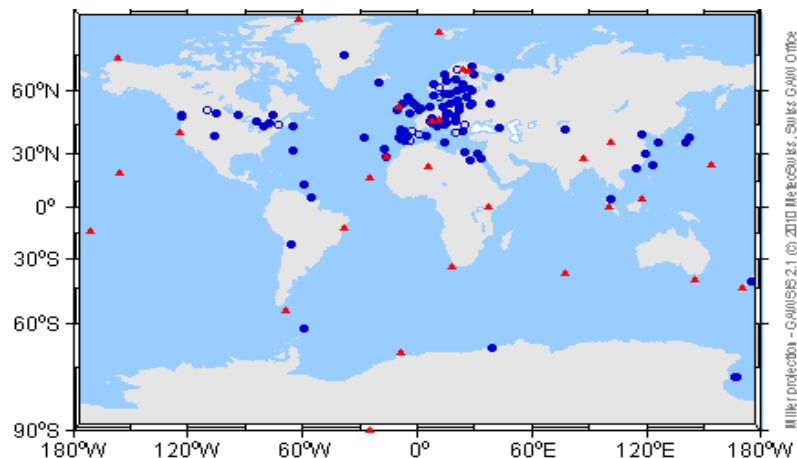
NCAS interests – tropical forests call

- VOC/NO_x/aerosol exchange with forest
- Ozone formation / deposition
- Aerosol formation /transformation mechanisms
- Observations of atmospheric composition
- Biogenic vs biomass burning emissions impacts
- Basic chemical processes inc. HO reactions/reactivity

Build on previous activities in Sabah and Brazil



Some example NCAS interests



Organic nitrogen cycling
in aerosol, gases and
water.



Developing long-term new technology
capability at Danum WMO-GAW

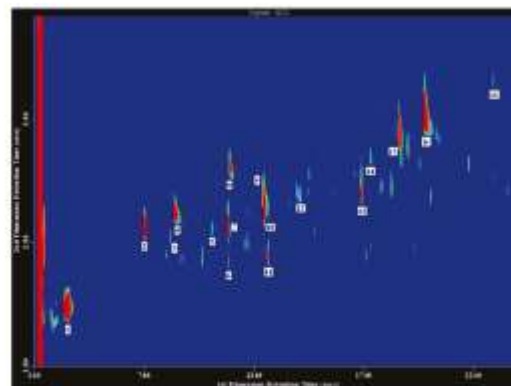


Figure 2. GCxGC-MS of volatile components from an urban aerosol sample (March 10, 2008) using the new sample preparation technique (1: pyrrole, 2: anisole, 3: nitrobenzene, 4: N-nitrosopyrrolidine, 5: 1-nitroacene, 6: N-nitrosodibutylamine, 7: 4-methyl-2-nitrophenol, 8: caprolactam, 9: benzamide, 10: andecanoic acid, 11: aminomethanesulfonic acid, 12: 1-nitrodecane, 13: 2,6-dimethyl-4-nitrophenol, 14: triacetamide, 15: N-benzylbenzenesulfonamide, 16: internal standard (propyl), 16: 9-nitroanthracene).

Airborne measurements of BVOC
and NO_x fluxes. Builds on existing
funding and instruments.



National Centre for
Atmospheric Science
NATURAL ENVIRONMENT RESEARCH COUNCIL

NCAS - fits to call

- Heterogeneity in biogenic fluxes over diverse landscapes?
- Does chemical diversity scales with biodiversity?
- And does it matter for ozone / aerosols?
- Enabling long-term detection of atmospheric change
- Impacts of atmospheric composition on forest functioning

Changing forest effects on downstream ozone/aerosols

Changing upstream ozone and aerosol effects on forests

Fit to objectives is vital. This can't simply be OP3 v2.0

