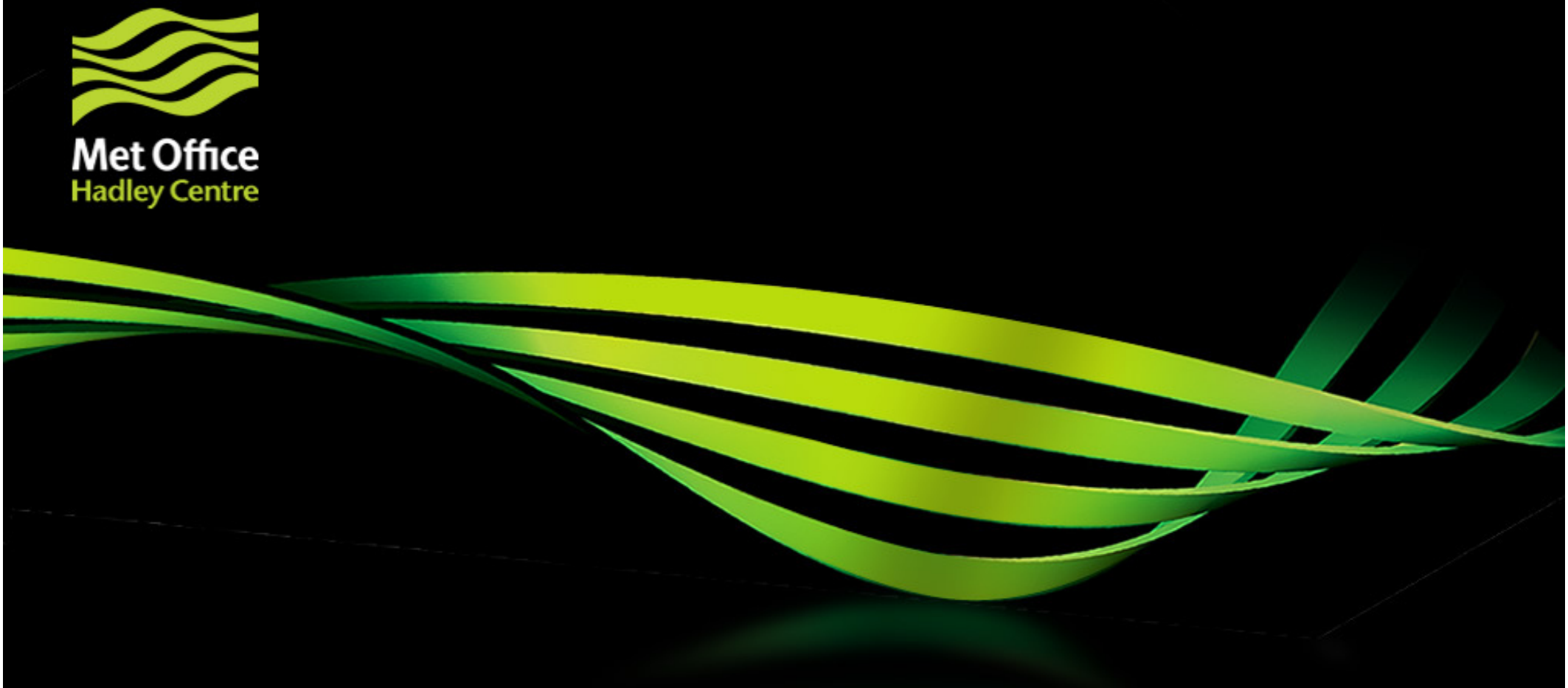


JULES-ES Configuration

Met Office
Hadley Centre

Outline

- What is the JULES-ES configuration
- Vegetation Distribution
- Carbon Fluxes

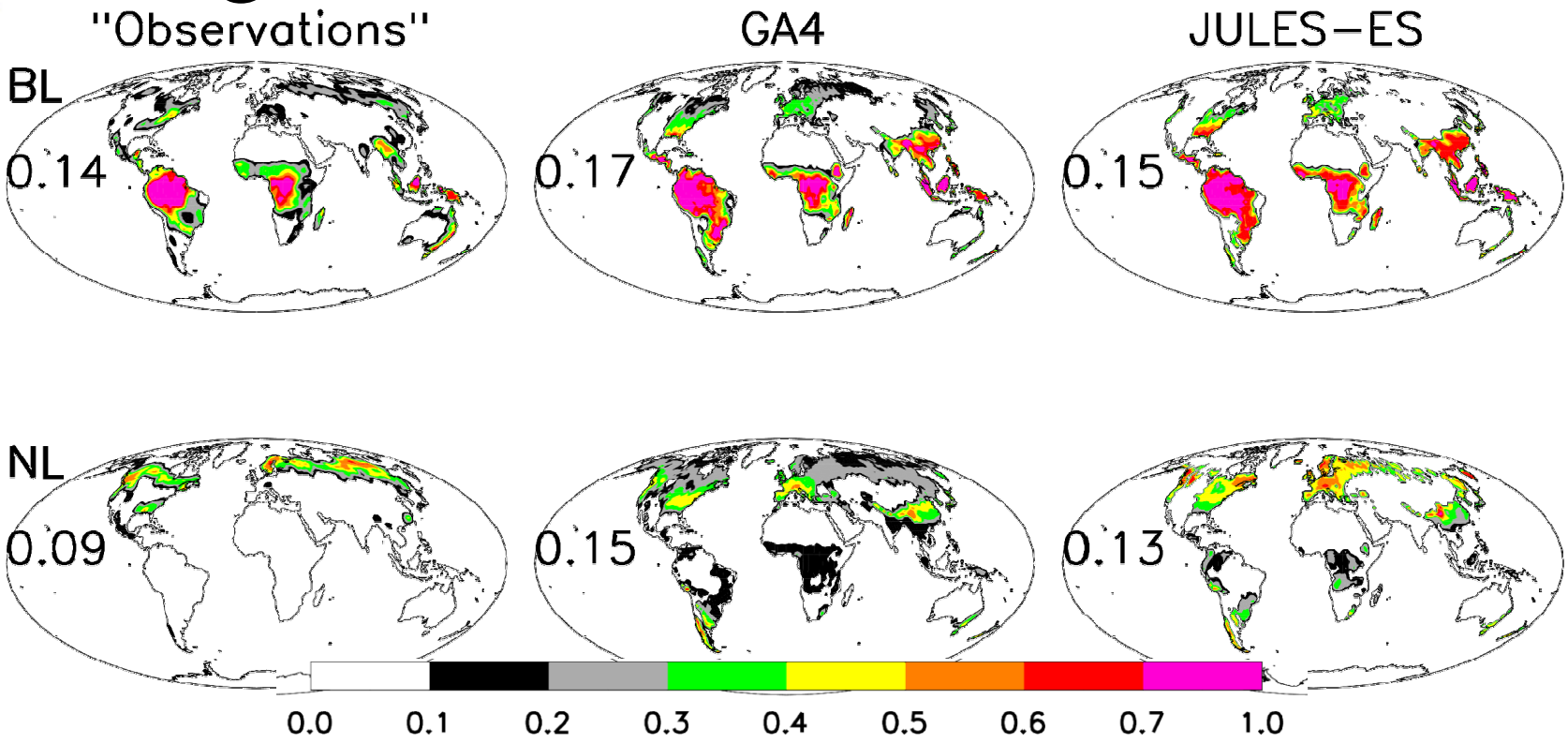
Purpose of JULES-ES

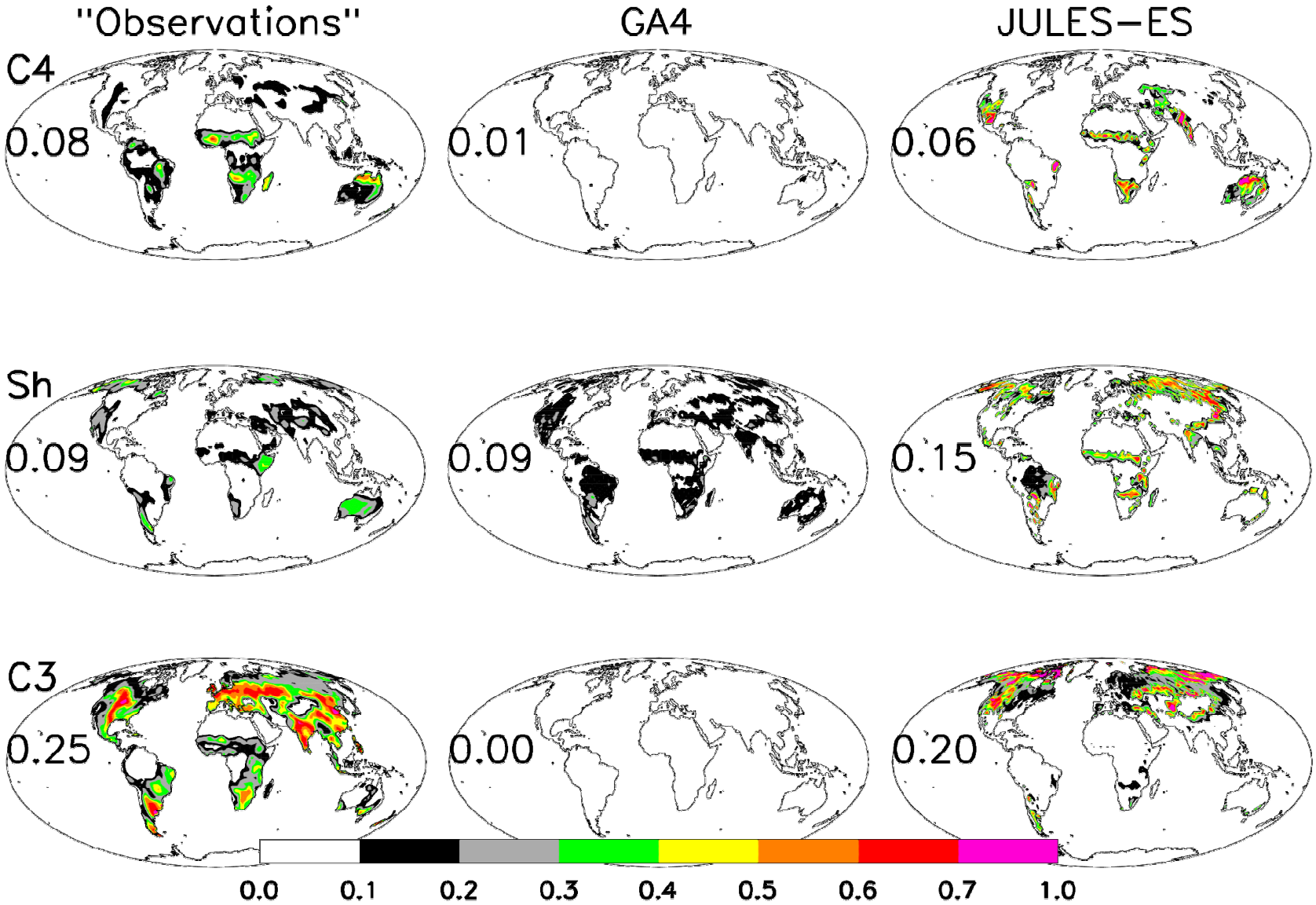
- Carbon cycle and vegetation dynamics
- Develop improvements to TRIFFID
- In future will become UK-ESM1 setup

Setup compared to GA4

- ISI-MIP parameters
  - Grasses are better suited to low temperatures*
  - Broad leaf tree disturbance rate increased
  - Needle leaf and shrub disturbance rate decreased
- Settings
  - can_rad_mod 1
  - Johansen soil thermal conductivity *
  - Up to 3 layers of snow *
- And several other changes…

Vegetation Distribution





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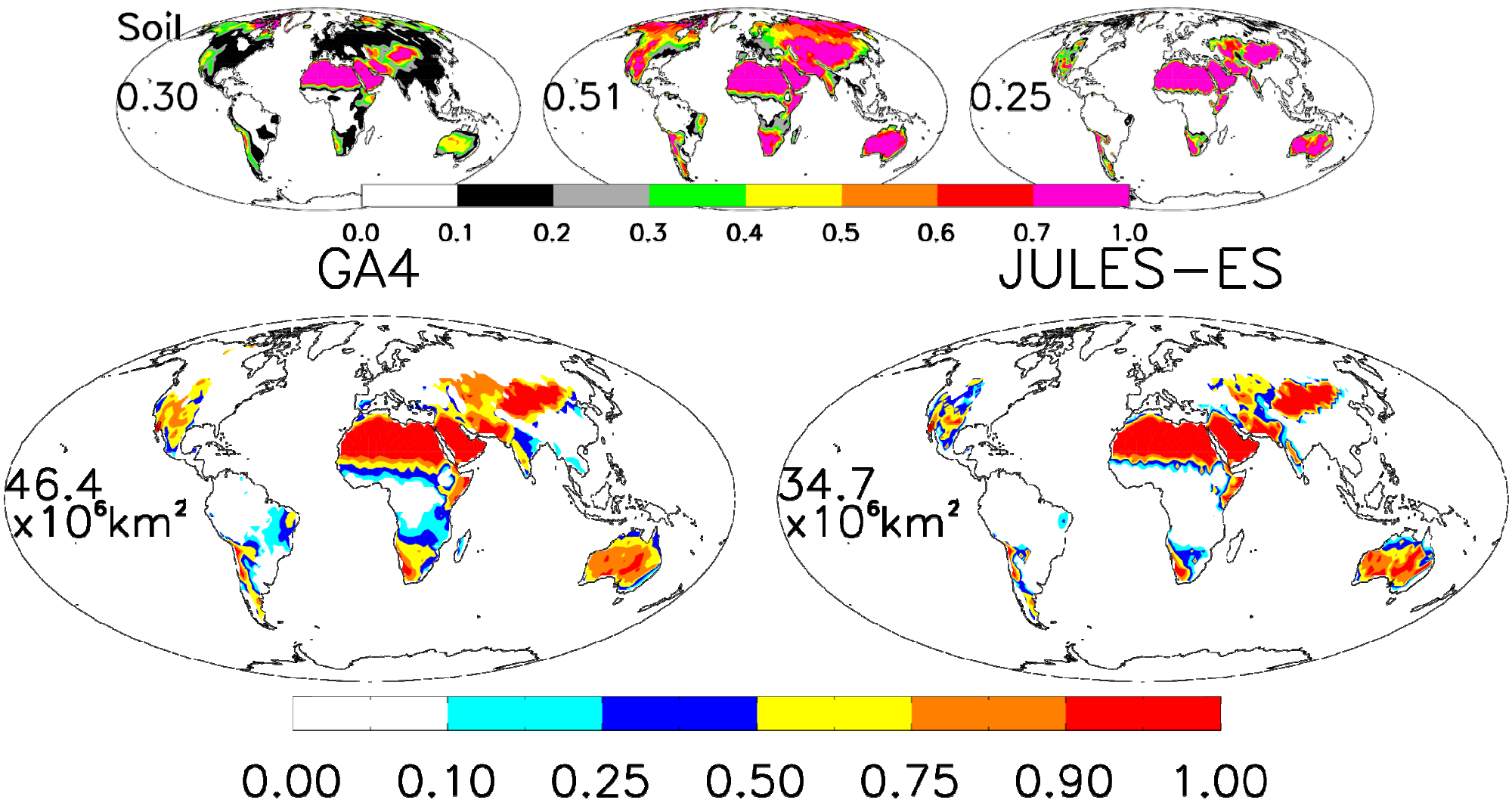
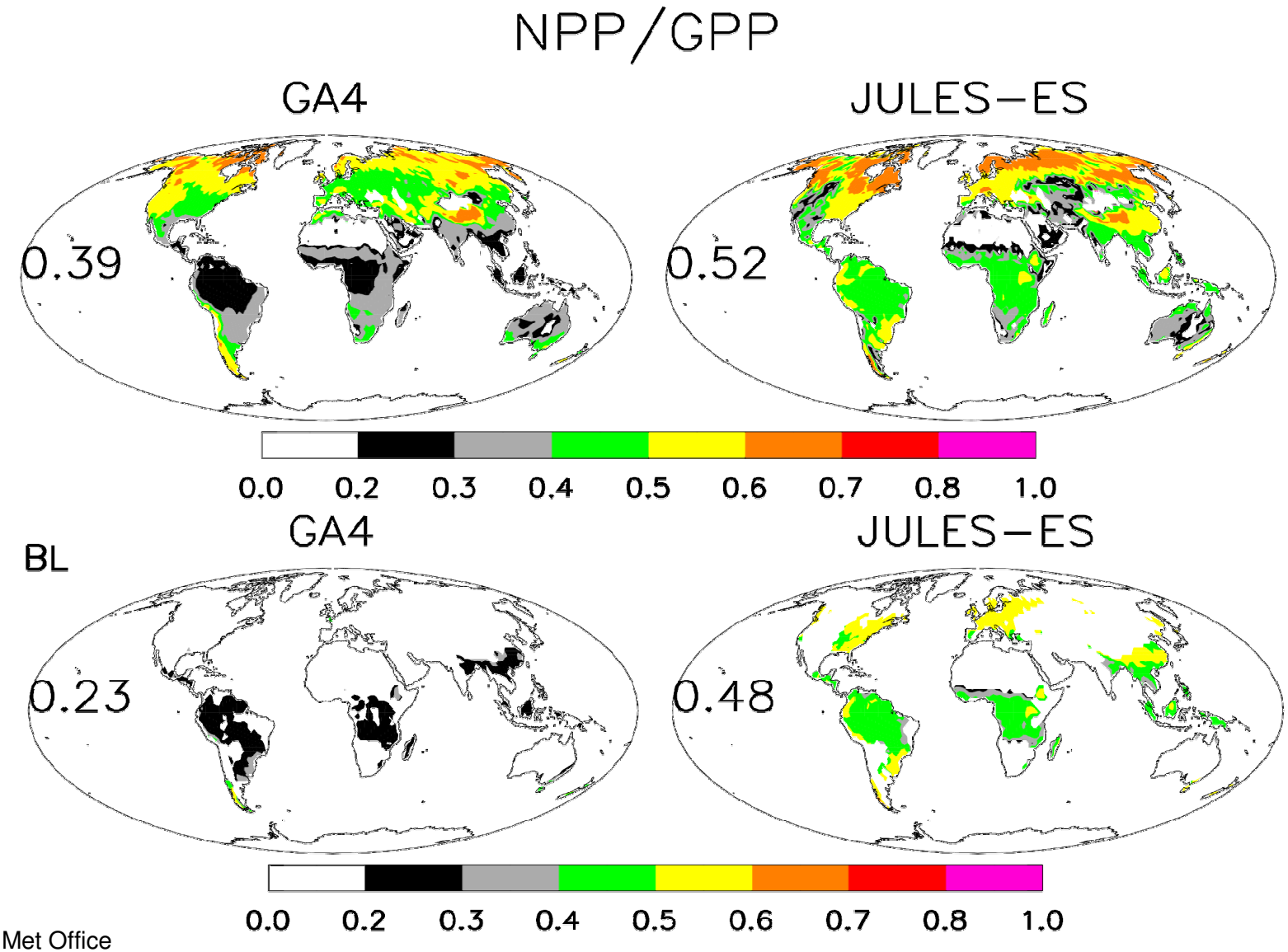
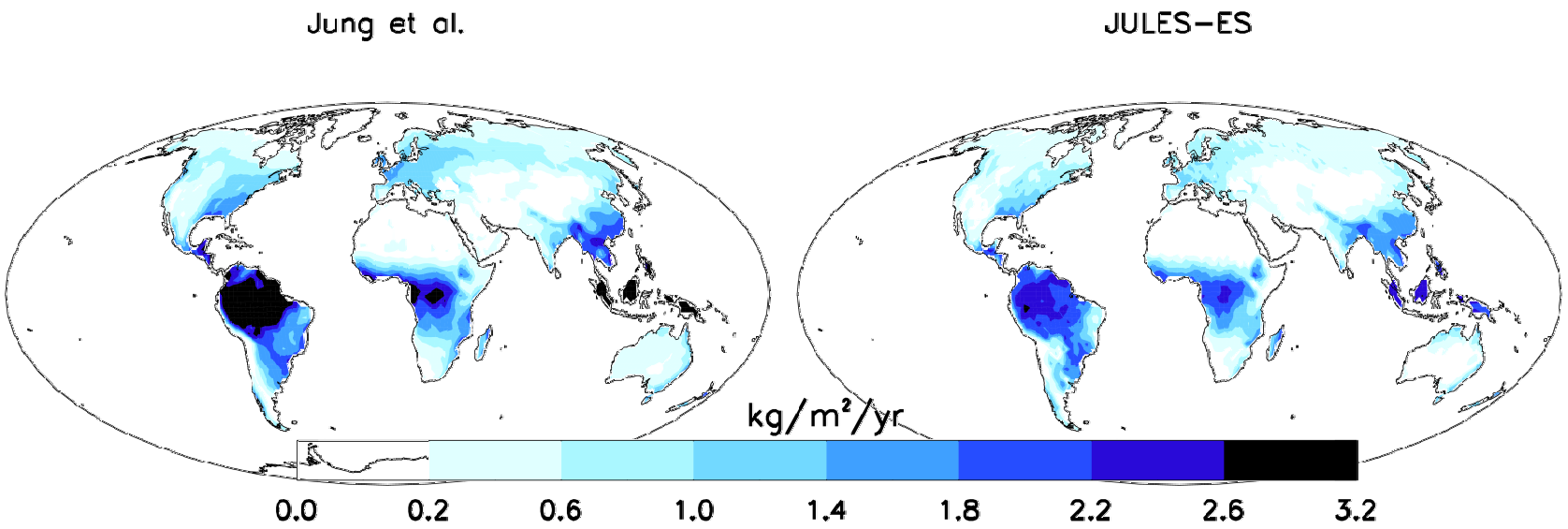
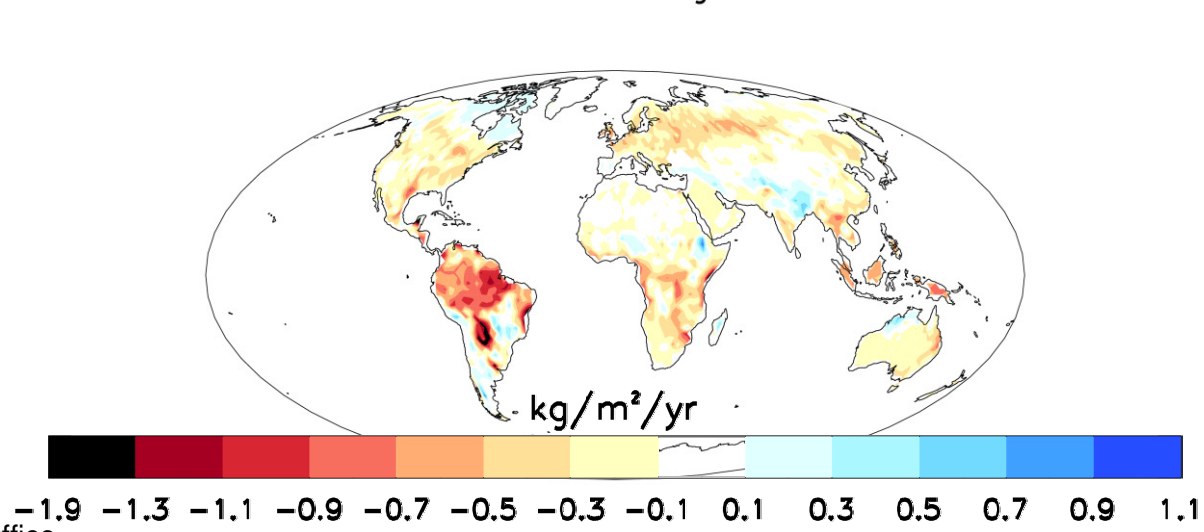


[Gt/yr]	HadGEM2-ES	GA4	JULES-ES	Jung et al.(2011)
NPP	64.9	39.1	51.2	
GPP	126.1	99.9	95.7	119.4



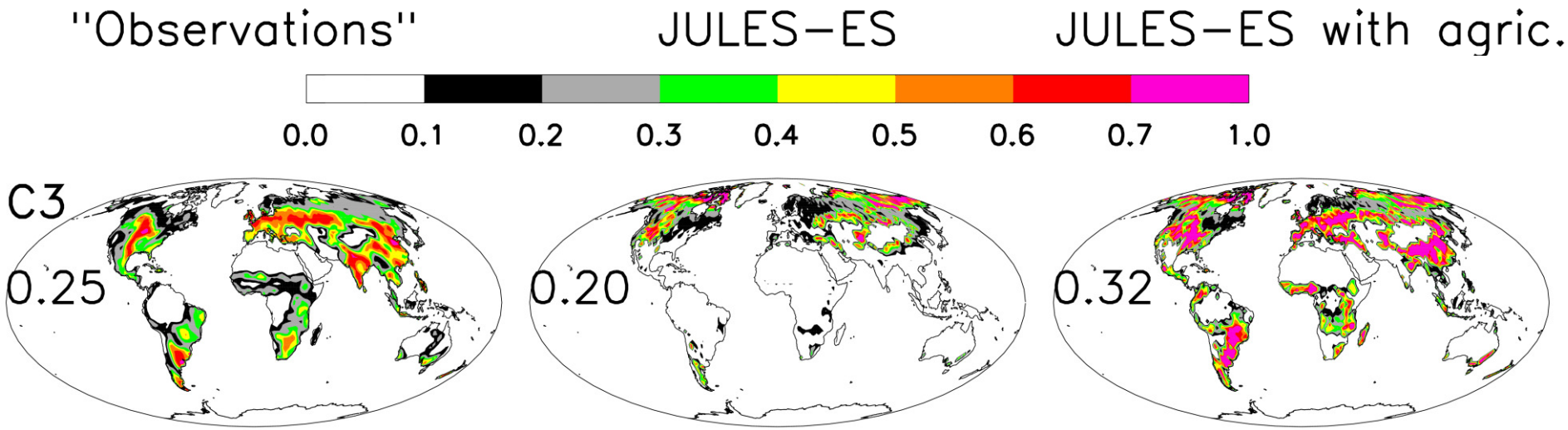
[Gt/yr]	HadGEM2-ES	GA4	JULES-ES	Jung et al.(2011)
GPP	126.1	99.9	95.7	119.4
Respiration	126.0	101.7	96.7	96.4





[Gt]	HadGEM2-ES	GA4	JULES-ES	HWSD
veg carbon	483	617	884	
soil carbon	1074	1236	1292	1260

Agriculture



Future Plans

- can_rad_mod 5
- Agriculture as standard?
- Varying CO2
- Set targets

- Landuse change in JULES
- Nitrogen
- New PFTs
- Dust emissions
- Soil carbon equilibrium and spin-up option

Questions and answers

Carbon Fluxes

	HadGEM2-ES	GA4	JULES-ES	"Observations"
Npp (Gt/yr)	64.9	39.1	51.2	
Gpp (Gt/yr)	126.1	99.9	95.7	119.4 Jung et al. (2011)
plant resp (Gt/yr)	61.2	60.8	48.2	
soil resp (Gt/yr)	64.8	40.9	48.4	
Total resp (Gt/yr)	126.0	101.7	96.7	96.4 Jung et al. (2011)
veg carbon (Gt)	483	617	884	
soil carbon (Gt)	1074	1236	1292	1260 HWSD