



III Conferencia Cientifica do LBA
Brasilia, julho 2004

Integration Novelty: **New thinking for Earth System modelling and climate adaptation and mitigation**

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Tyndall°Centre

for Climate Change Research

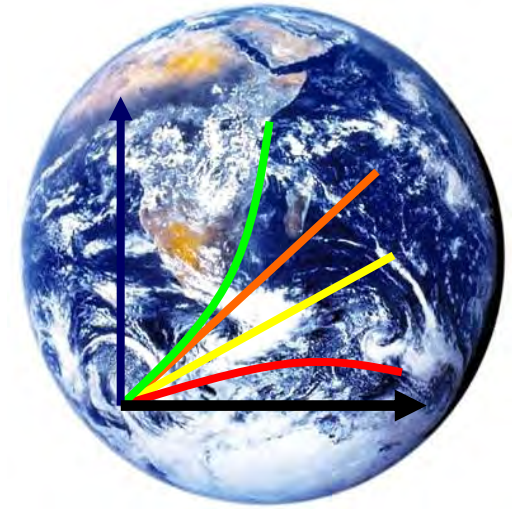
Our Purpose:

“To *research, assess* and
communicate

from a distinct trans-disciplinary perspective, the options to mitigate and the necessities to adapt to climate change,
and to integrate these insights into the global, UK and local contexts of sustainable development.”



- **Advancing the science of integration**



- **Developing responses**



- **Motivating society**

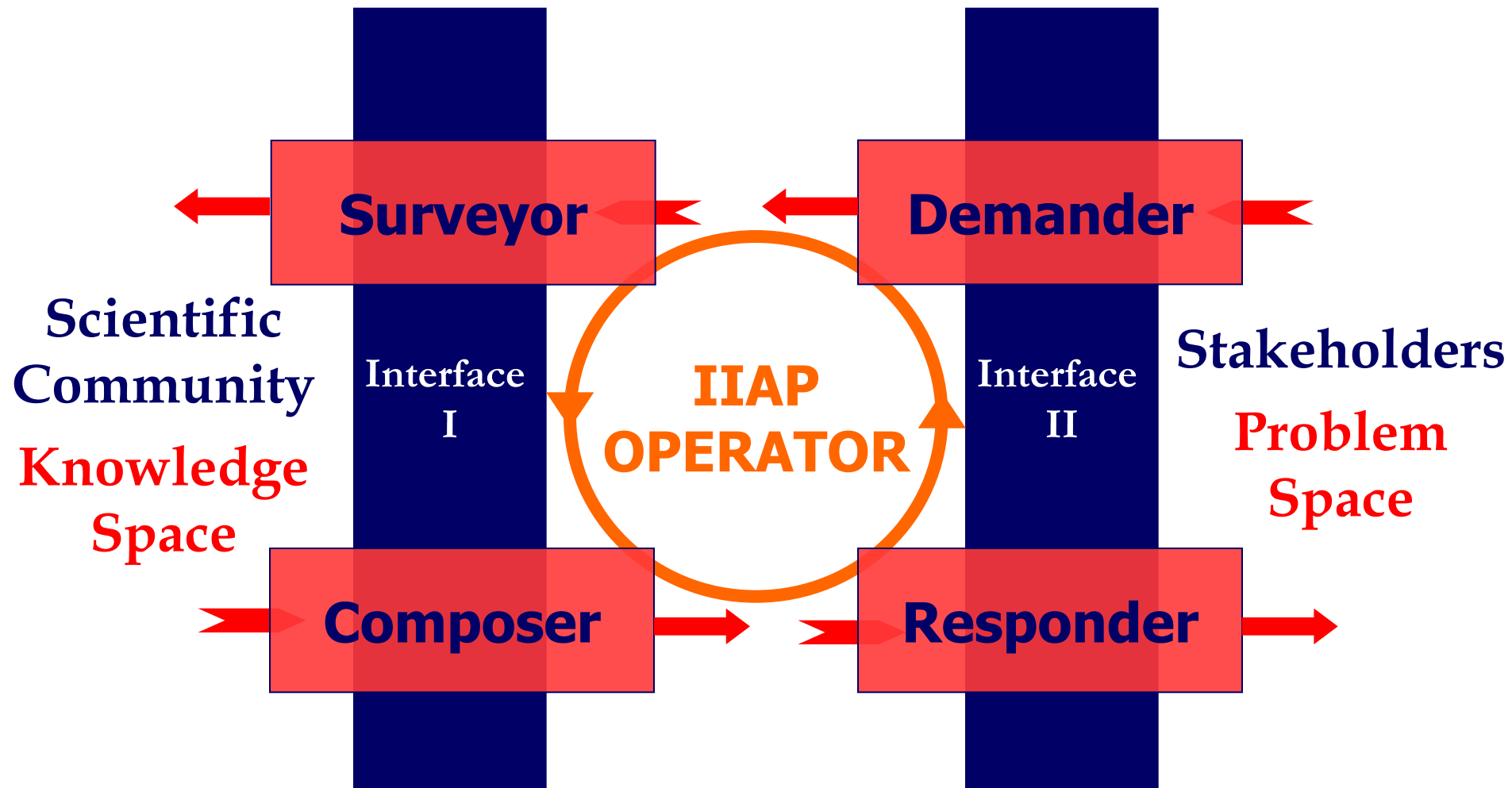


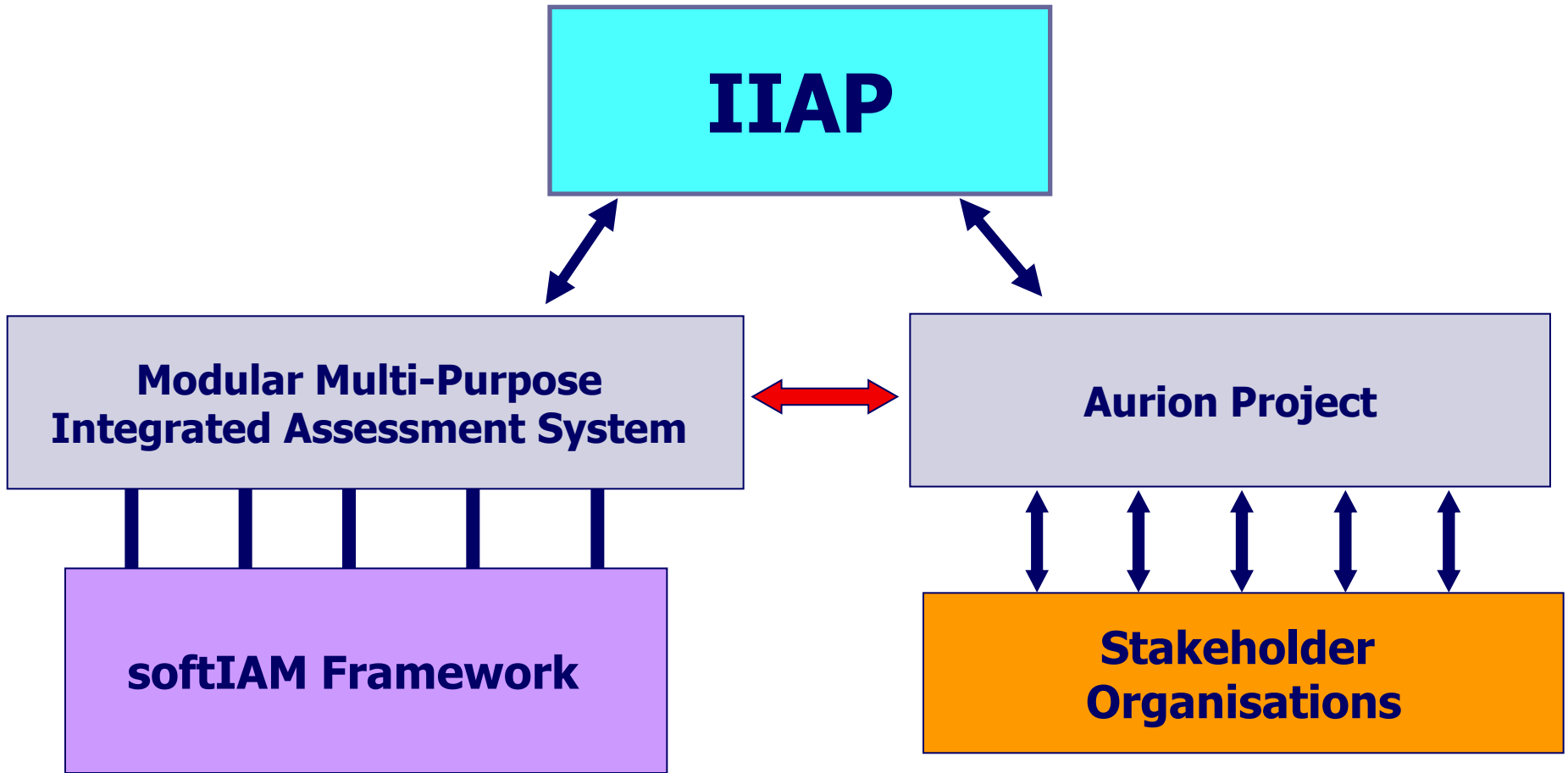
Tyndall Research Themes

- 1. Integrating Frameworks**
- 2. Decarbonising Modern Societies**
- 3. Adapting to Climate Change**
- 4. Sustaining the Coastal Zone**



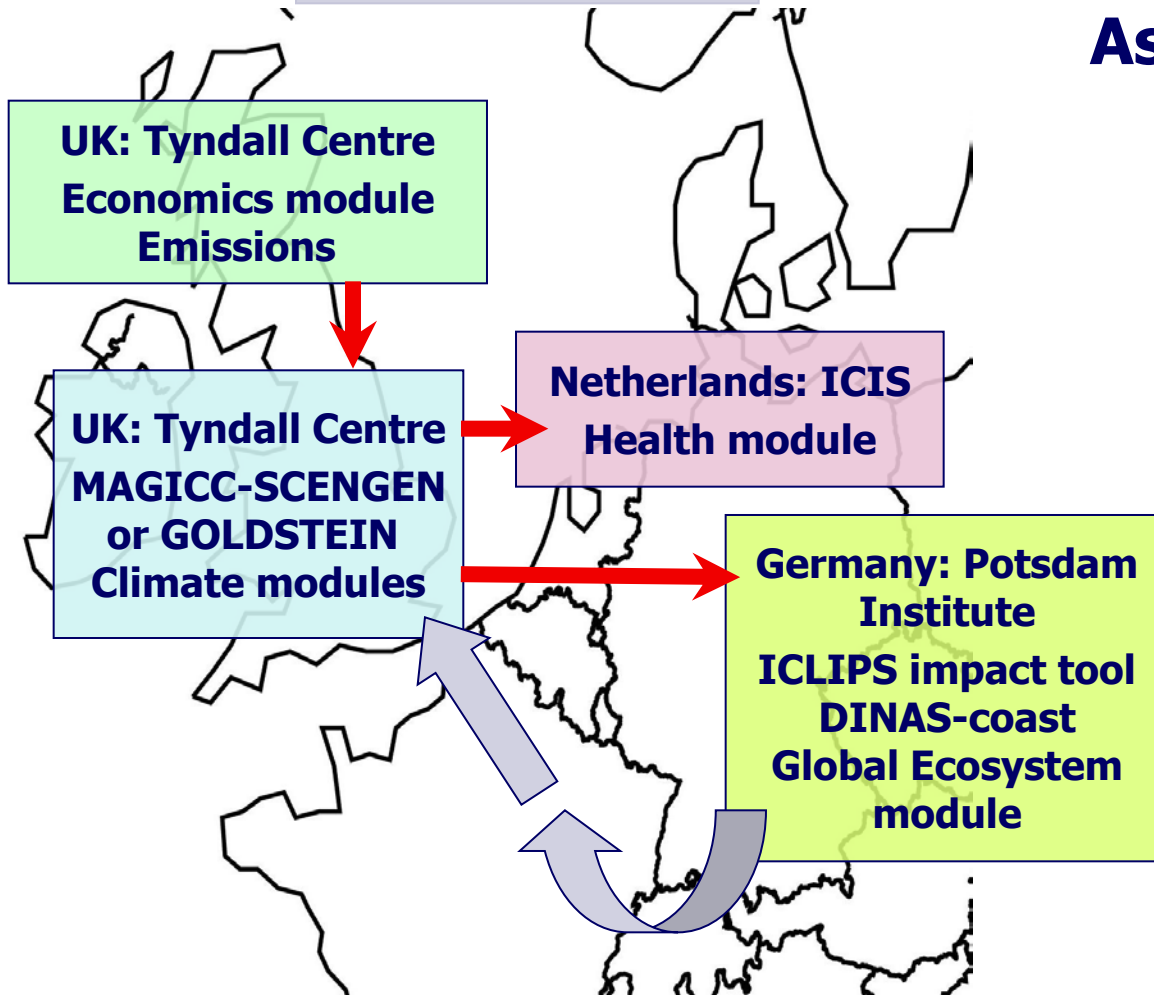
Interactive Integrated Assessment Process (IIAP)



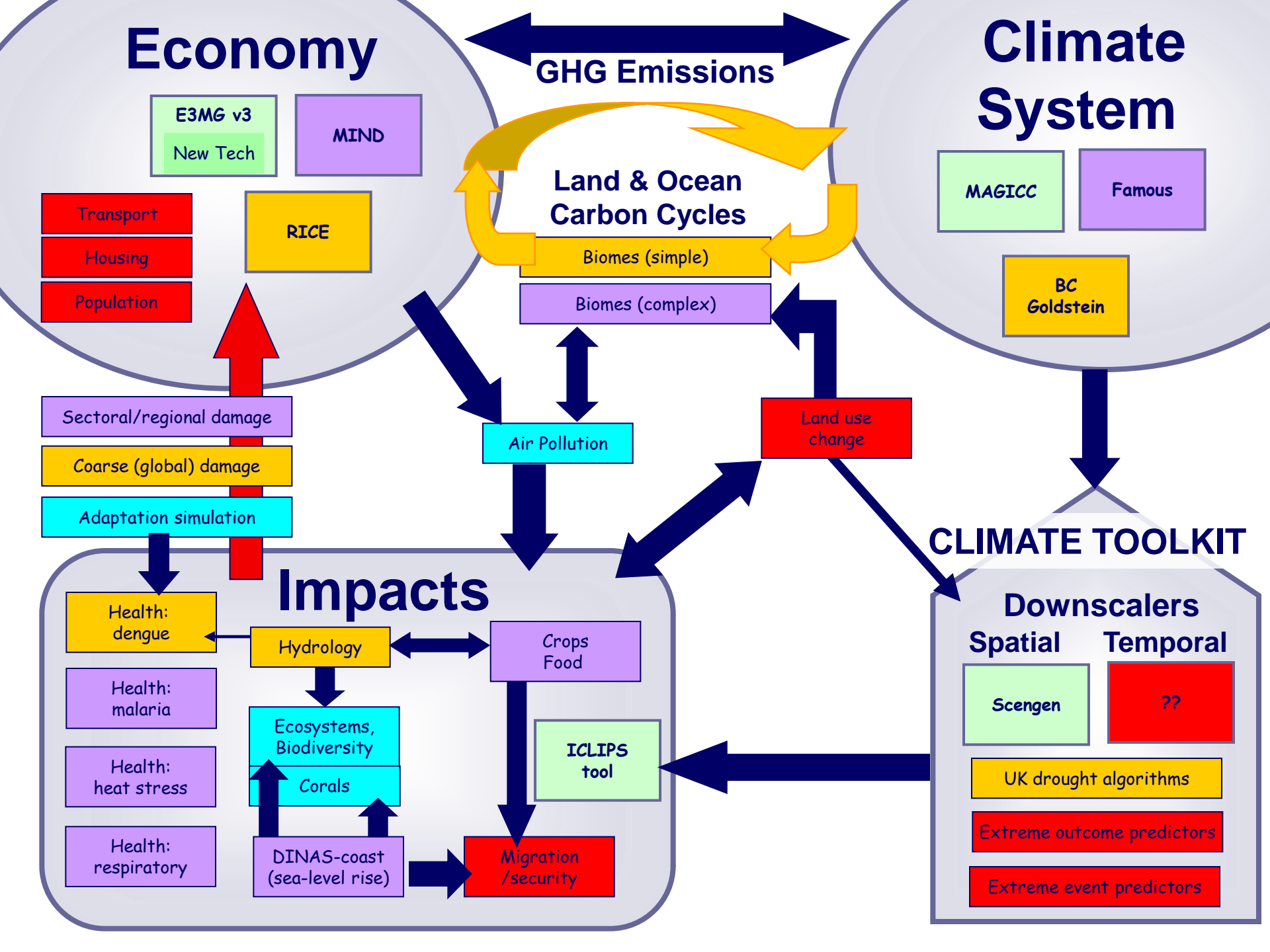


CIAM-n

Community Integrated Assessment Model

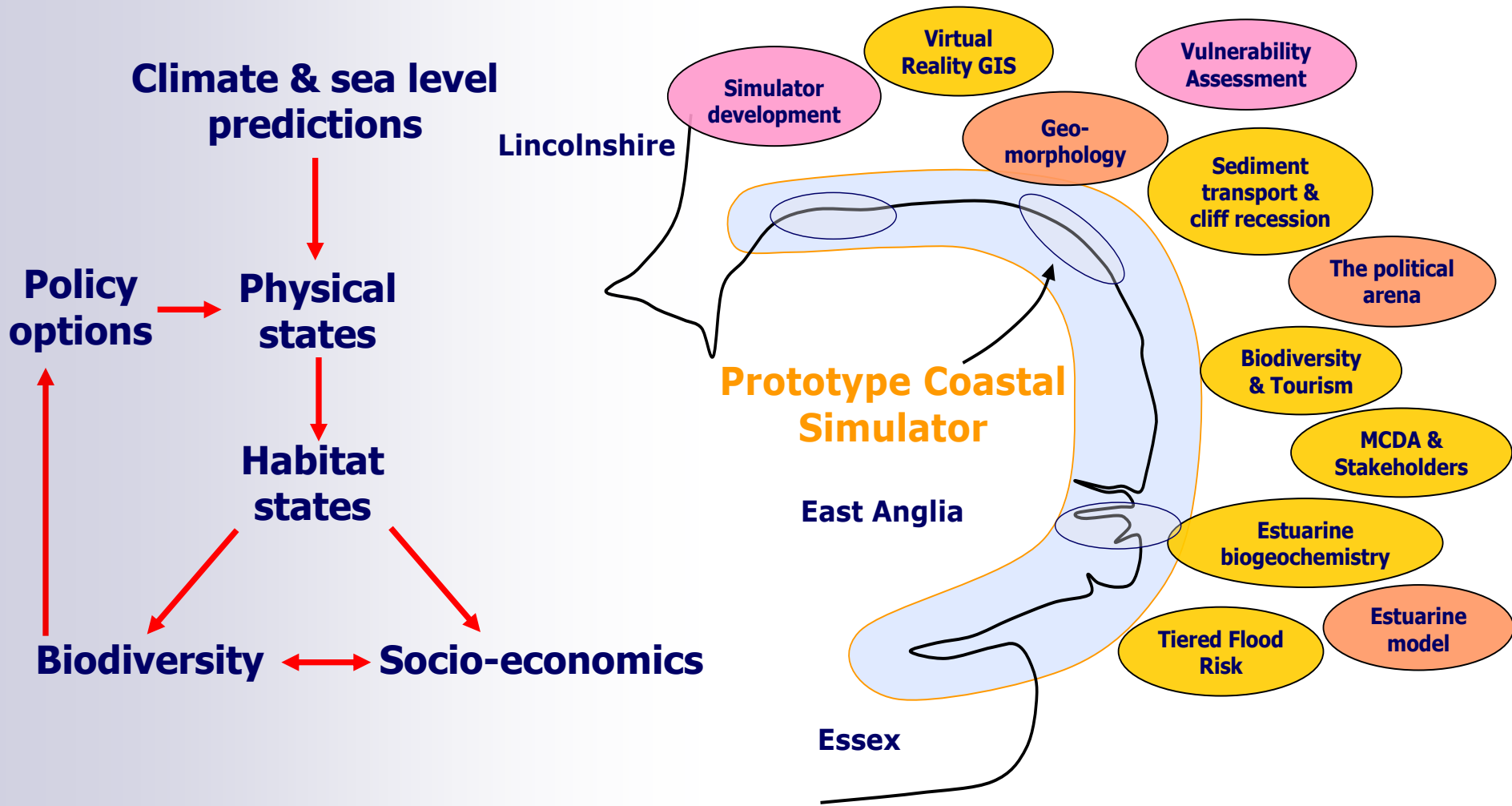


- **Distributed**
...across a *community of n* institutions
- **Flexible**
- **Modular**
- **Linked to interaction** with a *community of stakeholders*



Regional Coastal Simulator

Photo: National Trust, Joe Cornish / NTPL 093144





Coastal Simulator answers real-world questions

Shore
orientation

Profile
shape

Sediment
transport
rate



**Cliff
recession
rate**

Wave conditions,
sea-level rise
and tide

Beach
volume and
shape

Sediment
supply from
cliff

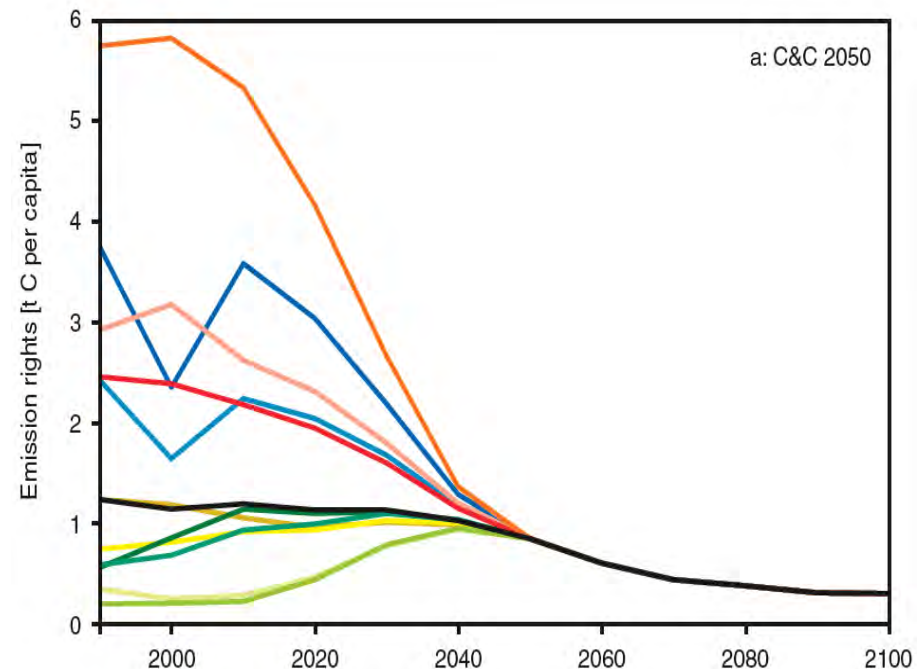
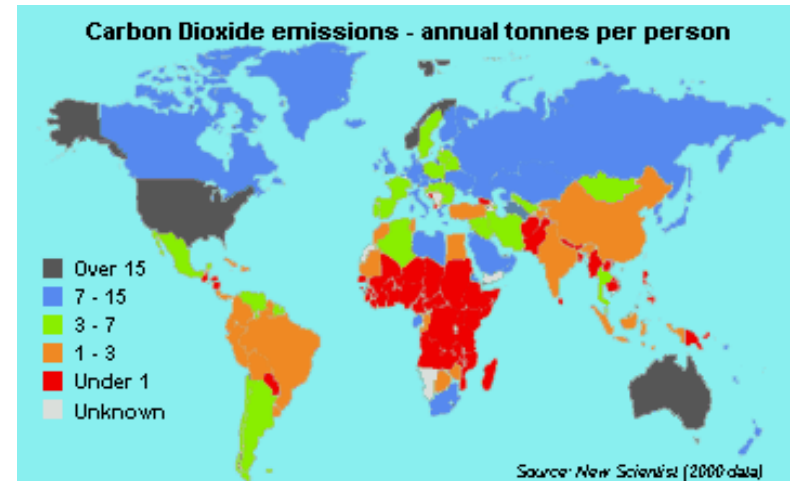
Other Research Highlights

- Biosequestration
- CDM for sustainability



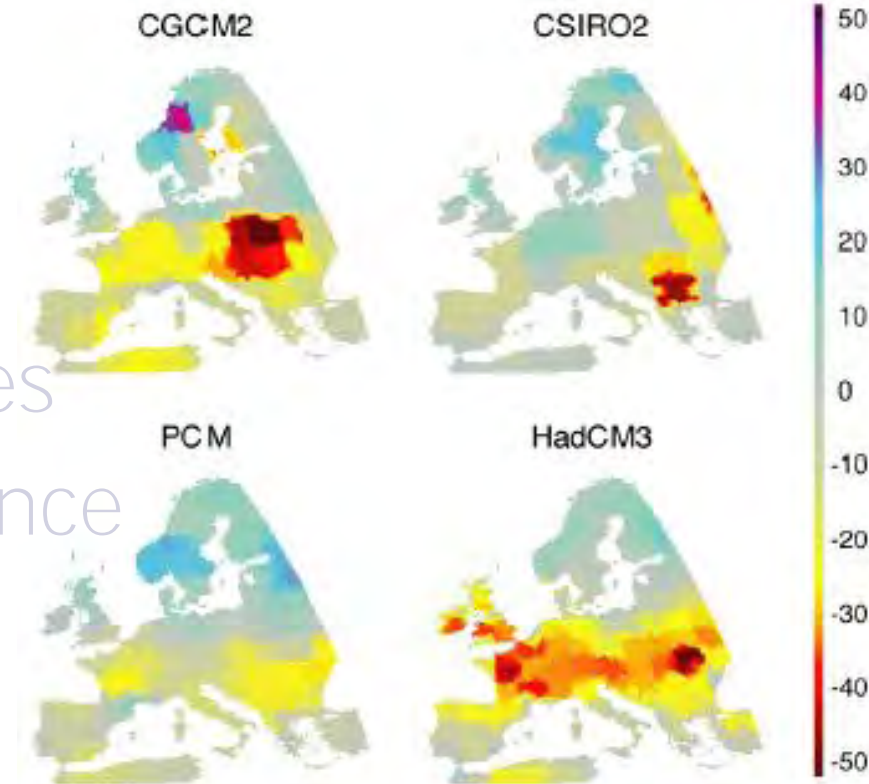
Other Research Highlights

- Biosequestration
- CDM for sustainability
- Regional GHG emission inventories
- Contraction and Convergence



Other Research Highlights

- Biosequestration
- CDM for sustainability
- GHG emission inventories
- Contraction & Convergence
- **A-Team:** modelling ecosystems



- **'Win-wins'** in nature conservation for mitigation



What else is going on?

- **Tyndall-PIK** – adaptation in north-eastern Brazil



What else is going on?

- Tyndall-PIK adaptation
- E-Via

Emerging European Consortium for Integrated Assessment of Pertinent Factors

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POLES
Brussels, Grenoble, Seville



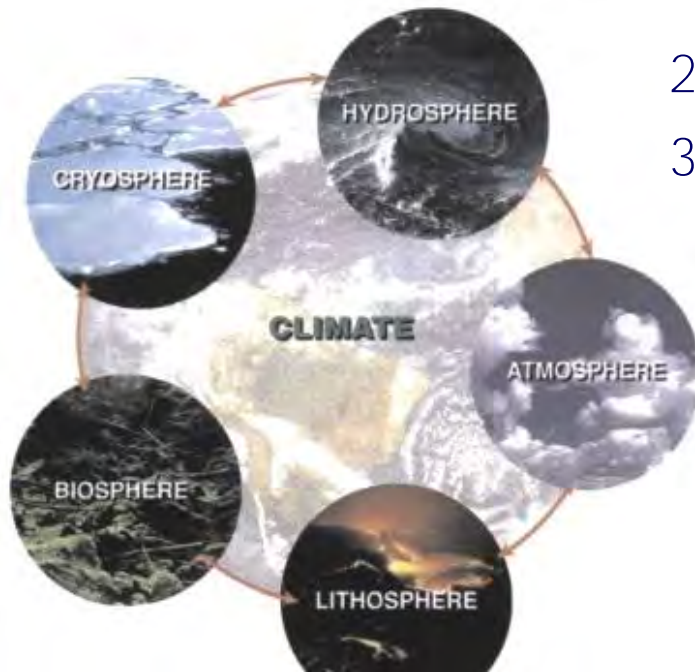
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What else is going on?

- Tyndall-PIK – adaptation in north-eastern Brazil
- E-Via
- **QUEST**

Quantifying and Understanding the Earth System

1. Contemporary coupled climate, carbon cycle and atmospheric chemistry
2. Earth system history and dynamics
3. Impacts and human dimensions of global environmental change



www.nerc.ac.uk/funding/thematics/quest/
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