Brief Update on the iESM (integrated Earth System Model)

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Motivation for integrating IAMs and ESMs

▶ *Opportunities:* **Build unified framework for water/energy/climate**

▶ *Possible solution:* **Unite IA and climate in single framework**

▶ *Potential upsides:* **Quick "look-see", inclusion of feedbacks, and stronger IA foundations**

▶ *Prototype:* **Initial release of an iESM built on CESM**

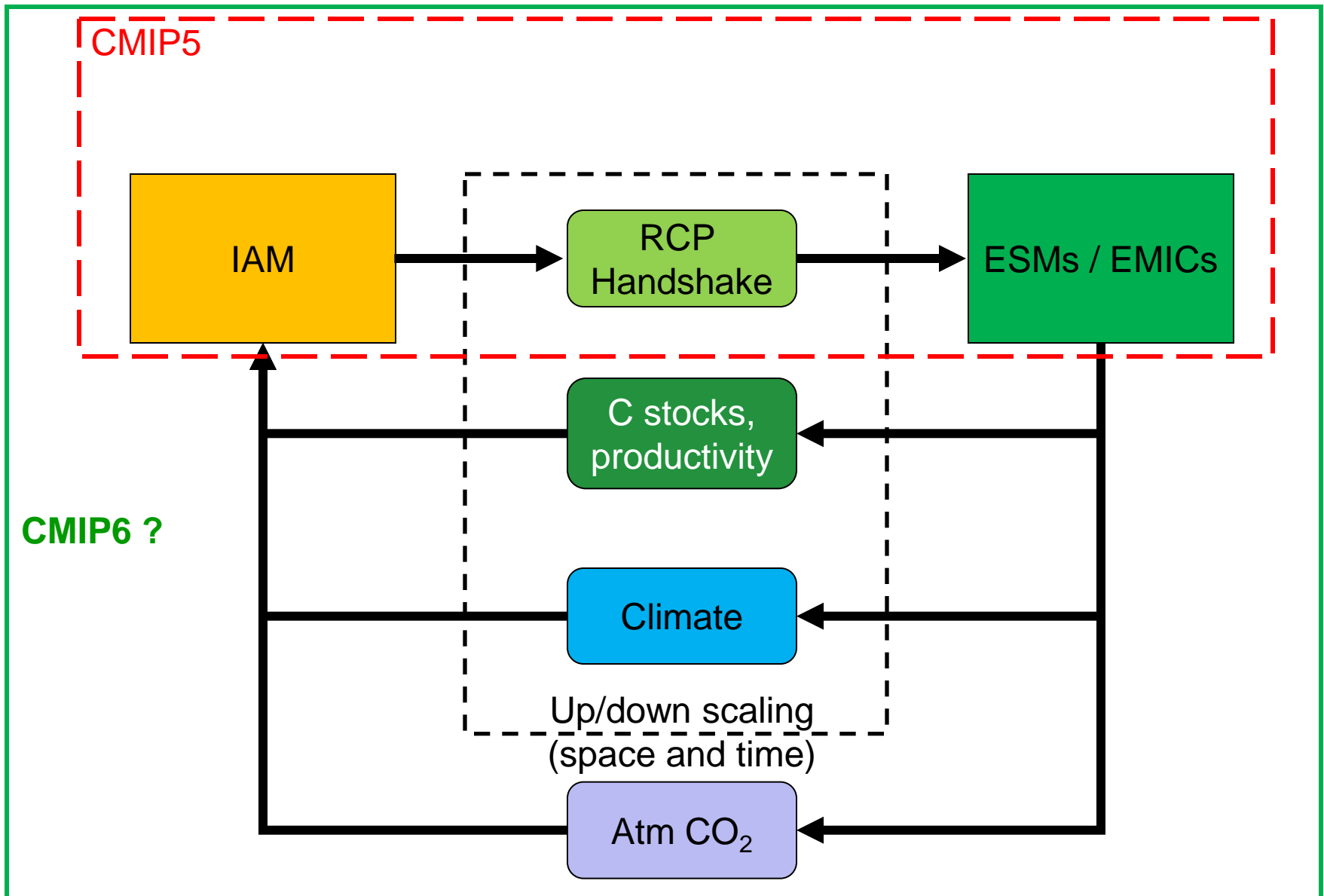Mitigation   Adaptation   Technology pathways

Feedback coupling of IAMs and ESMs

Recent updates

▶ 1) Transitioned the IESM code base to the NCAR repository using recent version of the CESM.

▶ 2) Added the capability to run 20th century transient controls. Previously iESM was hardwired to run RCPs.

▶ 3) Progress towards adding greenhouse gas feedbacks

▶ 4) Fixed several major inconsistencies in the coupling and land use parameterizations.

▶ 5) Added a data IAC model so we can prescribe LULCC information rather and use active IAC components.

▶ 6) Ported the code to Edison.

▶ 7) Improved the model by adding a new forest matching algorithm and new land use/change parameterizations.

▶ 8) Increased coupling frequency with GCAM to 1 per 5 yr.