

Interactive comment on “IMOGEN: an intermediate complexity model to evaluate terrestrial impacts of a changing climate” by C. Huntingford et al.

Anonymous Referee #1

Received and published: 28 September 2010

GENERAL COMMENTS I think this is a very interesting, well written paper. The unique system described could potentially mimic a full GCM at a fraction of the CPU cost. This would be an invaluable tool for climate change research.

As highlighted by the paper, currently, there are deficiencies which need to be understood and then hopefully resolved.

SPECIFIC COMMENTS At several points in the paper you allude to the cpu cost of running a full GCM. I would like to see something more definitive on the CPU cost of IMOGEN vs GCM. I'm sure IMOGEN runs at a fraction of the CPU cost of the GCM so why not spell it out. This is after all, one of the main advantages of the IMOGEN system, aside from mimicking a variety of GCMs.

C377

The C stores of the oceanic pool and the atmospheric pool are not given at all in the analysis. I would certainly like to see these either as a plot as in fig 3. Or a table giving all C store differences (change in 2100) of Atmospheric, Terrestrial (biomass soil), and Oceanic for EBM2 EBM1 and GCM.

TECHNICAL CORRECTIONS pp 1165 line 28 not have been possible using simpler a zero Should this be not have been possible using a simpler zero

pp 1167 line 19 increase by decade i Should this be year and not decade. If it is decade then why.

pp 1172 line 3 in their configuration (Sect. 2.1) This should be in their configuration (Sect. 2.2)

pp 1179 The table gives pre-industrial NPP value of 70.9 Gt C yr⁻¹. This seems much higher than what is generally accepted for pre-industrial NPP, say 50 Gt C yr⁻¹. Is this correct?

Interactive comment on Geosci. Model Dev. Discuss., 3, 1161, 2010.

C378