1096-35-151 **Arni S.R. Srinivasa Rao***, Georgia Regents University, Augusta, GA 30912. *PDE Models in Measuring Global Sustainability.*

Abstract. Understanding sustainability through modeling involves one of the complex and interdisciplinary activities where mathematics play a key role. For measuring the status of the sustainability, we need global models with all-round global data, for example, from atmosphere, oceans, vegetation, food, wetlands, species and several environmental parameters. However such a global model could have components of sub-models (or local models) quantifying sustainability status at various geographic regions on our planet. PDE models and sustainability indices are proposed which can be used with real-world data. These proposed PDE models and measures of sustainability involve appropriate weight functions to capture relevance of six major factors of overall sustainability on the panet. A method to obtain weights of Riemann Stieltjes integrals is described. A numerical example will be presented during the talk. These computationally intense models should be able to update global and local sustainability status periodically such that time-dependent action oriented policies can be skimmed from these efforts. Key words and phrases: Key words: Modeling, Partial Differential Equations, Riemann Weight Functions.2000 Mathematics Subject Classification: MSC: 92D40, 35Q80,26A42 (Received August 09, 2013)