

CHE 4253

ASSIGNMENT 7

Due Nov 10 (in groups of 4).

Consider the earth as composed of three subsystems (land masses, oceans, atmosphere). Write the unsteady state material balance equation for CO₂ for each subsystem. In the case of oceans, assume CO₂ dissolves in water forming carbonic ionic species. In the case of land masses, assume vegetation absorbing CO₂ and CO₂ industrial emissions. Then use an energy balance for the earth with and without CO₂ greenhouse industrial emissions and compare. You can consider the ocean and the atmosphere well mixed or not (you decide what is appropriate). Use the literature to look for all the parameters you need for this model. A Chemical Engineering perspective of the problem (Dr. Seinfeld) is posted, but there are others.

PPT submitted via e-mail to me by the deadline. Oral presentation limited to (10 minutes), no later than Nov 14. All students must be familiar with the Seinfeld paper and the model that is being presented.