PROJECT. Natural and anthropogenic methane emissions

Natural and anthropogenic methane emissions in CCSM Project team consists of: David Lawrence and Sean Swenson, NCAR Natalie Mahowald and Peter Hess (and postdoc), Cornell Bill Riley (and postdoc), LLNL Inez Fung (and students), UC Berkeley Initial allocation of tasks: Dave and Sean: Develop dynamic wetland distribution model, incorporating connected versus non-connected wetlands (for pH); help with development of prototype CH4 emissions model Natalie and Peter: Testing and evaluation of emissions model once prototype emissions model has been implemented, focus on atmospheric methane and tropical emissions Bill: Develop prototype emissions model, in collaboration with Dave Inez: Collate anthropogenic emissions data and generate a gridded anthropogenic emissions dataset; static or evolving? Methane emissions model requirements: 1. Modular, e.g. should work with CN or CASA

2. Model should represent four critical methane processes:

i. Allocation of carbon substrate available to methanogens

ii. CH4 production iii. CH4 oxidation

iv. CH4 transport

Information on CH4 emissions models:

1. Review of recent mechanistic CH4 emissions models in Modelling northern peatland land surface processes, vegetation dynamics, and methane emissions; Rita Wania thesis, Section 1.5

2. LPJ-WhYMe described in Modelling northern peatland land surface processes, vegetation dynamics, and methane emissions; Rita Wania thesis, Section 4

Information on atmospheric CH4: ???