Fire Model Intercomparison Project (FireMIP)

Stijn Hantson & FireMIP community

Introduction

- Fire is starting to become a „standard" component of DGVM´s and ESM´s.
- Including Fire disturbance can have large impacts on overall model behavior.
- Al large variety of global fire models exists.
- No systematic evaluation has been conducted:
  - No assessment of how these models compare to available observations.
  - We have not compared different model hindcasts and future projections, and their sensitivity to different drivers.

FireMIP

- **Objectives:**
  - Examine the ability of global fire models to predict temporal and spatial trend in global fire occurrence/characteristics/impacts and determine current uncertainties.

  - Use this information to review current shared structure of fire models and diagnose the future development needs.

  - Determine common robust features in the magnitude, trends and drivers of global fire occurrence.

FireMIP

- **Organization:**
  - Annual meetings
    - 1e meeting: 29-30/09/2014
    - Upcoming 2e meeting: 28-30/10/2015
  - Phase:
    - First fase: Last century runs and model benchmarking and sensitivity studies.
    - During next meeting out-of-sample and future scenarios runs will be discussed.

Fase1 model protocol

- SF1: Transient 1700-2013 runs with changing CO_2, population density and land use; climate for 1901-2013.
- SF2 sensitivity runs:
  - World without fire.
  - Pre-industrial fire regime.
  - Fixed pre-industrial atmospheric CO_2.
  - Fixed lightning.
  - Nitrogen cycle off.
- SF3 vegetation dynamics: Site level runs for fire exclusion sites and to study fire recovery.

Current status

- Data submitted for:
  - JSBACH, CTEM, ORCHIDEE, LPJ-GUESS-SPITFIRE, JULES-inferno.

- In process:
  - LPJ-GUESS-trunk, CLM, LPX, LPJ-LMfire.

- Should be ready in time:
  - GFDL,LPJ-GUESS-SIMFIRE

Global C-emission from different models

Questions?