Summary of Discussion During Biomass Science Breakout Session

Workshop on Short Lived Climate Forcers

Chapel Hill, NC

March 3-4, 2010

Biomass Emissions

1. What do we understand well?

1. Open burning is a major source of:
    1. Black C, Brown C, O3 Precursors
2. Total area burned and location, is reasonably known in US for wildfires due to satellite detection, less so for controlled burning and ag.
    1. Area burned 1 : 3+ (wildfires : controlled)
    2. Landcover model for burned areas (x10 uncertain?)
    3. Fuel mass burned
    4. PM 2.5 mass emission factors are reasonably understood
3. A non-trivial fraction of burning emissions are potentially subject to mitigation efforts to reduce the black carbon emissions

Biomass Emissions

2. **What do we not understand well?**
    2. **Climate-relevant emissions**
        2. **BC, Brown, optical properties, number**
    3. **Particle residence time**
    4. **Emissions as fcn of fire and fuel properties**
    5. **Injection heights**
    6. **Ecological effects of mitigation strategies**

Biomass Emissions

3. What research or analyses are needed?

1. Source characterization as fcn of fire and fuel variables
    1. optical properties, aging, solubility cloud processing, number
2. Relationship between remote sensing and ground-based data
    1. Field tests
3. Fire emissions models require improvement – move from PM2.5 emissions to climate relevant properties
4. Improved characterizations for global emissions.
5. Improved understanding of direct vs indirect effects in fresh and aged plumes.