Potential Focus Group on Anthropogenic/Biogenic interactions in SOA formation

DOE ASR Meeting

San Antonio, TX, 31-March 2011

Facilitator: Jose-Luis Jimenez, U. Colorado

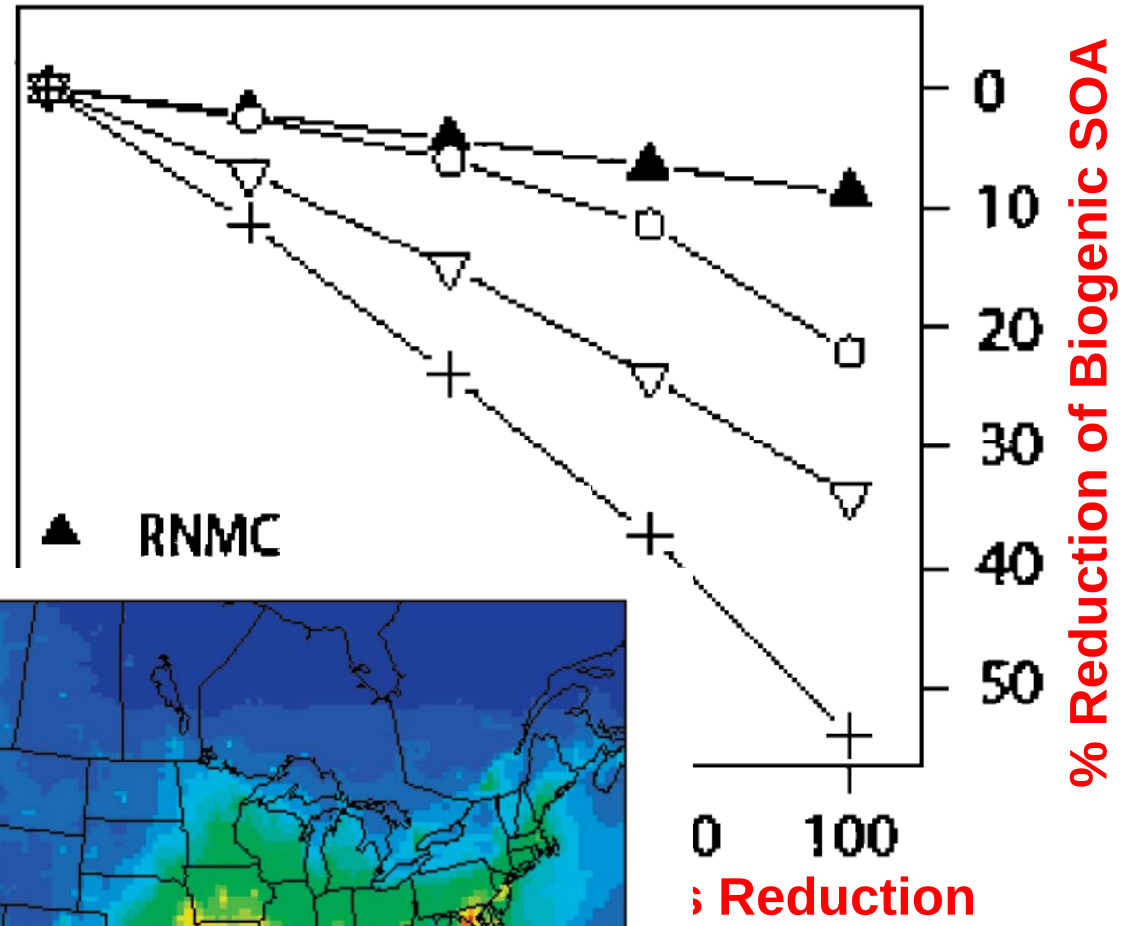
Biogenic SOA in Polluted Regions

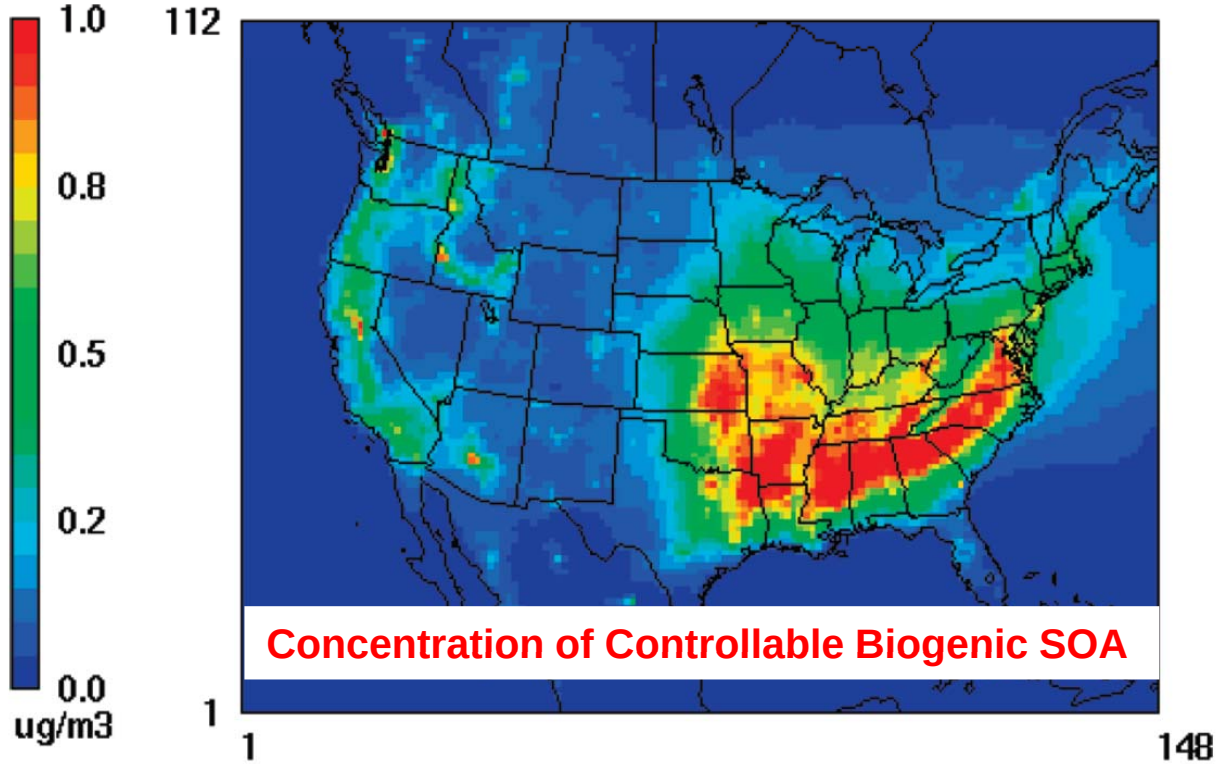
To What Extent Can Biogenic SOA be Controlled?

ANNMARIE G. CARLTON,*
ROBERT W. PINDER, PRAKASH V. BHAVE,
AND GEORGE A. POULIOT

U.S. Environmental Protection Agency, Office of Research and Development, National Exposure Research Laboratory, 109 TW Alexander Drive Research Triangle Park, North Carolina 27711

Received November 18, 20[illegible] March 18, 2010. Accepted [illegible]



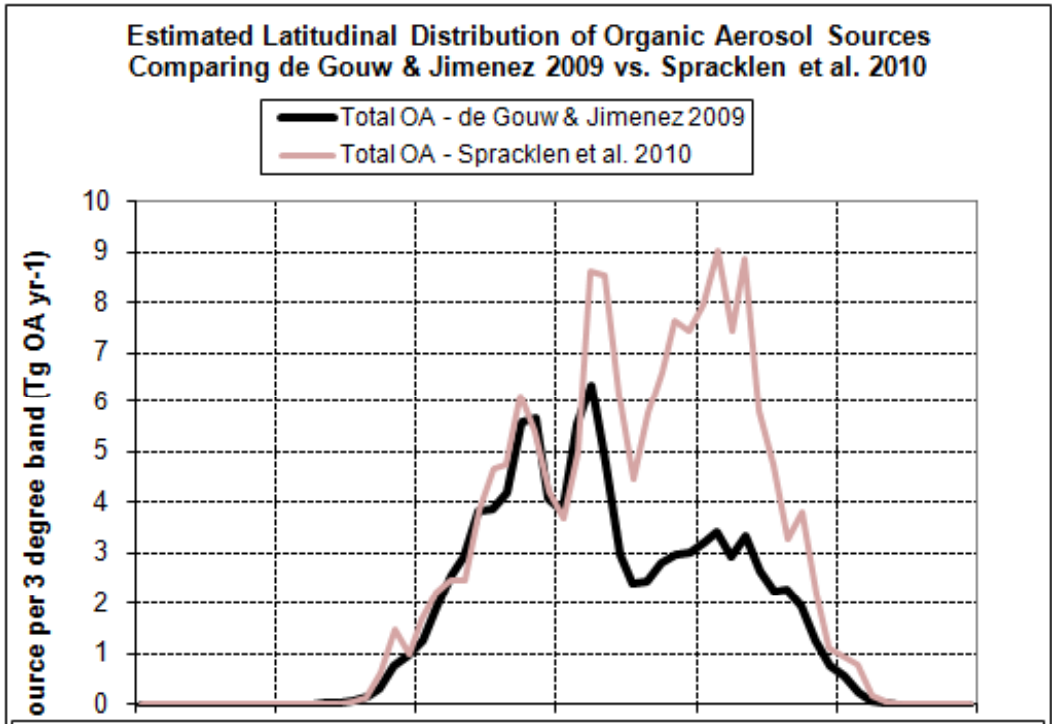


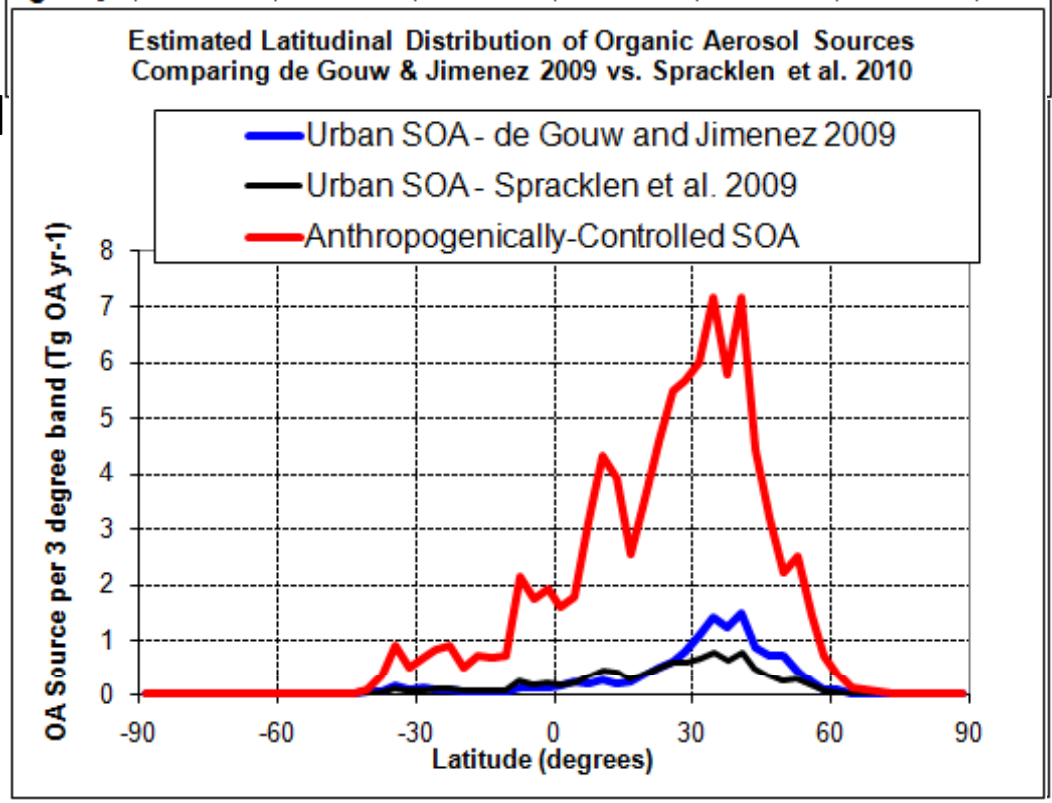
Estimates of Global OA Sources vs. Latitude

- Most sources are consistent with estimates in de Gouw & Jimenez (2009)
- New very large "anthropogenically-controlled" SOA in N hemisphere
  - Best modeled with VOC tracer based on anthropogenic CO
  - Mostly modern C
  - Implies very strong enhancement of biogenic SOA by pollution
    - x10 higher than in current models
- Extra forcing: -0.86 W m^{-2}

$\Rightarrow$ Higher climate sensitivity

Spracklen, Jimenez et al. ACPD, 2011





Atmos. Chem. Phys., 11, 321–343, 2011
www.atmos-chem-phys.net/11/321/2011/
doi:10.5194/acp-11-321-2011
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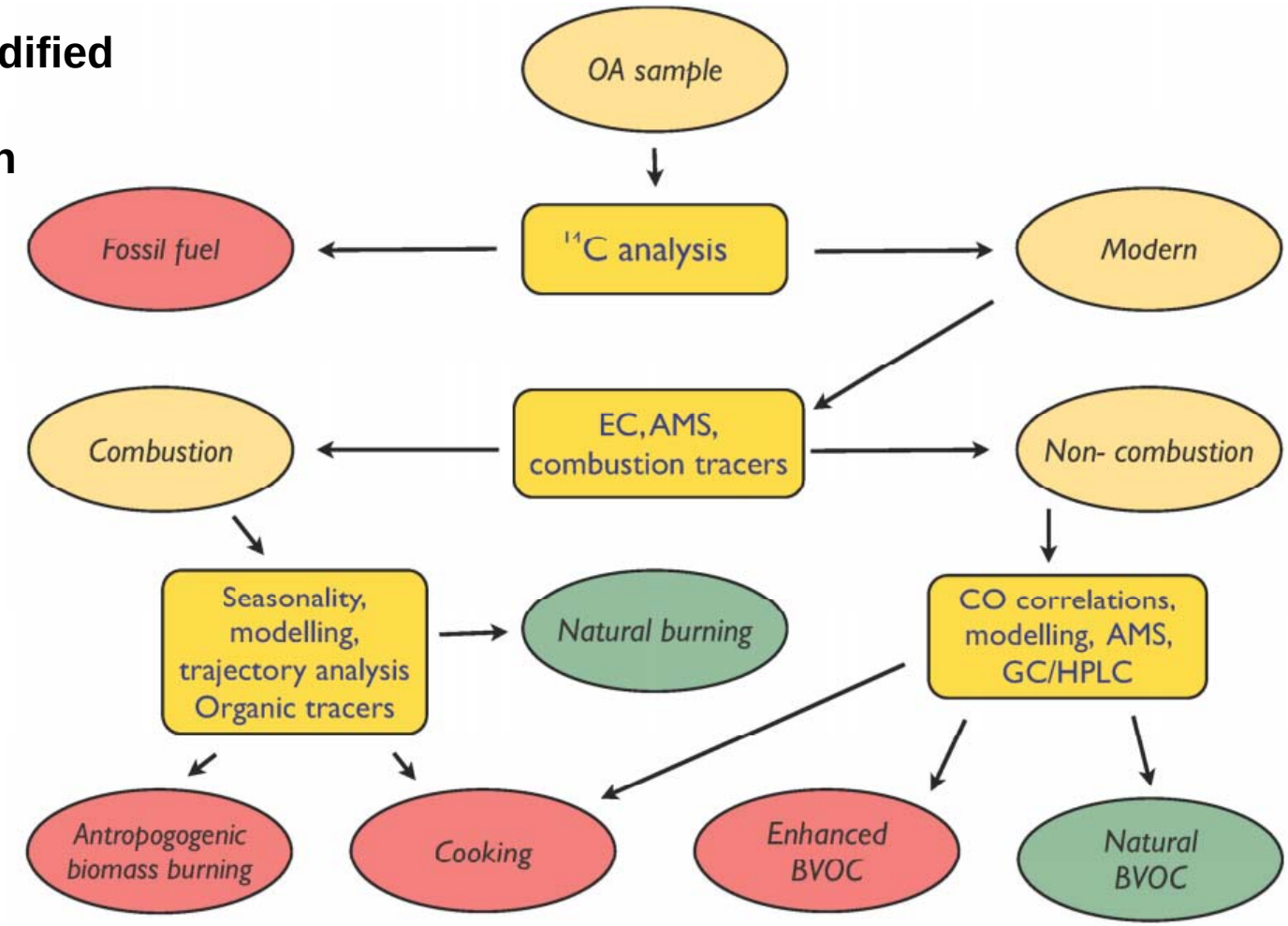
Atmospheric Chemistry and Physics

A review of the anthropogenic influence on biogenic secondary organic aerosol

C. R. Hoyle[1,2], M. Boy[3], N. M. Donahue[4], J. L. Fry[5], M. Glasius[6], A. Guenther[7], A. G. Hallar[8], K. Huff Hartz[9], M. D. Petters[12], T. Petäjä[3], T. Rosenoern[11], and A. P. Sullivan[10]

Proposed a modified experimental characterization method:



Possible Focus Group

- Theme: "Antropogenic/biogenic interactions in SOA formation"
  - Alternative names?
- ASR & community activities
  - Amazon 2014, FACETS, SOAS (SE US) 2013 (NSF, NOAA, DOE?)
  - Complex problem, needs large sustained effort, but progress possible in 3-5 yrs
- Potential participants in focus group
  - List is not exhaustive, given here just to show potential of critical mass
  - Field experimentalists
    - Martin, Wang, Kleinman and Amazon-2014 team
    - Q. Zhang, D. Worsnop, Y.N. Lee, J. Thornton, R. Volkamer, J.L. Jimenez (organic composition focus)
  - Laboratory
    - Ziemann, Martin, Shilling (chambers)
  - Modeling
    - Madronich (detailed mechanistic modeling)
    - Fast, Shrivastava, Hodzic (regional modeling)
    - Global and climate modeling teams