

PLAN TO ATTEND

Chapman Conference on Global Biomass Burning Atmospheric, Climate, and Biospheric Implications

March 19-23, 1990

Williamsburg, Virginia

Convenor: Joel S. Levine

The conference will consider biomass burning as a driver for global change. Conference sessions will assess global biomass burning as a source of chemically active and radiatively active gases ("greenhouse" gases) and atmospheric particulates and their impact on atmospheric composition, chemistry, climate, and on the biosphere itself. Conference presentations and discussions will consider the global extent of biomass burning by geographic area, ecosystem, and season and assess the total land area burned, total biomass burned, and the combustion efficiency for each ecosystem. Other sessions will focus on how biomass burn emissions (gases and particulates) vary in different ecosystems and the impact of biomass burning on the soil, water, and microbial community and the long-term impact of burning on the biogeochemical cycling of nitrogen, carbon, and sulfur compounds. Other papers will consider historical studies of biomass burning practices and future trends and predictions and the measurement of the global distribution of biomass burning from space. Conference papers will be published in a proceedings volume.

ABSTRACT DEADLINE: SEPTEMBER 30, 1989

TRAVEL APPLICATION DEADLINE: SEPTEMBER 30, 1989
(Funding is being requested to provide partial support for those attending the meeting. Limited funding will be available.)

Housing and Registration Information will be available by June 29.

For general information, or to be placed on a mailing list, contact: Biomass Burn Chapman Conference, American Geophysical Union, 2000 Florida Avenue NW, Washington, DC 20009; E-Mail: PMDICKERSON/KOSMOS, telephone: 202-462-6000, facsimile: 202-328-0566.

For information on the scientific program, contact:

Dr. Joel S. Levine

Atmospheric Sciences Division, Mail Stop 401B

NASA Langley Research Center

Hampton, Virginia 23665-5225

Telephone: 804-864-5692

Facsimile: 804-864-3800

**Chapman Conference on Global Biomass Burning
Atmospheric, Climatic, and Biospheric Implications**

March 19-23, 1990

Williamsburg, Virginia

Convenor: Joel S. Levine, NASA Langley Research Center

Site

The conference will be held in Williamsburg, Virginia at the Williamsburg Hilton. While in Williamsburg you might want to visit historic Jamestown, the site of the first English speaking settlement in the New World, dating back to 1607, is just nine miles away from the Hilton, and Yorktown, where the Revolutionary War ended in 1781, is approximately 12 miles away from the Hilton. You might also want to visit nearby Bush Gardens, Colonial Williamsburg, Jamestown Festival Park and the James River Plantation.

You may reach Williamsburg from the Norfolk, Richmond, or Patrick Henry Airport. Norfolk and Richmond Airports are serviced by most air carriers and each airport is approximately 45 minutes from Williamsburg. Patrick Henry Airport is 15 miles away and is served by U.S. Air and commuter lines such as U.S. Air Express, and United Express.

Consider bringing your family or friends as there is much to see and do in Williamsburg.

Williamsburg Hilton and Conference Center

Most activities will take place at the Hilton. The Hilton offers:

- . heated indoor-outdoor swimming pool, a jacuzzi, tennis courts, saunas, indoor racquetball courts and an exercise room.
- . just minutes away you can enjoy golf at the championship Kingsmill golf course or local bargain hunting at the famous Williamsburg Pottery and major factory outlets.
- . coffee shop for all-day dining and the Watermans restaurant which offers fine dining in a relaxed atmosphere. The Carousel lounge is open nightly for dancing under the stars.

Registration --- Deadline: February 26, 1990

- . Registration Fees
Regular \$175.00 Student \$85.00
- . Payment - preferred payment is by MasterCard, Visa or American Express credit cards, checks and money orders. Purchase orders will not be accepted. If a participant from outside the U.S. is experiencing currency conversion difficulties or mail problems, they may find it advantageous to pay the fee on-site, providing the fee is being paid in U.S. dollars.

- . Everyone attending the conference must register. Complete the enclosed registration form and return it to AGU with payment.
- . Guests must purchase tickets to social functions.
- . Registration fee includes the program with abstracts, opening reception, daily coffee breaks, and two banquets.
- . Registration Hours:
 March 18: 5:00 - 7:00 P.M.
 March 19: 7:30 A.M. - 4:00 P.M.
- . Cancellations -- a written notification must be received at AGU
 Full refund: notification must be received by March 9, 1990
 Partial Refund: between March 10 and March 16 AGU will deduct a \$20 processing fee.
 Refunds will not be processed after March 16.

Hotel Accommodations at the Williamsburg Hilton
Deadline: February 18, 1990

- . Sleeping room rates are \$62 single or double.
- . A deposit of the first nights lodging is required to guarantee your reservation. You can use your American Express, MasterCard, Visa, or Diner's Club credit card to do this.
- . Cancellations must be received prior to 72 hours of arrival date.
- . Complete the housing form and mail it directly to the Williamsburg Hilton.
- . Information on ground transportation from airports is enclosed.

Social Events and Evening Activities

Sunday, March 18 6:00 - 7:30 P.M.
 Opening Reception

Monday, March 19 8:00 P.M.
 Special Lecture by Thomas E. Lovejoy, Assistant, Secretary for External Affairs, The Smithsonian Institution, Washington, D.C.
 Topic: "The Vanishing Rain Forest"

Tuesday, March 20 6:15 P.M.
 Group Dinner at the "Old Southern Buffet George Washington Inn"
 Transportation will be provided by Trolley Cars from the Hilton.
 First trolley pickup is at 5:30 p.m.

Tuesday, March 20 8:00 P.M.
 Special Evening Session
 "Biomass Burning: Historic and Prehistoric Perspectives"

Wednesday, March 21 6:15 P.M.
 Group Banquet at the Williamsburg Hilton
 Speaker: Stephen Pyne, Arizona State University
 Topic: "Fire in North America: A Historical Perspective"

Friday, March 23 2:00 - 3:30 P.M.

A live teleconference, Global Biomass Burning: Atmospheric, Climatic and Biospheric Implications, will be broadcast throughout the United States on the public television network by WHRO/TV, Norfolk, Virginia and the Department of Education, Commonwealth of Virginia. A toll free 800 telephone number will be provided to permit viewers from the entire country to call in and ask questions of the expert panel of scientists.

Other Scientific Activities

Following the Chapman Conference, the international scientific community will hold two important planning meetings at the Williamsburg Hilton. The Subcommittee on Global Biomass Burning of the International Global Atmospheric Chemistry Project (IGAC), chaired by M. O. Andreae, and the Biomass Burning Committee of the International Geosphere - Biosphere Project (IGBP), chaired by J. G. Goldammer will meet. Many Chapman Conference participants have been invited to take part in these planning meetings.

See you in Williamsburg!

Preliminary Program

Chapman Conference

Global Biomass Burning:
Atmospheric, Climatic, and Biospheric Implications

March 19-23, 1990
Williamsburg, Virginia

Convenor: Joel S. Levine (NASA Langley Research Center)

Presenters are listed in boldface

Sunday, March 18, 1990

5:00pm - 7:00pm

Registration

7:00pm

Opening Reception

Monday, March 19, 1990

Opening Session/Welcoming Comments

- 8:00am Joel S. Levine, Convenor
NASA Langley Research Center
- 8:10am Richard H. Petersen, Director
NASA Langley Research Center
- 8:20am Maurice Averner, Manager
Biospheric Research Center
Life Sciences Division
Office of Space Science and
Applications, NASA Headquarters

Session I:

Biomass Burning As A Global Phenomenon: The View from Space

Chairs: Maurice Averner, NASA Headquarters
James D. Lawrence, Jr., NASA Langley Research Center

- 8:30am J. Young An Astronauts' View of Global Biomass
Burning
- 9:00am M. Matson Can We Operationally Monitor Biomass
Burning from Space?
- 9:30am C. J. Tucker, Satellite Estimation of Tropical
W. W. Newcomb, Deforestation in the Amazon Basin of
T. Grant Brazil

10:00am	Break	
10:20am	C. A. Wood	Astronaut Photography of Biomass Burning: A Global View
10:40am	C. R. Nagaraja Rao	Remote Detection and Characterization of Smoke and Dust Clouds Over the Oceans Resulting from Agricultural Field Burning and Forest Fires
11:00am	A. Setzer, M. C. Pereira, A. C. Pereira	AVHRR Estimates of Biomass Burning During Base-A
11:20am	W. P. Menzel, E. C. Cutrim, E. M. Prins	Geostationary Satellite Estimation of Biomass Burning in Amazonia
11:40am	J. D. Kendall, C. O. Justice	Remotely Sensed Observations of Biomass Burning in Central Africa and South America
12:00pm	Lunch	
1:00pm	J.-P. Malingreau, J. M. Gregoire, A. Belward	Global Patterns in Biomass Burning: The Intertropical Belt
1:20pm	K. Manissadkian, J. B. Vickos, J. M. Brustet, J. Fontan, A. Podaire, F. Lavenu	Detection of Biomass Burning in Savannah Region of Intertropical Africa with NOAA Satellite
1:40pm	J. B. Vickos, J. M. Brustet, J. Fontan, A. Podaire, F. Lavenu	Characterization of Active Biomass Fires in West Africa, with Landsat Thematic Mapper
2:00pm	N. Hadjar	Tropical Biomass Burning Monitoring From Space
2:20pm	D. R. Cahoon, Jr., J. S. Levine, P. Minnis, G. M. Tennille, T. W. Yip, P. W. Heck, B. J. Stocks	The Great Chinese Fire of 1987: The View from Space
2:40pm	B. Moore, III	The Global Carbon Cycle - Balances and Imbalances
3:00pm	Break	

Session II:

Biomass Burning in the Tropics: Gaseous and Particulate Emissions, I

Chairs: Alberto Setzer, INPE, Brazil
Luiz C. B. Molion, INPE, Brazil

- 3:20pm M. O. Andreae Consequences of Biomass Burning for Tropical Atmospheric Chemistry: Results from Amazonia and Equatorial Africa
- 3:50pm V. W. J. H. Kirchhoff Biomass Burning in the Brazilian Amazon Region
- 4:20pm E. Sanhueza Effects of Vegetation Burning in the Atmospheric Chemistry of the Venezuelan Savannah
- 4:40pm A. C. Delany, R. B. Chatfield A Further Examination of Existing Aircraft CO/NO_x Data Collected During the Investigation of Biomass-Burning in the Cerrado Region of Central Brazil
- 5:00pm P. Artaxo Trace Element Concentration and Size Distribution of Aerosols from the Amazon Basin in Burning Plumes and in the Dry and Wet Seasons
- 5:20pm J. M. Robinson, A. Setzer BASE-A Requirement for a Mass and Energy Balance
- 8:00pm Special Lecture:
Dr. Thomas E. Lovejoy, The Vanishing Rain Forest
Assistant Secretary
for External Affairs,
The Smithsonian Institution
of Washington, D.C.

Tuesday, March 20, 1990

Session III:

Biomass Burning in the Tropics: Gaseous and Particulate Emissions, II

Chairs: Luiz C. B. Molion, INPE, Brazil
Alberto Setzer, INPE, Brazil

- 8:00am E. V. Browell, C. F. Butler, P. Robinette, S. A. Kooi, M. A. Fenn, S. Ismail Airborne Lidar Observations of Aerosols and Ozone in Plumes from Biomass Burning Over the Amazon Basin and Over Alaska

8:20am	B. N. Holben, Y. J. Kaufman, V. H. Kirchoff, W. P. Menzel, J. M. Robinson, A. Setzer, D. Tanre, D. Ward	Overview of the BASE-A Experiment
8:40am	D. Ward, A. Setzer, Y. J. Kaufman, R. Rasumussen	Characteristics of Smoke Emissions from Biomass Fires of the Amazon Region - BASE-A Experiment
9:00am	P. M. Fearnside	Deforestation in Brazilian Amazonia as a Source of Greenhouse Gases
9:20am	L. F. Brown, L. A. Martinelli, M. Z. Moreira, G. Arruda, Jr., R. A. Victoria, C. A. C. Ferreira, W. W. Thomas	Uncertainties in Tropical Forest Biomass: an Example from Rondonia, Brazil
9:40am	J. B. Kauffman, R. L. Sanford, Jr., E. Sampio	Biomass Burning in Brazilian Tropical Dry Forest: Carbon and Nitrogen Emissions
10:00am	Break	
10:20am	R. A. Delmas	Biomass Burning In Africa
10:40am	R. A. Delmas, A. Marengo, J. P. Tathy, B. Cros	Methane Emissions from Combustions in Equatorial Africa
11:00am	J. C. Menaut, F. Lavenu, P. Loudjani, A. Podaire	Biomass Burning in West African Savannas
11:20am	J. C. Menaut, L. Abbadie, P. Mordelet	Impact of Burning on the Biogeochemical Processes in a Humid Savanna of Ivory Coast
11:40am	F. A. Akeredolu, A. O. Isichei	Emissions of Carbon, Nitrogen and Sulfur From Biomass Burning in Nigeria
12:00pm	Lunch	
1:00pm	B. Bonsang, G. Lambert, J. Baudet	Light Hydrocarbons Emissions from African Savannah Burning
1:20pm	B. C. Nguyen, B. Bonsang,	Carbonyl Sulfide Emissions From African Savannah Burning

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| 1:40pm | N. Mihalopoulos,
S. Belviso
J. P. Lacaux,
R. Delmas, B. Cros,
M. O. Andreae | Influence of Biomass Burning Emissions on
Precipitation Chemistry in the Equatorial
Forests of Africa |
| 2:00pm | H. Cachier,
P. Buat-Menard,
M. P. Bremond,
V. Yoboue,
J. P. Lacaux,
A. Gaudichet,
J. Baudet | Biomass Burning of Aerosols in a Savannah
Region of the Ivory Coast |

Session IV:

Biomass Burning in Temperate and Boreal Ecosystems: Gaseous and Particulate

Emissions, I

Chairs: Wesley R. Cofer III, NASA Langley Research Center
Brian J. Stocks, Forestry Canada

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| 2:20pm | W. R. Cofer III,
J. S. Levine,
E. L. Winstead | Chemistry of Trace Gas and Particulate
Emissions from Mediterranean, Boreal,
and Wetlands Fires |
| 2:50pm | J. S. Levine,
W. R. Cofer III,
R. P. Rhinehart,
E. L. Winstead,
D. I. Sebacher,
S. Sebacher,
C. R. Hinkle,
P. A. Schmalzer,
A. M. Koller, Jr. | Enhanced Biogenic Emission of CH ₄ , N ₂ O, and NO
Following Burning |
| 3:10pm | Break | |
| 3:30pm | B. J. Stocks | The Extent and Impact of Forest Fires in
Northern Circumpolar Countries |
| 4:00pm | W. A. Kurz,
M. J. Apps | The Contribution of Biomass Burning to the
Carbon Budget of the Canadian Forest Sector |
| 4:20pm | L. F. Radke,
D. A. Hegg,
P. V. Hobbs,
R. E. Weiss | Particulate and Trace Gas Emissions From
Large Biomass Fires in North America |
| 4:50pm | M. A. Mazurek,
W. R. Cofer III,
J. S. Levine | Chemical Speciation of Carbonaceous Aerosols
From Prescribed Burning of a Boreal Forest
Ecosystem |

5:10pm M. A. Mazurek, Measurement and Flux of Carbonaceous Aerosol
L. M. Hildermann, Species from Pine and Oak Wood Combustion
G. R. Cass

6:00pm Dinner - "Old Southern Buffet"
George Washington Inn,
Williamsburg, Virginia
(Transportation to be provided
beginning at 5:30pm in front of
hotel)

Session V:

Special Evening Session

Biomass Burning: Historic and Prehistoric Perspectives

Chairs: John Rummel, NASA Headquarters
Joel S. Levine, NASA Langley Research Center

8:00pm E. Anders Major Wildfires at the Cretaceous-Tertiary
Boundary

8:20pm D. M. McKnight, Atmospheric and Hydrologic Transport of
R. C. Averett Soluble Organic Material From Firestorms of
the Cretaceous/Tertiary Boundary: Was the
Strangelove Ocean a Blackwater Ocean?

8:40pm D. M. McLean Global K-T Biomass Burnoff "Impact Winter"
Versus the Geobiological Record: No
Definitive Evidences

9:00pm H. J. Melosh, Broiled Alive! An Incendiary View of the
N. M. Schneider, Terminal Cretaceous Extinction
K. J. Zahnle,
D. Latham

9:20pm J. M. Robinson Fire and Atmospheric O₂ Variation in
Phanerozoic History

9:40pm J. G. Goldammer Tropical Wildland Fires and Global Change:
Prehistoric Evidence, Present Fire Regimes
and Future Trends

10:00pm D. O. Suman A Five Century Sedimentary Geochronology of
Biomass Burning in Central America

10:20pm S. W. Leavitt The Great Lakes Forest Fires of October
1871

Session VI:

Wednesday, March 21, 1990

Biomass Burning in Temperate and Boreal Ecosystems: Gaseous and Particulate Emissions

Chairs: Brian J. Stocks, Forestry Canada
Wesley R. Cofer, III, NASA Langley Research Center

8:00am	P. J. LeBel, S. Vay., P. D. Roberts, W. R. Cofer III, J. S. Levine, E. L. Winstead	Simultaneous Measurements of Ammonia and Nitric Acid Emissions During Biomass Burning
8:20am	D. C. Woods, R. L. Chuan	Aerosol Characterization in Smoke Plumes From Vegetation Burning at a Florida Wildlife Reserve
8:40am	J. M. Pacyna, J. W. Winchester	Impact of Carbonaceous Fuel Burning on Arctic Aerosols and Air Quality
9:00am	R. D. Graetz	Burning Down Under: Fire in the Australian Landscape
9:20am	J. S. Levine, W. R. Cofer III, E. L. Winstead, K. G. Hoffman, B. J. Stocks	The Great Chinese Fire of 1987: Emission of Trace Gases to the Atmosphere
9:40am	R. H. Gammon, K. Kelly	Biomass Burning Trace Signature of the Great China Fire of May, 1987
10:00am	Break	
10:20am	Y. Wen-Ziang, C. Zu-Liang	Determine the Emission Gases of Biomass Burning and Estimate the CO ₂ Emission from Agricultural Biomass Burning in China
10:40am	V. Joshi, R. K. Pachuri	Biomass Burning in India
11:00am	B. K. Sapkota, K. L. Shrestha	Use of Improved Woodstoves in Nepal
11:20am	R. A. Susott, D. E. Ward, R. R. Babbitt, D. J. Latham	Trace Emissions and Combustion Characteristics within a Mass-Fire

- 11:40am W. Einfeld, Effects of Fire Behavior on Prescribed Fire
D. E. Ward, Smoke Characteristics
C. C. Hardy
- 12:00pm Lunch
- 1:00pm P. A. Schmalzer, Changes in Marsh Soils for Six Months After
C. R. Hinkle, a Fire
A. M. Koller, Jr.
- 1:20pm P. J. Boston Direct Coupling of Microbial Activity to
Biomass Burning Enhanced N₂O Fluxes in the
Field

Session VII:

Biomass Burning and Global Budgets, I. Carbon Species, I

Chairs: Paul J. Crutzen, Max-Planck-Institute for Chemistry, West Germany
Ronald Prinn, Massachusetts Institute of Technology

- 1:40pm P. J. Crutzen, Biomass Burning: A Large Factor in the
M. Kanakidou, R. Brost, Photochemistry of the Tropics
P. Zimmermann
- 2:10pm R. Prinn Biomass Burning and the International Global
Atmospheric Chemistry (IGAC) Program
- 2:40pm R. A. Houghton Current and Historical Releases of Carbon from
Global Biomass Burning
- 3:00pm Break
- 3:20pm H. D. Mooers, Peatlands, Drought, and the Global Carbon
P. H. Glaser Cycle
- 3:40pm A. W. King, The Response of Atmospheric CO₂ to Changes in
W. R. Emanuel in Land Use
- 4:00pm J. S. Olson Ecosystem Database and Models for Biospheric
Gas Exchange
- 4:20pm W. M. Hao, Biomass Burning: An Important Source of
D. Scharffe, Atmospheric CO, CO₂ and Hydrocarbons
J. M. Lobert,
P. Crutzen
- 4:40pm C. A. M. Brenninkmeijer, Carbon-14, Carbon-13 and Oxygen-18 in
M. R. Manning, Atmospheric Carbon Monoxide at Baring Head,
D. C. Lowe, G. Wallace, New Zealand
R. J. Sparks

- 5:00pm C. M. Stevens,
A. E. Engelkemeir,
R. A. Rasmussen The Contribution of Increasing Fluxes of CH₄
from Biomass Burning in the Southern
Hemisphere Based on Measurements of the
Temporal Trends of the Isotopic Composition
of Atmospheric CH₄
- 5:20pm P. D. Quay,
S. L. King,
J. Stutsman,
J. M. Lansdown,
D. O. Wilbur Methane Release Rate from Biomass Burning:
Estimates Derived from ¹³C Composition of
Atmospheric Methane
- 5:40pm B. D. Marino,
J. A. Logan,
M. B. McElroy,
M. Wahlen Stable Carbon Isotope Ratios of C₃ and C₄
- 6:15pm **Conference Banquet**
Williamsburg Hilton and
National Conference Center
- 8:00pm Banquet Address: Fire In North America:
Dr. Stephen Pyne, A Historical Perspective
Arizona State University

Thursday, March 22, 1990

Session VIII:

Biomass Burning and Global Budgets, I. Carbon Species, II

Chairs: Ronald Prinn, Massachusetts Institute of Technology
Paul J. Crutzen, Max-Planck-Institute for Chemistry, West Germany

- 8:00am H. G. Reichle, Jr. Satellite Measurement of Carbon Monoxide and
Biomass Burning
- 8:30am J. A. Logan, J. Dignon, Biomass Burning and the Global Budget of CO:
E. Gottlieb A Study Using a Chemical Tracer Model
- 9:00am V. S. Connors,
D. R. Cahoon, Jr.,
H. G. Reichle, Jr.,
M. Garstang,
W. Seiler,
H. E. Scheel Savanna Burning and Convective Mixing in
Southern Africa: Implications for CO
Emissions and Transport
- 9:20am N. Dak Sze,
J. M. Rodriguez,
M. K. W. Ko Potential Impact of Biomass Burning on
Tropospheric OH in the Tropical and
Subtropical Regions

Session IX:

Biomass Burning and Global Budgets, II: Nitrogen Species

Chairs: Joseph A. McSorley, Environmental Protection Agency
H. Levy, II, National Oceanic and Atmospheric Administration

9:40am	H. Levy II, W. J. Moxim, P. S. Kasibhatla	Biomass Burning and the Global Nitrogen Budget
10:10am	P. S. Kasibhatia, Levy II, W. J. Moxim	Simulated Distribution and Deposition of H. Reactive Nitrogen Emitted by Biomass Burning
10:30am	Break	
10:50am	J. Dignon, S. Hameed, J. E. Penner, C. S. Atherton, J. J. Walton	Biomass Burning and Its Contribution to Nitrate Deposition in the Tropics
11:10am	J. M. Lobert, D. Scharffe, W. M. Hao, P. Crutzen	Biomass Burning as a Source of Atmospheric Nitrogen Containing Compounds: An Experimental Study
11:30am	J. W. Elkins, B. D. Hall, J. H. Butler	Laboratory and Field Investigations of the Emissions of Nitrous Oxide from Biomass Burning
11:50am	E. L. Winstead, K. G. Hoffman, W. R. Cofer III, J. S. Levine	Nitrous Oxide Emissions from Burning Biomass
12:10pm	R. F. Keeling	Time Series Measurements of Atmospheric Oxygen/Nitrogen Ratio as a Tool for Determining Global Changes in the Land Biosphere
12:30pm	Lunch	

Session X:

Biomass Burning and Global Budgets, III: Ozone

Chairs: M. O. Andreae, Max-Planck-Institute for Chemistry, West Germany
Volker W. J. H. Kirchhoff, INPE, Brazil

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| 1:30pm | V. W. J. H. Kirchhoff,
A. Setzer | Ozone Concentration in the Brazilian Amazon Basin During BASE-A |
| 2:00pm | B. Cros, D. Nganga | Tropical Ozone and Biomass Burning in Inter-tropical Africa |
| 2:20pm | A. Marengo | Study of Bush Fire Emissions and Ozone Formation Over West-Africa From Large Scale and Regional Aircraft Campaigns (STRAT0Z: TROPOZ) |
| 2:40pm | J. Rudolph, A. Khedim,
B. Bonsang, G. Helas,
M. O. Andreae | Hydrocarbon Emission from Tropical Biomass Burning and Ozone Formation |
| 3:00pm | R. B. Chatfield, S.
Madronich | Modeling the Link from Local Biomass Burning to Planetary-Scale Effects on Radiatively Active Gases |
| 3:20pm | J. Fishman,
J. L. Richardson,
C. E. Watson | Influence of Tropical Biomass on the Global Tropospheric Ozone Budget |
| 3:40pm | C. E. Watson,
J. Fishman,
G. L. Gregory,
H. G. Reichle, Jr.,
G. W. Sachse | A Comparison of Wet and Dry Season Ozone and CO Concentrations Over the Amazon Basin Using Satellite Measurements and In Situ Data |
| 4:00pm | Break | |

Session XI:

Biomass Burning, The Greenhouse Effect, and Climate, I

Chairs: John Hoffman, Environmental Protection Agency
Albert M. Koller, Jr., NASA Kennedy Space Center

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| 4:20pm | R. C. J. Somerville | Biomass Burning in Greenhouse Warming Models: Feedbacks and Uncertainties |
| 4:50pm | D. A. Lashof | The Contribution of Biomass Burning to Global Warming: An Integrated Assessment |

5:10pm	K. Andrasko, D. R. Ahuja, D. A. Tirpak	Policy Options for Managing Biomass Burning to Mitigate Global Climate Change
5:30pm	P. R. Thomas	Economy of Biomass Burning and Carbon Dioxide Production
8:00pm	<u>Special Lecture</u> Harrison E. Salisbury Pulitzer Prize Winning Author and former New York Times reporter/ columnist	The Great Black Dragon Fire: A Chinese Inferno

Friday, March 23, 1990

Session XII:

Biomass Burning, the Greenhouse Effect, and Climate, II

Chairs: John Hoffman, Environmental Protection Agency
Albert M. Koller, Jr., NASA Kennedy Space Center

8:00am	A. Robock	Forest Fire Smoke Effects on Surface Air Temperature
8:20am	C. Li, C. Lai	The Impact of Forest Burning on Climate - A Study of Climate Change in Tengchong County, Yunnan Province, China
8:40am	C. Li, C. Lai	A Study of Climate Change Related to Deforestation in the Xishuangbanna Area, Yunnan, China
9:00am	L. C. B. Molion	Amazonia, Burning, and Global Climate
9:30am	T. Y. Palmer	Smoke from the Tropical West Pacific's Burning Forests Results in Tropospheric Heating
9:50am	Break	

Session XIII:

Biomass Burning, Particulates and Their Optical Properties and Transport

Chairs: Darold Ward, Forest Service
Dennis Tirpak, Environmental Protection Agency

10:00am	J. Lenoble	The Particulate Matter from Biomass Burning: A Tutorial and Critical Review
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10:30am	F. Rogers, B. Zielinska, R. Tanner, J. Hudson, J. Watson	Potential Effects of Biomass Smoke on Cloud Albedo
10:50am	B. N. Holben, Y. J. Kaufman, A. Setzer, D. Tanre	BASE-A Ground Level Aerosol Characteristics Measured by Sunphotometry
11:10am	Break	
11:20am	D. Tanre, B. N. Holben, Y. J. Kaufman, A. Setzer	Characteristics of Emitted Aerosols from Biomass Burning During BASE-A Experiment A
11:40am	W. M. Porch, C.-Y. Kao	Anomalous Light Extinction from Large Area Forest Fires
12:00pm	Lunch	
1:00pm	W. H. Su, W. Z. Song	The Effects of Particulates Emitted from Forest Biomass Burning on Atmospheric Extinction
1:20pm	P. P. Anikin, A. S. Ginzburg, I. N. Sokolik	Optical Properties and Radiative Effects of Smoke from Large Forest Fires
1:40pm	A. S. Ginzburg, N. N. Veltishchev	Thermal Effects of Smoke from Large Forest Fires
2:00pm	V. N. Kapustin, A. A. Korneev	Electrooptical Study of Aggregate Formation and Particles Shape for Biomass Smokes
2:20pm	J. E. Penner, S. Ghan, J. J. Walton, J. Dignon	The Role of Biomass Burning in the Global Budget and Cycle of Elemental Carbon
2:40pm	C.-Y. J. Kao, G. A. Glatzmaier	A 3-D Global Chemical/Dynamical Model for Simulating the Anthropogenical Effects on the Atmosphere
3:00pm	D. L. Westphal, O. B. Toon	Long-range Transport and Removal of Forest Fire Smoke
3:20pm	Break	

Session XIV:

Chemistry and Transport: Theory and Measurements

Chairs: Jarvis L. Moyers, National Science Foundation
Joseph S. Pinto, Environmental Protection Agency

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| 3:30pm | G. Lambert,
M. F. Le Cloarec,
B. Ardouin,
H. Cachier | Calibration of Combustion Products by Respect
to Po-210 |
| 3:50pm | B. M. Jenkins,
S. O. Turn,
R. B. Williams,
D. P. Y. Chang,
O. G. Raabe,
J. Paskind | Quantitative Assessment of Gaseous and
Condensed Phase Emissions from Open Burning
of Biomass in a Combustion Wind Tunnel
Simulator |
| 4:10pm | B. A. Ridley, E. Atlas,
J. Walega, F. Grahek,
R. Shetter,
A. McDaniel,
J. Calvert,
P. Zimmerman,
J. Greenberg,
S. Madronich,
R. Chatfield, L. Heidt,
C. Gilliland,
W. Pollock, R. Lueb,
B. Henry, L. Mizoue,
M. A. Carroll,
D. Montzka, C. Hahn,
G. Hubler, R. Norton,
M. Trainer, S. Liu,
B. Heikes, B. Huebert,
W. Warren, J. Merrill,
S. Schauffler | The Mauna Loa Photochemistry Experiment: A
Study of Photochemical Processes in the
Background Troposphere |
| 4:30pm | D. W. T. Griffith,
W. G. Mankin,
M. T. Coffey,
E. Ward, A. Riebau, | Remote Sensing of Biomass Burning Emissions
by FTIR Spectroscopy |
| 4:50pm | K. E. Pickering,
A. M. Thompson,
W. -K. Tao,
J. Scala | Redistribution of a Biomass Burning Pollution
by a Tropical Squall Line and Resulting
Effects on Photochemical Ozone Production |
| 5:10pm | J. Scala, M. Garstang,
W.-K. Tao,
K. Pickering | The Complexity of Convective Transport |

5:30pm

G. A. Klouda, W. Dorko, Gas Standards for "Clean Air" Measurements
L. A. Currie

5:50pm

D. C. Parashar Diurnal Variation and Soil Dependence of
Methane Efflux from Rice Paddy Fields in
India