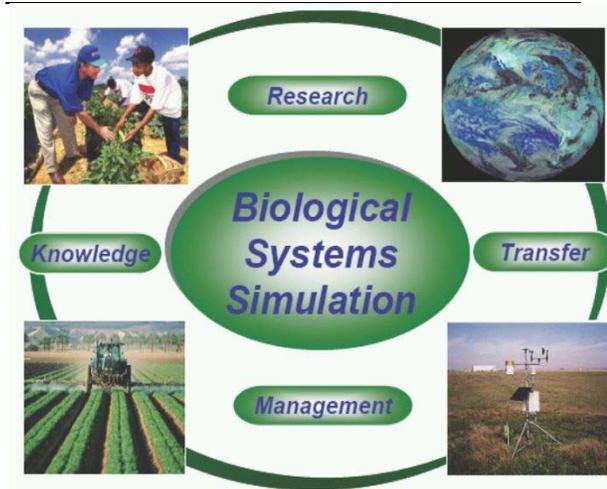


35TH BIOLOGICAL SYSTEMS SIMULATION CONFERENCE

APRIL 19-21, 2005 PHOENIX, ARIZONA



Hosted by:



The U.S. Water Conservation Laboratory is part of the USDA ARS and has served the agriculture community since 1958. www.uswcl.ars.ag.gov

JOIN THE BSSG CONFERENCE IN PHOENIX!

Systems approaches encounter diverse applications in agricultural and natural resource research. Simulation modeling is applied in basic studies of plant physiology and functional genomics, yet models are also powerful tools for such applied uses as timing irrigations and applications of nutrients or pest control measures. The Biological Systems Simulation Group conference provides a forum for researchers from a broad range of disciplines to interchange ideas and experiences with the ultimate goal of improving the efficiency and productivity of agricultural production, while conserving or even enhancing soil and water resources.

PROPOSED SESSIONS

- Plant-level biological processes
- Gene-based modeling and genomics
- Soil water, nutrient and energy balances
- Linking crop models to remotely-sensed data
- Assessing impacts of pests, weeds and diseases on crop performance
- Modeling effects of climatic variability and global change
- Decision Support Systems and crop management
- Data management and software engineering

Sessions run from 8:00 to 5:00 with catered breaks and a luncheon each day.

HISTORY OF THE BSSG

The Biological Systems Simulation Group is in its 35th year and brings together an international group of scientists interested in using integrated systems approaches to study agricultural and natural systems. Topics range from basic physiological and biological systems to ecosystem simulations of field-level flows of water, carbon, energy, and nutrients to region-level analyses of the impacts of climate variability and global change. This includes a strong focus on the study and dynamic simulation of effects of climatic and biotic factors on crop performance.

KEY DATES AND INFORMATION

February 28	Summaries due
March 12	Early registration ends
April 19	On-site registration
April 19-21	Conference
April 22	Post-conference "hands-on" workshop for modeling sorghum FACE experiments

Location

- Phoenix, Arizona, USA
- Sheraton Phoenix Airport [Hotel](#)

Registration

- By March 12, 2005
 - US\$ 225 (full registration)
 - US\$ 125 (students)
- After March 12, 2005
 - US\$ 275 (full registration)
 - US\$ 175 (students)

Highlights

- Oral presentations
- Poster displays
- Software demonstrations
- Published proceedings
- Field trip to The University of Arizona's Maricopa Agricultural Center, site of the new U.S. Arid Land Agricultural Center with special luncheon (half day)
- Post-conference "hands-on" workshop to model sorghum response to elevated CO₂ using FACE data sets

Conference Organizers

- Jeffrey W. White
US Water Conservation Laboratory
Phoenix, Arizona
- Bruce A. Kimball
US Water Conservation Laboratory
Phoenix, Arizona
- Kenneth J. Boote
University of Florida
Gainesville, Florida

AGENDA

Monday, April 18:

- PM: On-site registration
- PM: Reception

Tuesday, April 19

- AM: Oral presentations
- PM: Oral presentations
- PM: Poster and software demonstrations

Wednesday, April 20

- AM: Oral presentations
- PM: Oral presentations
- PM: Poster and software demonstrations

Thursday, April 21

- AM: Field trip to The Univ. of Arizona's Maricopa Agricultural Center (MAC), site of the new U.S. Arid Land Agricultural Center
- Noon: Barbecue luncheon at MAC
- PM: Oral presentations
- PM: Closure

Friday, April 22

Post-conference "hands-on" workshop to model sorghum response to elevated CO₂ using FACE data sets

- AM: Transfer to USWCL
- AM: Introduction to the sorghum FACE experiment and data sets
- AM: Hands-on sessions
- PM: Continue hands-on session
- PM: Closing remarks

HOW TO REGISTER

PLEASE FAX, or E-mail the following information to the conference secretary:

Your Name: (as to appear on badge)

Title:

Affiliation(s):

Address:

City (Place):

State/Province:

Postal Code:

Country:

Telephone:

FAX:

E-mail:

Registration type(circle one):

regular or student

My presentation will be (circle one):

oral poster software demo

Will attend the 22 April sorghum

workshop(circle one): yes/no

Please make checks payable to "BSSG USWCL" and send them to:

Ms. Lou Draper

PHONE: 1-602-437-1702 ext. 236

FAX: 1-602-437-5291

E-mail: ldraper@uswcl.ars.ag.gov

USWCL, BSSG Conference

4331 E. Broadway Rd.

Phoenix, AZ 85040

USA

Refund policy: Requests for registration refunds will be honored if written notice of cancellation is received by the USWCL on or before March 12, 2005. A \$40.00 processing fee will be deducted from all refunds. No refunds will be honored for cancellations after March 12, 2005.

Special needs: Participants with special needs can be reasonably accommodated. Please contact the conference secretary, Lou Draper, at least 10 days prior to the conference.

HOTEL ACCOMODATIONS



The conference will be held at the [Sheraton Phoenix Airport Hotel](#), which is centrally located near the Phoenix Skyharbor Airport, Arizona State University and diverse dining and shopping venues, including Tempe's popular Mill Avenue entertainment district and Tempe Town Lake (see map below). The hotel offers shuttle service to the airport and other nearby locations.

Participants must make their own room reservations by contacting the Sheraton directly:

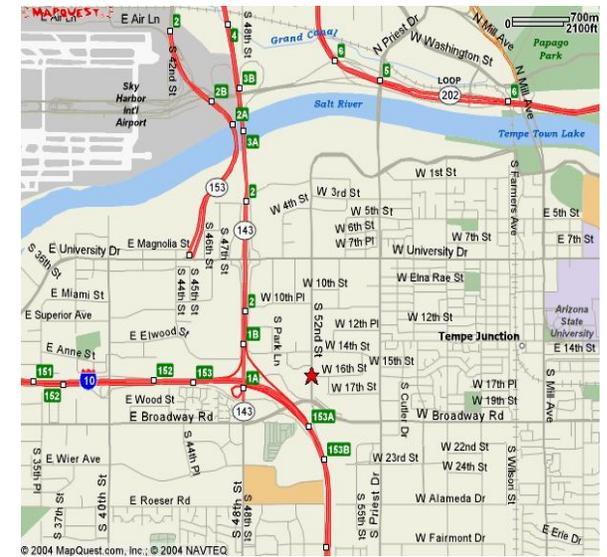
Sheraton Phoenix Airport Hotel
1600 South 52nd Street
Tempe, AZ 85281
UNITED STATES
Toll-Free: 1-800-346-3049
Tel: 1-480-966-6600
Fax: 1-480-966-2392
E-Mail: sheratonphxap@az.rmci.net

The room rate is US \$120/night + tax.

Please reference the Biological Systems Simulation Conference when making your reservation.

TRAVEL TO PHOENIX

Map showing location of the Sheraton in relation to the airport and local attractions



Airline Connections

Phoenix Sky Harbor International Airport is only five minutes from the BSSG conference hotel. The airport is served by over 21 airlines that offer nonstop services from Phoenix to 109 cities in the US and around the world. Phoenix is a hub for America West Airlines and Southwest Airlines. Non-stop international services are provided by Aeromexico, British Airways, Lufthansa, Air Canada, Air Jamaica and America West Airlines.

Railroad

There is no direct rail service to Phoenix, but Amtrak's Texas Eagle stops in Maricopa, approximately 25 miles south of

Phoenix. A shuttle can be hired for transportation to Phoenix. The Texas Eagle route runs from Los Angeles to Chicago. For more information, see the Amtrak [web site](#).

Automobile

The BSSG conference hotel is located approximately 1/2 mi. from Interstate 10.

- **West-bound:** Take Exit 153B to Broadway Rd. Go straight through the first stop light. The hotel is the first entrance on the left on 52nd St.
- **East-bound:** Take Exit 153 to Broadway Rd. Turn left on Broadway, cross the freeway, and turn left at the first light (52nd St.). The hotel is the first entrance on the left on 52nd St.

Traffic on the freeways is very heavy from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, so allow extra driving time during those periods.

SUMMARIES

Summaries must be received no later than Feb. 28, 2005

How to prepare your summary

Summaries will be distributed in printed form at the symposium, and a digital version will be available for downloading. Individual summaries should contain:

- Title
- Authors names
- Authors' affiliations
- The text per se
- Figures or tables: optional, color is OK, should be embedded in main text
- Key-words: up to five to help organize the agenda
- References: optional, please use ASA, CSSA format

The entire summary must fit within two pages of 12 point Times New Roman font, using single spaces lines and formatted for 8.5" x 11" paper with 1" margins.

Please follow the format of the sample summary provided below. The organizers will undertake minor editing, but summaries that deviate seriously from the format will be returned to the submitting author.

How to submit your summary

- Prepare the summary following the guidelines.
- No later than Feb. 28, 2005, E-mail the summary as a MS Word or RTF file to the conference secretary, [Ms. Lou Draper](#)
- Check for confirmation that the summary was received and is OK for publication

Sample summary

Title of Paper Goes Here

Your Name^{1,*}, Coauthor Name² and another Coauthor³

¹ My Institute, Big City, etc. (*corresponding author, E-mail: ... @ ...)

² [Second author's institution if different from first author.]

³ [Third author's institution if different from first two.]

Process-based models of crop growth ... [main text goes here]

POST-BSSG WORKSHOP WITH SORGHUM FACE DATA

From 1989 to 1999, the USWCL conducted free air CO₂ enrichment (FACE) trials using cotton, wheat and sorghum. Continuing the tradition of providing FACE data for model development and testing, the USWCL invites interested parties to remain in Phoenix after the BSSG for an informal "hands-on" one-day modeling workshop, emphasizing the sorghum data sets.

Data that are available include management, weather, soil and crop growth data. Data will be provided in ICASA format prior to the conference, so that people can come to the workshop with specific questions or suggestions. Wheat and cotton FACE data sets are also available.

We provide below sample references for publications that have resulted from FACE trials conducted in Arizona. For further information on the sorghum FACE experiments or other FACE trials conducted in Arizona, please contact [Bruce Kimball](#) or



visit the USWCL [FACE web site](#).

Agenda (draft)

- 8:00 AM: Transfer to USWCL in vans
- 8:20 AM: Introduction to sorghum FACE data sets - Bruce Kimball
- 8:40 AM: Distribution of data sets for hands-on modeling
- 10:00 AM: Coffee break
- 12:00 PM: Lunch
- 1:00 PM: Hands-on modeling continues
- 3:00 PM: Coffee break
- 3:20 PM: Reports and closing discussion
- 4:00 PM: Return to Sheraton in vans

Sample References on FACE Trials Conducted at MAC

- Ewert, F., D. Rodriguez, P. Jamieson, M.A. Semenov, R.A.C. Mitchell, J. Goudriaan, J.R. Porter, B.A. Kimball, P.J. Pinter Jr., R. Manderscheid, H.J. Weigel, A. Fangmeier, E. Fereres, and F. Villalobos. 2002. Effects of elevated CO₂ and drought on wheat: testing crop simulation models for different experimental and climatic conditions. *Agriculture Ecosystems & the Environment* 93:249-266.
- Grant, R.F., R.L. Garcia, P.J. Pinter Jr., D.J. Hunsaker, G.W. Wall, B.A. Kimball, and R.L. LaMorte. 95. Interaction between atmospheric CO₂ concentration and water deficit on gas exchange and crop growth: testing of ecosys with data from the free air CO₂ enrichment (FACE) experiment. *Global Change Biology* 1:443-454.
- Grant, R.F., B.A. Kimball, T.J. Brooks, G.W. Wall, P.J. Pinter Jr., D.J. Hunsaker, F.J. Adamsen, R.L. LaMorte, S.W.

- Leavitt, T.L. Thompson, and A.D. Matthias. 2001. Modeling interactions among carbon dioxide, nitrogen, and climate on energy exchange of wheat in a free air carbon dioxide experiment. *Agronomy Journal* 93(3):638-649.
- Grant, R.F., B.A. Kimball, P.J. Pinter Jr., G.W. Wall, R.L. Garcia, R.L. LaMorte, and D.J. Hunsaker. 95. CO₂ effects on crop energy balance: Testing ecosys with a free-air CO₂ enrichment (FACE) experiment. *Agronomy Journal* 87:446-457.
- Grant, R.F., G.W. Wall, B.A. Kimball, K.F.A. Frumau, P.J. Pinter Jr., D.J. Hunsaker, and R.L. LaMorte. 99. Crop water relations under different CO₂ and irrigation: Testing of ecosys with the free air CO₂ enrichment (FACE) experiment. *Agricultural and Forest Meteorology* 95: 27-51.
- Grant, R.F., B.A. Kimball, G.W. Wall, J.M. Triggs, T.J. Brooks, P.J. Pinter, M.M. Conley, M.J. Ottman, R.L. Lamorte, S.W. Leavitt, T.J. Thompson, and A.D. Matthias. Climate change effects on water requirements of irrigated sorghum: projections from a model tested with a free air co₂ enrichment (FACE) experiment. *Agronomy Journal*.
- Grossman-Clarke, S., P.J. Pinter Jr., T. Kartschall, B.A. Kimball, D.J. Hunsaker, G.W. Wall, R.L. Garcia, and R.L. LaMorte. 2001. Modeling a spring wheat crop under elevated carbon dioxide and drought. *New Phytologist* 150(2):315-335.
- Grossman, S., T. Kartschall, B.A. Kimball, D.J. Hunsaker, R.L. LaMorte, R.L. Garcia, G.W. Wall, and P.J. Pinter Jr. 95. Simulated responses of energy and water fluxes to ambient atmosphere and free-air carbon dioxide enrichment in

wheat. *Journal of Biogeography* 22:601-610.

- Porter, J.R., P.K. Aggarwal, S. Asseng, F. Ewert, L.A. Hunt, P.D. Jamieson, B.A. Kimball, P.J. Pinter Jr., J.T. Ritchie Jr., MA. Semenov, and M.I. Travasso. Modeling CO₂ Effects on Wheat with Varying Nitrogen Supplies in the Maricopa FACE Experiment. *Global Change Newsletter*.
- Tubiello, F.N., C. Rosenzweig, B.A. Kimball, P.J. Pinter Jr., G.W. Wall, D.J. Hunsaker, R.L. LaMorte, and R.L.

- Garcia. 99. Testing *CERES*-Wheat with Free Air Carbon-Dioxide Enrichment data: CO₂ and water interactions. *Agronomy Journal* 91(2):247-255.



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