

The Jul 28 13:36:23 1998

1

Date: Tue, 28 Jul 1998 15:38:54 -0500

From: Tim Suttles <tim.suttles@gsfc.nasa.gov>

To: Jinxue Wang <jwang@eos.ucar.edu>

Subject: Re: SAFARI 2000

Jinxue,

Below are excerpts from a recent e-mail that Michael King wrote giving his perspective on SAFARI-2000. It contains a good summary of the current thinking on this experimental campaign.

Tim

FROM Michael King 7-28-98

> I just returned from two weeks in South Africa, where I participated in a week-long workshop to frame the objectives and timing of the SAFARI 2000 experiment in Southern Africa. This is (1) a regional initiative involving South Africa, Namibia, Zimbabwe, Botswana, Zambia, Malawi, and Mozambique,

> (11)
> a coordinated validation opportunity for every EOS AM-1 instrument team, > (111) involvement of 3 EOS ground-based validation investigators (Brent > Holben, Darold Ward, and Jeff Privette), (1v) four research aircraft (the > Africa Weather Bureau-SAWB), and coordination with EOS AM-1 overpasses. It > involves both surface and airborne land and atmosphere applications, and is > supported by me (EOS Project Science Office), Bob Curran, Diane Wickland, > and Tony Janetos (NASA Headquarters), as well as many in-country sources in > the South African region. It is, by definition, a coordinated science > program whose support is BYOB (bring your own budget). There will be no > NRA per se, but individuals who see a role or contribution that they can > make to the overall science focus of the experiment, can seek support > through unsolicited proposals with the Science Plan (currently being > written, based on input from the workshop) as a basis. In the next few > weeks, Bob Swap, Tim Suttles, and I will likely brief Diane Wickland, Bob > Curran, and Tony Janetos on the nature of the evolving collaboration.

> Timing: Due to launch delays in AM-1 (and Landsat-7 and SAGE III), this > experiment will be conducted in two phases, a wet season (January-February > 2000, of interest to some in the South African Weather Bureau and Water > Resources Commission, who funds them), and a dry season (August-September > 2000, of primary interest to US participants from the University of > Virginia, Washington, Maryland, and all EOS AM-1 science teams). The > latter phase would be the only one with the ER-2 participating, though the > CV-580 could possibly participate in both phases if the Conqair was left in > South Africa in the meantime (offered by Hobbs when we were in Blydepoort, > South Africa).

> As presently planned, the CV-580 would be based largely in Victoria Falls, > Zimbabwe, near the primary fires in Zambia (Vic Falls is on the border of 4 > countries), with one week in Skukuza, Kruger National Park, South Africa > (location of one of Jeff Privette's two EOS ground validation towers). The > ER-2 would be based in Petersburg, South Africa, a former military airport > with long runway, hangar, etc., and the closest airport to the Zimbabwe > border in northern South Africa. At the end, both aircraft would do some > flights over Namibian stratus (equivalent to Peruvian and California > stratus) that occurs in September of each year. A good cloud validation > opportunity for MODIS. Finally, although all participants in the workshop > were from the land science and atmosphere disciplines (plus a few > engineers), I gave a seminar at the University of Cape Town at the end to > the Department of Oceanography (only one in South Africa) and they were > most excited about having an ER-2 with MAS overflying the Agulhas and > Bengualas current systems off-shore of South Africa.

>Michael

Dr. John T. Suttles ("Tim")
Senior Science Advisor
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Greenbelt, MD 20770
Phone: (301) 441-4028
FAX: (301) 441-2432
E-mail: tim.suttles@gsfc.nasa.gov

Wed Jul 01 10:25:36 1998

foo

To : swapper@virginia.edu,
 TIm Suttles <tIm.suttles@gsfc.nasa.gov>
 Cc : hawks@latrifica.com,
 amnegar@global.co.za,
 tsay@climate.gsfc.nasa.gov,
 Jinxue Wang <jwang@eos.ucar.edu>

Attachment:
 Subject : Re: July Workshop Agenda

----- Message Text -----

Dear Bob and Tim,

Thanks for the invitation to participate in the Blydpoort workshop. Unfortunately, I do not think I will be able to make it this time because of a conflicting MOPITT Correlative Team meeting at NCAR on July 13-14, 1998. Since I am in charge of MOPITT validation and the organizer of this meeting, it is hard for me to excuse myself at this time. I hope I will have the opportunity to attend the next SAFARI-2000 planning meeting. This is really unfortunate since MOPITT is the main instrument for tropospheric chemistry and trace gas sources and sinks study (one of the important science objective of SAFARI-2000) on the AM-1 platform. I am willing to provide viewgraphs on MOPITT validation and trace gas chemistry for you guys to the Blydpoort workshop, please let me know if you need them. The hardcopy of my presentation the last two days may also be useful for discussions at Blydpoort.

I want to emphasize again that we need more CO, CH₄, NOx profiles in order to meet the requirements of MOPITT validation and accomplish some of the important scientific objectives of the SAFARI-2000 mission.

Best regards,
 Jinxue Wang

 * Dr. Jinxue Wang | Phone: (303)497-2905
 * NCAR/ACD | Fax: (303)497-2920
 * P.O. Box 3000 | E-mail: jwang@eos.ucar.edu
 * Boulder, CO 80307-3000 | Web page: http://acd.ucar.edu/~jwang
 * *****

TENTATIVE AGENDA FOR JULY WORKSHOP on Southern African Land - Atmosphere - Biosphere Interactions

Saturday, July 11, 1998: Arrival at Blydepoort

- Arrival at Blydepoort Aventura Conference Centre after midday

Sunday, July 12, 1998: SAFARI 2000 Site Visit

- All day field trip in Kruger National Park; leaving Aventura early returning late; lunch at Skukuza; dinner at Blydepoort (Box breakfast for the road?)

Monday, July 13, 1998: Land/Atm./Bio. Overviews

8:15am - 12:15pm Opening session with overview talks (each on the order of 25 mins with 5 mins for questions:

Welcome, Goals and Particulars of the Workshop - Annegar, Swap, Desanker, Scorgie

Vegetation and Land Use - Scholes

Atmosphere - Garstang

Climate - Mason

Tea Break & Refreshments (15 mins.)

Fire Emissions - Lackson Marufu

Land Use and Global Change - Desanker

Hydrology - Schulze/Kiker

Lunch Break 12:30 - 2:30

2:30pm - 6:00pm Continued Overview Talks

SAFARI 2000 - An Overview - Swap

The goals and science behind NASA's EOS - King

NASA's relationship to SAFARI 2000 - Privette

Tea Break & Refreshments (15 mins.)

Designing/Contributing to the SAFARI 2000 Science Plan - Swap

Charge to Breakout sessions (Land/Atmosphere/Biosphere groups) - designing/contributing components to science plan

6:00pm Rapporteurs meet with organizing committee

Rest of participants free until dinner

Dinner 6:30pm - 7:30pm

Ice Breaker/Poster Session - 8 - 9:30pm

Tuesday, July 14, 1998: SAFARI 2000 Experiment Components - Overviews

8:15am - 12:15pm SAFARI 2000 Experiment Components: Overview Talks cont.

Overview of the day/Changes to schedule - Swap/Annegar (10-15mins.

1 Fire Ecology - Frost

2.	Fire Detection and Validation in Southern Africa - Roy
3.	Assaf Anyamba - NDVI and El Nino
4.	Vegetation Processes - Intro to models - Scholes
5.	Biogenic Emissions - Microbial - Anderson
Tea Break & refreshments (15 mins.)	
6.	Biogenic Emissions - Hydrocarbons - Otter
7.	DEBITS - Pienaar
8.	Atmospheric Chemistry - Hobbs
8.	

Lunch Break 12:30 - 2:30

2:30pm - 6:00pm Regionally Thematic Talks

1	Radiative Importance of Aerosol/Cloud Interaction - Tsay
2	Aerosols and AOT - Holben
3	Aerosols - Terblanche
4	Regional Low level transport/industrial emissions - Held
Tea Break & Refreshments	
5	Funding Opportunities for Regional Scientists - FRD Representative
6	Charge to Breakout sessions/goals questions etc.
	Breakout sessions - include proposal writing hints; training on sun
	photometers; radiometers; streaker samplers

6:00pm

Rapporteurs meet with organizing committee
Rest of participants free until dinner

Dinner 6:30pm - 7:30pm

8:00 - 9:00 pm - Modeling tutorials

Wednesday, July 15, 1998: Modeling

8:00am - 12:30pm Continued Presentations of Specific Thematically Relevant Projects

1.	Overview on SAFARI Modeling - Swap
2.	CO2 and Water constraints on Ecological functioning - Kniveton
3.	Stable Isotopes as tools for Energy/Biogeochemical Tracers - Macko
4.	Ecological Modeling of the Miombo - Friend
5.	Modeling along the Kalahari Transect - Shugart

Tea Break & refreshments

6.	Climate Modeling in Southern Africa - Jury
7.	Ecological and Land Use Modeling discussion/tutorial - Desanker
8.	Computer Demonstrations - AERONET, Ecological, Air Parcel
	Trajectories - Two different rooms with laptops and desktops in
	different rooms - Two groups that will switch after 45 mins. or so.

Lunch Break 12:30 - 2:30

Afternoon off

Dinner 6:30pm - 7:30pm

Thursday, July 16, 1998: Refining the SAFARI 2000 Science Plan

8:30am - 12:15pm

- 1 Presentation of Strawnman Science Plan for SAFARI 2000 and list of project sites
- 2 Data Issues - Suttles, Annegarn/Scholes
- 3 SAVE-EOS site activity description - Privette
- 4 Brief description of project sites (approx. 1.5 hrs) (Slides, Logistics, Communications, Lodging, transports (Muke, Fillipe, Wilferd, Scholes, Pikeeth, Desanker)

Tea Break & refreshments

- 5 Aircraft participation, plans, needs - RSA/USA - Terblanche/Annegarn/Hobbs
- 6 AERONET plans, needs Holben/Swap
- 7 Tentative SAFARI 2K Schedule - Swap
- 8 Outline for Afternoon Breakout Sessions

Lunch Break 12:30 - 2:30

2:30pm - 4:00pm Breakout Sessions

Land, Atmosphere, Biosphere, Groups - discussion of details with regional participants with the following tasks: outstanding logistics needs, points of contacts,

Tea Break & Refreshments

- 4:30 - 6:00pm continued instrument and computer training sessions
- 4:30 - 6:00pm Aircraft groups meet with organizational committee to discuss SAFARI2K flight plans

Dinner 6:30pm - 7:30pm

8:00 - 9:30pm Rapporteurs meet with organizational committee for feedback session

Friday, July 17, 1998: Building Consensus - Achieving Closure

8:30am - 12:15pm Continued Presentations of Specific Thematically Relevant Projects

1. Summary Report of Previous Day's breakout discussions - new charges to breakout groups - Swap/Annegarn/Desanker
2. Continuation of working groups - outlines of thematic groups' chapter(s) for workshop report; action plan required with timetable for the production of the workshop report; compilation of participants' annotated bibliographies for the workshop report; identification of partnering in the formulation and production of research proposals

Tea Break & refreshments

Lunch Break 12:30 - 2:30

Organizational community will meet to work on Science plan

Organizational note - some of the participants will be leaving at this time - NASA group

- 2:30pm - 5:00pm**
1. Group reports - Rapporteurs
 2. Open Discussion on Science Plan; Identification of Emerging Issues
 3. Plan of action/Next steps/ Schedule of events/Wrap up
 4. Depending on time availability, beginning packing before dinner

Tea Break & Refreshments

Dinner/Social 6:30pm - 9:30pm?

Saturday, July 18, 1998

Leave conference centre as soon as possible and head out for Johannesburg - to the airport for those leaving that day.

POSTER SESSIONS: Monday evening - should be able to have those folks speak that we cannot fit into the schedule -

Fri Apr 10 18:00:00 1998

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Date: Fri, 10 Apr 1998 13:24:52 -0500

From: Tim Suttles <tim.suttles@gsfc.nasa.gov>

To: safari2000@virginia.edu

Subject: Logistics for SAFARI-2000 Meeting

SAFARI-2000 PLANNING MEETING

University of Maryland Inn & Conference Center

June 29-30, 1998

LOGISTICAL INFORMATION

The SAFARI-2000 Planning Meeting will be held on June 29-30, 1998 at the University of Maryland Inn and Conference Center in College Park, Maryland. For those not familiar with this facility, it is located about 7 miles from NASA Goddard Space Flight Center with an excellent center for meetings and an inn with convenient, high quality accommodations in the same complex.

REGISTRATION:

Please complete the REGISTRATION FORM and return to Mary Floyd, Jorge Scientific Corporation, by e-mail at "mfloyd@pop200.gsfc.nasa.gov" or by facsimile at 301-220-1704. There is no registration fee for this conference. NOTE: IT IS IMPORTANT THAT ALL ATTENDEES COMPLETE AND RETURN THIS REGISTRATION FORM TO MARY FLOYD.

REGISTRATION FORM

SAFARI-2000 PLANNING MEETING

June 29-30, 1998

_____, Yes, I plan to attend.

NAME:

AFFILIATION:

ADDRESS:

CITY, STATE, ZIP:

COUNTRY:

PHONE NUMBER:

FAX NUMBER:

E-MAIL ADDRESS:

PARKING, ACCOMMODATIONS, & DIRECTIONS

PARKING:

Parking at the Inn and Conference Center is free. When you enter the garage, take a ticket. When you leave tell the attendant you are there for "SAFARI-2000" and they will not charge you.

HOTEL ACCOMMODATIONS:

A block of sleeping rooms has been reserved at the Inn and Conference Center under the name "SAFARI-2000". The rate is \$82.95 single/\$98.70 double occupancy per night, tax inclusive. Each individual is responsible for making their own hotel reservations by calling 1-800-727-8622 or 301/985-7000. Please make your reservation by June 5, 1998. After this

date rooms will be available on a space only basis. If you need to cancel your reservation, please contact the hotel directly 48 hours in advance of the expected day of arrival or you will be charged for one night's stay. Check in is 3:00 p.m. and check out is 12:00 p.m.

NOTE -- Other possible hotel accommodations in this area are:

Holiday Inn, College Park
10,000 Baltimore Blvd. (US 1)
College Park, MD 20740
301-345-6700

Quality Inn

7200 Baltimore Blvd.
College Park, MD
301-864-5820

Comfort Inn and Suites

9020 Baltimore Blvd.

College Park, MD

301-441-8110

Best Western Maryland Inn

8601 Baltimore Blvd.

College Park, MD

301-474-0714

DIRECTIONS:

FROM BALTIMORE:
I-95 South to Capital Beltway (495) to College Park
Take U.S. 1 South (Exit 25)
Proceed approximately 1 mile south on U.S. 1
Turn right on 193 West (University Blvd)
At 3rd traffic light (Adelphi Road) make "U" turn
Turn right into parking garage

FROM ANNAPOLIS AND POINTS EAST:
Route 50 to Capital Beltway (I-95 North)
Proceed on I-95 North to College Park
Take U.S. 1 South (Exit 25)
Proceed approximately 1 mile south on U.S. 1
Turn right on 193 West (University Blvd)
At 3rd traffic light (Adelphi Road) make "U" turn
Turn right into parking garage

FROM WASHINGTON, D.C.:
New Hampshire Avenue (650 North)
Right at light on 193 East (University Blvd)
At 6th light, cross Adelphi Road
Turn right into parking garage

FROM MONTGOMERY COUNTY AND POINTS WEST:
Capital Beltway (495)
Take New Hampshire Avenue/Takoma Park (650 South)
At 2nd light, make a left on Adelphi Road
At 3rd light, make a left on University Blvd
Turn right into parking garage

Dr. John T. Suttles ("Tim")
Senior Science Advisor
Raytheon STX Corporation

Fri Apr 10 18:00:00 1998

3

7701 Greenbelt Road, Suite 400
Greenbelt, MD 20770

Phone: (301) 441-4028

FAX: (301) 441-2432

E-mail: tim.suttles@gsfc.nasa.gov

Wed Apr 01 07:16:13 1998

Date: Tue, 31 Mar 1998 18:18:22 -0800

From: Robert Chatfield <chatfield@clio.arc.nasa.gov>

To: Jinxue Wang <jwang@eos.ucar.edu>

Cc: Robert McNeal <rmcneal@hq.nasa.gov>, gillie@ncar.ucar.edu
Subject: McNeal note; paper, etc.

Hello, Jinxue!

(1) That was a very welcome note from Joe MacNeal, I think!
Let me know how we might cooperate to help with his requests.
I'll call, soon, but next week I have some vacation.

(2) Meanwhile, ... here is info on the "3-d" paper
It is in press in JGR, and may be viewed (www or Adobe .pdf versions) on

<http://sky.arc.nasa.gov/chatfield> or

<http://sky.arc.nasa.gov/chatfield/ForWeb.html>

This simulation compares quantitatively fairly well with what Glenn Sachse
observed (Figure 6)

(3) I must admit that I am still frustrated by some quantitative comparisons
with the very long-distance PEM-Tropics A period. The qualitative tracer
distributions are still very instructive, and help distinguish Australian
from African sources for pollution to the South Pacific. I am working on
several ideas about improving the meteorological simulation, so as get
better quantitative agreement.

regards, Bob Chatfield

See also the WWW movies of the Great African Plume and other
intercontinental transports of pollution.
http://sky.arc.nasa.gov/chatfield/atm_chem.html

Dr. Robert Chatfield 650-604-5490 FAX: 604-3625

Earth Science Division

NASA Ames Research Center: MS 245-5

Moffett Field, CA 94035-1000 USA

Mon Mar 30 08:56:57 1998

Date: Mon, 30 Mar 1998 08:31:02 -0500

From: Robert McNeal <rmcneal@hq.nasa.gov>

To: Jinxue Wang <jwang@eos.ucar.edu>

Cc: gille@ncar.ucar.edu, chatfield@dclo.arc.nasa.gov

Subject: Re: SAFARI-2000 and PEM Tropics-B meeting

Dear Dr. Wang,

Since we last corresponded on this matter there has been a significant development in the area of PEM-Tropics-B/MOPITT collaboration. Bob Chatfield from Ames Research Center has proposed a theoretical and data analysis investigation that explicitly incorporates tying together the MOPITT and PEM-Tropics-B experiments to the extent possible. You and John Gille are listed as collaborating scientists. I know that John is familiar with this development because we spoke about it at the recent UARS Science Team meeting. The decisions are not yet final, but there is a good chance that this investigation will be selected. Bob Chatfield would then become a PEM-Tropics-B Science Team member.

Under these circumstances it appears that a very effective mechanism would be in place. Bob Chatfield, a Science Team member, would then become the best link between MOPITT and PEM-Tropics-B. He would, as the Principal Investigator receive all notifications of meetings etc., and it would be his responsibility to keep his co-investigators and collaborators fully informed, as in the case for all other investigations. Co-I's and collaborators are welcome at Science Team meetings, but the GTE project does not provide travel support for them.

Since MOPITT has not yet been launched and there are no PEM-Tropics B data yet, this first planning meeting would, it seems to me be well supported by a single person from the investigation that Bob Chatfield is heading, but I leave the decision on attendance at this meeting (beyond the required one attendee per investigation) to the investigators involved.

I don't know what the purpose of the SAFARI 2000 meeting is exactly, nor what plans outside this Program there might be to field experiments in 2000. The Tropospheric Chemistry Program is planning nothing in 2000 beyond some test flights of nitrogen instruments.

I am glad that we have a formal investigation proposed to link MOPITT and PEM-Tropics B and I am grateful for the collaboration from the MOPITT team.

Regards,

Joe McNeal

Dear Dr. McNeal:

<It has been some time since we discussed the options for MOPITT and PEM-Tropics-B collaborations. I appreciated your advice and help.

>>From Tim Suttles e-mail, I learned that there will be a SAFARI-2000

>planning meeting at GSFC on June 29-30 and the first PEM Tropics-B

>Science Team meeting at Dryden Flight Research Center on June 30-July 1.

>This is the first time we learned about the upcoming PEM Tropics-B

>meeting. It is really unfortunate that these two important meetings

>will conflict with each other in terms of timing. I do not know if you

>think that we should attend the first PEM Tropics-B meeting to facilitate

>possible collaborations. From our point of view, we would appreciate the

>opportunity to attend. It will be appreciated if you can include me in

>your e-mail list when you have an agenda for the meeting.

>As for SAFARI-2000, I would also like to hear your comments and advice.

>It seems to be a good opportunity to study biomass burning and CO

Mon Mar 30 08:56:57 1998 2

>emission in southern Africa. We also need to validate MOPITT products
>in these regions.

>Thanks you very much. I am looking forward to hearing from you.

>Sincerely,
>Jinxue Wang

>----- Forwarded message -----

>Date: Thu, 26 Mar 1998 10:33:13 -0500

>From: Tim Suttles <tim.suttles@gsfc.nasa.gov>

>To: safari2000@virginia.edu

>Cc: mflyd@pop200.gsf.nasa.gov

>Subject: SAFARI-2000 Meeting

><bold><fontfamily><param>Times</param><bigger><bigger>SAFARI-2000
>PLANNING MEETING

>June 29-30, 1998

>NASA Goddard Space Flight Center

>Greenbelt, Maryland

>USA</bigger></fontfamily></bold><fontfamily><param>Times</param>

></fontfamily><fontfamily><param>Geneva</param>During the past year, the
>scientific basis has evolved for the SAFARI-2000 regional science
>initiative in Southern Africa beginning in 1999 and extending over
>approximately 3 years. SAFARI-2000 builds on previous and on-going
>scientific studies in this region involving international
>collaboration, and includes a satellite data product validation
>component for the US NASA Earth Observing System (EOS).

>The NASA EOS scientific objectives are:

>(1) To provide a scientific context for the validation of products from
>the EOS AM-1 platform (particularly for MODIS-Land, MODIS-Atmosphere,
>CERES, and MOPITT data products).

>(2) To characterize and quantify the sources, sinks, and distributions
>of aerosols and trace gases in southern Africa; particularly for
>biogenic, pyrogenic, and anthropogenic emissions.

>(3) To validate the above sources, sinks, and distributions using
>atmospheric transport and chemistry models, airborne sampling and
>remote sensing, and determine their climate and ecosystem consequences.

>(4) To provide new science inputs to a Regional Science Assessment and
>Future Intergovernmental Panel on Climate Change (IPCC) assessments.

>Key elements for the NASA EOS Validation Program are scientific studies
>of Land Processes, Aerosols, Trace Gas Chemistry, Surface Radiation
>Budget, and Clouds and Radiative Processes. The studies include

>mult-year, ground-based measurements and periodic aircraft campaigns.
>The on-going EOS Validation investigation entitled "Southern Africa
>Validation of EOS (SAVE): Coordinated Augmentation of Existing
>Networks" provides a comprehensive framework of ground-based
>measurements for studies of land surface and atmospheric processes. In
>situ measurements will augment existing NASA Land Cover Land Use Change
>research and terrestrial ecosystems modeling research in the region.

>
>
>To further the development of SAFARI-2000, a planning meeting will be
>held on June 29-30, 1998 at the NASA Goddard Space Flight Center in
>Greenbelt, Maryland, USA. The purpose of this meeting is to discuss
>experiment objectives and implementation options and to define the
>opportunities and requirements for national and international
>cooperation. Discussions of experiment implementation will include the
>observational scenarios, aircraft schedules, measurement systems, and
>logistics.

>
>
>Please mark the meeting dates on your calendar and make your travel
>arrangements. An agenda and lodging and other logistical information
>for the meeting will be distributed soon.

>
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>If you have questions or comments concerning the meeting, please
>contact Tim Suttles at e-mail: tim.suttles@gsfc.nasa.gov, phone: (301)
>441-4028, or fax: (301) 441-2432.

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>*****
>
>Dr. John T. Suttles ("Tim")
>Senior Science Advisor
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>7701 Greenbelt Road, Suite 400
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Thu Mar 26 08:39:31 1998

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Date: Mon, 23 Mar 1998 11:29:00 -0500
From: Tim Suttles <tim.suttles@gsfc.nasa.gov>
To: Jinxue Wang <jwang@eos.ucar.edu>
Subject: SAFARI-2000 Objectives

<fontfamily><param>Geneva</param>jinxue,

Below are the SAFARI-2000 objectives that we have settled on. Chris Justice is a key participant but has been out of the country the last two weeks, so I haven't gotten his final input yet. However, I think these will be OK with him. We decided to keep the language very general to allow flexibility when filling in details later. The objectives are stated here as NASA objectives so that other organization could emphasize aspects other than validation to suit their needs, i.e., the South Africans or the Germans may want to emphasize other things.

Tim

<bold><bigger>SAFARI-2000

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During the past year, the scientific basis has evolved for the SAFARI-2000 regional science initiative in Southern Africa beginning in 1999 and extending over approximately 3 years. SAFARI-2000 builds on previous and on-going scientific studies in this region involving international collaboration, and includes a satellite data product validation component for the US NASA Earth Observing System (EOS).

The NASA EOS scientific objectives are:

(1) To provide a scientific context for the validation of products from the EOS AM-1 platform (particularly for MODIS-Land, MODIS-Atmosphere, CERES, and MOPITT data products).

(2) To characterize and quantify the sources, sinks, and distributions of aerosols and trace gases in southern Africa; particularly for biogenic, pyrogenic, and anthropogenic emissions.

(3) To validate the above sources, sinks, and distributions using atmospheric transport and chemistry models, airborne sampling and remote sensing, and determine their climate and ecosystem consequences.

(4) To provide new science inputs to a Regional Science Assessment and future Intergovernmental Panel on Climate Change (IPCC) assessments.

Key elements for the NASA EOS Validation Program are scientific studies of Land Processes, Aerosols, Trace Gas Chemistry, Surface Radiation Budget, and Clouds and Radiative Processes. The studies include multi-year, ground-based measurements and periodic aircraft campaigns. The on-going EOS Validation investigation entitled "Southern Africa

Validation of EOS (SAVE): Coordinated Augmentation of Existing
Networks" provides a comprehensive framework of ground-based
measurements for studies of land surface and atmospheric processes.

</fontfamily>

Dr. John T. Suttles ("Tim")

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E-mail: tim.suttles@gsfc.nasa.gov

Thu Mar 12 08:52:56 1998

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Date: Thu, 12 Mar 1998 09:52:41 -0500
From: Tim Suttles <tim.suttles@gsfc.nasa.gov>
To: Jinxue Wang <jwang@geos.ucar.edu>
Subject: SAFARI info

Jinxue,

The brief on the Kalahari (now SAFARI-2000) experiment is attached as a MSword document. Let me know if you have problems opening and reading it.

I looked for info on the Aerocommander aircraft and found nothing but a picture of a model 500B. I'm not sure what model the South Africans have, but you can see the picture at <http://www.calweb.com/~byronmcc/>. I'll keep looking and let you know on that.

Also, I checked Peter Hobbs' web site, which is <http://cargsun2.atmos.washington.edu>, but it doesn't have a description of the CV-580. I did find a web site with some CV-580 specs for a passenger version -- <http://era-aviation.com/specs/Conva1r580/> -- and it pretty much agrees with what I thought about this aircraft, i.e., cruise at 25K ft. and I'm guessing a max. altitude of about 30K ft. It's much larger than the Aerocommander and I believe Hobbs would welcome adding some chemistry instruments.

Best Regards,
Tim

[Part 2, Application/MSWORD 118KB]
[Unable to print this part]

[Part 3: "Attached Text"]

Dr. John T. Suttles ("Tim")
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7701 Greenbelt Road, Suite 400
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FAX: (301) 441-2432
E-mail: tim.suttles@gsfc.nasa.gov

From Chris Justice 2/13/98

Kalahari (now SAFARI-2000) Aircraft Planning

I have always presented the proposed 'Kalahari' initiative as a combination of EOS validation and GC science, combining instrument and EOS validation activities with NASA R&A research and IGBP initiatives e.g. the Kalahari Transect and the Miombo Network.

The proposed initiative builds on the Trace-A / SAFARI experiment of 1992 and would provide one contribution to EOS Early Science.

An "Aircraft Component" has been discussed on several occasions over the last 3 years and by email, where we have been exploring the relative cost of different NASA aircraft options, including using in-country aircraft capacity.

The last interdisciplinary session was at Phils Bar and Grill on Rte 1, where it was suggested that the ER2 MAS would be overly expensive and that a combination of light aircraft with land sensors and an aircraft with atmospheric in-situ measurements such as those carried on the University of Washington aircraft in combination with data from the AM platform would provide the best bang for the buck.

As part of this "Kalahari initiative" I held an informal science planning meeting last week at Uva. with some of the interested collaborating scientists from the region to further develop the ideas and the initiative (Justice, Thompson, Swap, Annegar, Scholes M, Doddridge, Shugar, Prince, Scholes R., Privette, Desanker).

As a result, this part of a land / atmosphere initiative is shaping up nicely, and as a first cut could have the following focus :

To characterise and quantify the biogenic, pyrogenic and anthropogenic aerosol and trace gases sources and sinks in southern Africa, validate them using atmospheric transport and chemistry models, airborne sampling and remote sensing, and determine their climate and ecosystem consequences. Providing a scientific context for the validation of products from the EOS AM platform and new science input to the IPCC and a Regional Science Assessment.

(Mike / Yoram please feel free to add in words to capture the cloud science that you would like to see addressed - into this general statement if you feel it appropriate).

Preliminary email with Andrae (Max Planck) indicate that the international 'science' coordination could be placed under the umbrella of BIBEX (as was the case for SCAR) and I would suggest SAFARI 2000 might an appropriate rallying acronym ?

The South African collaborators would like to participate in this initiative both for terrestrial and airborne measurement and can bring some of their scarce resources. I believe that regional participation and collaboration is essential for the success of this initiative. South Africans have good scientific capacity but few resources. Other regional (terrestrial) collaboration will be worked through the Miombo and Kalahari networks and I will be approaching AID for some capacity support for that.

This proposed South African aircraft component could complement a visit to the region from the Washington Aircraft or stand alone and is described below. Depending on what you want to happen we can coordinate the complementarity this summer.

I will be speaking to Diane Wickland next week about a potential R and A terrestrial component. We are hoping to hold a regional "coordination" meeting in South Africa in July of this year which will address the ground and airborne measurement protocols, data policy and management plans and welcome all potential participants.

I would welcome your comments and suggestions.

Chris Justice

Southern African Aircraft Proposal

As part of the activity an intensive flying campaign is proposed to support at least four already funded, ground-based EOS activities within southern Africa. Two 3-4 week intensive airborne sampling campaigns, to coincide with similar regional, ground-based, intensive EOS validation efforts, are proposed for the periods of August-September, 1999 (biomass burning), and January-February, 2000 (wet season).

The proposed intensives would involve two Aerocommander aircraft with 40 hrs flight time (6-8 missions) per seasonal campaign for each of the airborne platforms (total of 160 hrs). The purpose of using two aircraft is to allow for simultaneous measurements in different sections of the same synoptic scale air masses. These dominant synoptic scale systems are primary controls in both the transport and dispersion of natural and anthropogenic trace gases and aerosols (Garstang et al. (1996), Thompson et al. (1996), Tyson et al. (1996)). The opportunity exists to obtain lateral and differentiated vertical measurements of trace species in the lower (<1km) and mid troposphere (6-8km), complementing ground-based validation efforts.

Concurrent sampling of aerosol and trace gas microphysical and chemical properties at synoptic inflow and outflow regions will allow for an expansion of the validation "footprint". In addition, the continuous in situ measurement of CO and O₃ will provide the EOS validation community with a finer vertical and horizontal resolution and understanding of the trace species inhomogeneities than grab samples.

The airborne sampling in support of the ground-based validation of EOS studies will be available for both ground-based intensive periods.

Aircraft and Instrumentation

The aircraft are property of the South African Weather Bureau (SAWB) and are maintained year round for research purposes, and seasonally for cloud seeding and cloud microphysics. These aircraft are available for collaborative research projects on a cost recovery basis. The aircraft are equipped with standard navigation and meteorological instrument packages that are linked to an onboard data logger. The SAWB provides an experienced aircraft technician to assist with the installation of user supplied instrumentation and linking to the aircraft data logging system if required. The a/c are fitted with two nose mounted standard instrumentation pods. User-supplied trace gas and aerosol inlets and/or observation ports are fitted as required. The SAWB are amenable to carrying out timely and certified airframe modifications as required for this proposed study.

[illegible]

International Participants

The South African and German groups are currently funded and collaborating on an airborne aerosol particle sampling campaign entitled "Aerosol Recirculation and Rainfall Experiment" (AREX). This project is funded by the South African Water Research Commission. Aircraft configuration I has already been flown successfully in December 1997.

Date: Thu, 05 Mar 1998 12:53:14 -0500

From: "Robert J. Swap" <rjs8g@virginia.edu>
To: "Paul V. Desanker" <desanker@virginia.edu>

Si-Chue Tsay <tsay@climate.gsfc.nasa.gov>

Anne Thompson <thompson@attorl.gsfc.nasa.gov>

Jeff Privette <privette@chaco.gsfc.nasa.gov>

Bob Swap <rjs8g@virginia.edu>

"Bruce G. Doddridge" <bruce@metosrv2.umd.edu>

Simon Mason <simon@iacosta.ucsd.edu>

Lorraine Remer <remere@climate.gsfc.nasa.gov>

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Elaine Prins <elaine@pssc.wisc.edu>

Eric Vermote <eric@kratos.gsfc.nasa.gov>

"Peter V. Hobbs" <phobbs@atmos.washington.edu>

Subject: SAFARI-2000 IFC Minutes

Hello all,

Please find below the minutes from the first SAFARI-2000 Flying Campaign
Coordination.Let me know if there are any additional names that you would like for me
to add to the SAFARI-2000 Flying Campaign list.

Thanks

Bob

Notes on the preliminary SAFARI-2000 Intensive Flying Campaign planning
meetingThe meeting was held at NASA GSFC at 1:30 pm on March 2, 1998. In
attendance were the following:Anne Thompson
Si-Chue Tsay
Lorraine Remer
Jeff Privette

Saf-2000

Bob Swap

Wed Mar 11 15:15:13 1998

The purpose of this meeting requested by Mike King and Chris Justice was to bring together NASA affiliated parties interested in participating in the intensive flying campaign of the newly planned SAFARI-2000 regional integrated assessment activity in southern Africa and to begin discussion as to how best go about integrating potential players.

An overview of past, current and future scientific activity within the Southern African region, both NASA and non-NASA related was presented by Privette, Thompson and Swap. Previous projects, currently funded and proposed projects and programs discussed are presented below *.

Discussion then shifted to the subject of planned intensive flying campaigns. The proposed cost-shared UVA/UMD/ South African aircraft campaign, much along the line of the two-page proposal circulated by Chris Justice two weeks earlier, was discussed. Emphasis was placed on the availability of two Aerocommanders, both outfitted with similar instrumentation (one set from UMD, the other from Max Planck Institute) for both a dry and wet intensive campaigns in Aug-Sep, 1999 and Jan-Feb, 2000. The point was also made that participation of the regional scientists in any scientific endeavor within the region must be from project design to publication and that of critical importance in that loop is the open availability of all project data. Both Si-Chee Tsay and Lorraine Remer acknowledged the importance of this and used the recent successful collaboration of SCAR-B as a possible example that could be followed. The point was also made that as the South African Conair 580 is a "community" aircraft, the data are to be shared amongst the research community.

The meeting then shifted to discussion of the wants and needs of the parties that Remer and Tsay were representing (Kaufman and King, respectively). Remer volunteered to present the Kaufman's group vision as to needs and wants within the region. Kaufman's group is primarily interested in collecting data to validate the MODIS aerosol and fire products. She stressed the importance of a functional and data quality assured network of sun photometers within the region. She expressed the desire of Kaufman's group to work with Brent Holben and the SAVE group to coordinate data control and instrument quality efforts within the region. She stated that experience with SCAR showed that Aeronet works best when GSFC staff were on site with the sunphotometers. Remer also stated that Kaufman's group would also use data from the Univ. W. Conair 580 that is proposed to fly within the region either in mid to late Aug - Sept, 99 or in Aug-Sept of 2000. Remer agreed to work with Si - Chee and the UW group as POC's for coordinating involvement of the UW aircraft in SAFARI 2000.

Si-Chee Tsay presented a description of the UW Conair 580 and of the NASA ER-2 payloads. Tsay listed all of the salient features of both aircraft and how those features would contribute to the larger validation picture envisaged by Mike King. Tsay also spoke about King's science objective of studying aerosol-cloud interactions combined with EOS product validation and was interested to learn about the South African ARREX project, which will overlap with SAFARI 2000 and is focusing on the role of anthropogenic aerosol in the CCN formation and cloud development over South Africa.

Both Remer and Tsay voiced as the biggest concern the need to secure the NASA MOU's and flight clearances for the C580 and ER2. Tim Suttles will be responsible for developing the MOU's. Shari Kamm from NASA HQ International Affairs has agreed to work with Suttles. It was suggested as an action item that Swap, acting as the SAFARI-2000 Point of Contact, put Tim Suttles in contact with appropriate Southern African

counterparts (FRD, SAWB, CSIR).

It was recognized that time is short to get these in place, the intent to try and have the MOV's set up ready for August 99, however it was recognized that a fallback position would be to fly in August 2000.

The last item of the meeting was plan the next steps for campaign coordination

1) It is proposed that a one-day coordination meeting be held the last week of June (June 29, 30) for the major aircraft/experiment teams. The meeting will be at GSFC and could be coordinated by Sutiles (Tsay to confirm). It was suggested by Remer and Tsay that invitations be extended to the South African aircraft counterparts (Annegarn, Terblanche and the Aerocommander pilot) to attend this meeting. Mike King agreed to invite (cover travel costs) 2-3 high level people from Africa (with attendance of NASA_HQ international affairs) to attend the June meeting at GSFC. The purpose of this meeting is to make sure all the aircraft instrument players have a clear idea of schedules and logistics. A draft agenda will be developed by Tsay and Swap.

2) A regional coordination meeting is planned for July 11-18th in (at Blydepoort), South Africa - to develop the SAFARI 2000 Science Plan with the regional participants, to agree on data protocols and further develop the regional logistics. Swap is the meeting coordinator, Harold from Univ. Wits will be the local host. Representatives from the major US groups will attend.

3) Representatives from the SAFARI 2000 team will attend the IGAC BIBEX meeting in Washington State August 19th (Swap, M. Scholes, Annegarn)

* Previous, current and planned collaborative activities in southern Africa.

Southern African Validation of EOS: Coordinated augmentation of existing networks (SAVE, NASA); the Southern Hemisphere Additional Ozoneonde project (SHADOZ, NASA); the Aerosol Robotic Network (AERONET, NASA); Coupling Land Use and Land Cover Change and Ecosystem Processes in Miombo Ecosystems (NASA); Carbon Cycling in Southern African Savannas: A Collaborative Proposal (NASA); the Miombo Ecosystem Transect study (IGBP); the Kalahari Terrestrial Transect study (IGBP); the Subsistence Rangelands Project (IGBP); the Deposition of Biogeochemically Important Trace Species (DEBITS, IGAC); the Biosphere-Atmosphere Trace Gas Exchange in the Tropics: Influence of Land Use Change" Activity (BATGE, IGAC); the Aerosol Rainfall Regional Experiment (ARKEX; South Africa); the Ben MacDhui High Altitude Aerosol and Trace Gas Transport Experiment (BHATTTEX; South Africa); the South African Atmosphere Research Initiative - 94 (SAARI-94; MPI and South Africa); the South African Fire Atmosphere Research Initiative - 92 (SAFARI-92; MPI, US, Southern Africa); the Transport and Atmospheric Chemistry near the Equator - Atlantic (TRACE-A; NASA). Some mention was made of pending studies as well. Included among these pending studies are: Atmospheric Forcing of the Biogeochemistry of Miombo Ecosystems (to TFCO NASA-MTPE/NSF); Regional and Global Estimation of Aerosol Distribution and its Impact on Climate Forcing (to NASA MTPE); Workshop on Southern African Land Atmosphere Biosphere Interactions (to NSF Intl Programs).

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Wed Mar 11 15:15:13 1998

Tue Feb 10 17:37:11 1998

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Date: Tue, 10 Feb 1998 15:36:17 -0500 (EST)

From: Hank Reichle <henry_reichle@ncsu.edu>

To: Jinxue Wang <jwang@eos.ucar.edu>

Subject: Re: Constant CO region in the Pacific

>Dear Hank,

>

>I sent you an e-mail some time ago regarding the region in the Pacific

>where CO mixing ratio is almost constant. I am not sure you received

>that e-mail. Can you tell me the latitude and longitude ranges where you

>expect the CO mixing ratio is almost constant? When you say it is

>almost constant, do you mean the total column or mainly the

>mid-troposphere as measured by MAPS? Thanks.

>

>Regards,

>Jinxue

Jinxue,

Always as seen by MAPS; we have no other data in the region.

During April 1994 the values were in the 60 to 75 ppbv range from the
equator to 20 S and from 160 E to 160 W.

During October 1994 the values were in the 60 to 75 ppbv range from 10 N to
10 S and from 160 E to 160 W.

During 1984 the values were a little lower over the same region.

Hank

P.S.

How are things going with the February flights? Is there any kind of test
plan, schedule, list of players, etc.? Would like to help if I can.

Hank

Thu Jan 29 16:44:35 1998

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Date: Thu, 18 Dec 1997 10:00:01 -0700

From: "John C. Gille" <gille@ucar.edu>

To: Ilse Aben <I.Aben@stron.ruu.nl>

Cc: gille@acd.ucar.edu, balley@ncar.ucar.edu, jwang@acd.ucar.edu
Subject: Re: MOPITT - SCIAMACHY cross validation

Dear Ilse,

Thank you for your message of 12 December, about being part of the core validation group for SCIAMACHY. That sounds like a very good idea, and I would like our NCAR group to have the opportunity to participate in the cross-validation of MOPITT-SCIA. Thus, put me down as an enthusiastic participant, with the group here.

Best wishes for good times during the holidays.

John