



2001 SIMBIOS SCIENCE TEAM MEETING

NASA Goddard Space Flight Center (GSFC)
Greenbelt, Maryland

- **DAY 1:** January 29, 2001

PLENARY MORNING SESSION

Bldg. 3, Auditorium

Chairpersons: Giulietta Fargion and Chuck McClain

- 8:30 Welcome and meeting goals: C. McClain
- 8:45 Achievements and activities FY01 of SIMBIOS Project: G. Fargion
- 9:05 NASA HQ overview: J. Marra
- 9:15 IOCCG latest activities: V. Stuart

International and US Ocean Color Missions

- 9:30 SeaWiFS mission overview: G. Feldman
- 9:45 MODIS mission overview: W. Esaias
- 10:00 MOS mission overview: A. Neumann
- 10:15 KOMPSAT OSMI mission overview: Y. Kim

10:30 Break

- 10:45 MERIS mission overview: D. Antoine/A. Morel
- 11:00 POLDER-II mission overview: B. Fougne / P-Y Deschamps
- 11:15 OCTS data set and the GLI preparations: T. Tanaka
- 11:30 Chinese OCTS (HY-1) ocean color mission: TBD

SIMBIOS Project partners

- 11:45 Atmospheric aerosol optical properties at the SIMBIOS/AERONET sites: A. Smirnov
- 12:00 Remote sensing support at NIST: C. Johnson

12:30-1:30 Lunch in Bldg. 28 (atrium)

13:30-5:00 **Working groups (1a, 1b and 2)**
Bldg. 28

5:30-6:30 **Poster session**

The poster session is to sketch out the planned SIMBIOS NRA-99 research activities. All team investigators should be familiar with SIMBIOS activities. The purpose of this session is to increase personal interactions among team members as well as to make the best use of limited time. Poster boards (board measurements are 60" wide by 72" high) will be available in the **atrium of Bldg. 28** where posters will be displayed for the duration of the meeting.

6:30-8:30 **Social event:** a cocktail party will be held in the atrium of Bldg. 28.

- **DAY 2:** January 30, 2001
Bldg. 3, Auditorium

PLENARY MORNING SESSION
SIMBIOS PROJECT OBJECTIVES ON DATA MERGING (2000-2003)
Chairmen: Giulietta Fargion and Chuck McClain

8:30 SIMBIOS data merging goals: Chuck McClain

8:45 SIMBIOS Project lessons learned on:

- OCTS/POLDER: Menghua Wang
- MOS/SeaWiFS : Brian Franz

9:15 SIMBIOS Project, present activities:

- OCTS Global reprocessing: Gene Feldman
- Comparison of atmospheric correction algorithms: Menghua Wang
- SeaWiFS present diagnostic data sets: Gene Feldman
- Evaluation of KOMPSAT OSMI data: Brian Franz

10:15 BREAK

10:30 SIMBIOS Team data merging activities:

- Spectral data assimilation for merging: Stephane Maritorena and David Siegel
- Averaging, spatial analysis, blending and statistical methods for merging: Watson Gregg
- CZCS reprocessing results: David Antoine
- IOCCG update on the discussion hold in San Diego on data merging: Robert Frouin

11:30 Discussion and identification of the smaller working group on data merging

12:30 Lunch in Bldg. 28 (atrium)

1:30-5:30 **Working Groups (3, 4 , 5 and 6)**
Bldg. 28

- **DAY 3:** January 31, 2001

8:30-12:00 **Working Groups (7 and 8)**
Bldg. 28

12:30 Lunch in Bldg. 28 (atrium)

2:00-4:00 **CLOSING PLENARY SESSION**
Bldg. 28, Room E210
Chairmen: Chuck McClain and Giulietta Fargion

Topics to be discussed:

- International Team activity
- Focus session reports from working groups (2 to 8)
- Discussion
- Nomination of executive committee for data merging activities
- Adjourn

NOTE: Lunch and working group sessions will be held in Bldg. 28 (i.e., the location of the SIMBIOS and SeaWiFS Projects). Transportation to Bldg. 28 will be provided (see attached schedule). Transportation will be available each day from the hotel to GSFC and from GSFC to hotel. The meeting is scheduled to run each day from 8:30 am to approximately 5:30 pm, including the last day. A lunch area will be available to the team with tables/chairs in the main hall. Limited photocopies will be available at Project Office (room W108), email access will be available in the computer lab (room W291) and open discussion/working rooms W176 and W134.

*******WORKING GROUPS INFORMATION*******

The leaders of each of the working groups will report to the plenary session, with written recommendations being submitted to the Project as well as other key individuals constituting the SIMBIOS executive committee. Some of the working groups need to define objectives, as well as how these objectives will be achieved, and propose a timeline.

- **DAY 1** January 29, 2001

1) PROJECT LOGISTICS AND MANAGEMENT TOPICS

1a) PROJECT REQUIREMENTS, DATA SUBMISSION, SATELLITE SUPPORT, INSTRUMENT POOL AND ROUND ROBIN

1:30-5:00 Bldg. 28, Computer Lab (Room W291)
Chairman: Sean Bailey

- 1:30 Project contractual requirements (reports, evaluation, etc): Giulietta Fargion
- 2:00 SeaBASS 2001 OVERVIEW: Jeremy Werdell and Sean Bailey
 - Bio-optical and atmospheric data format: Jeremy Werdell
 - Satellite support: Sean Bailey
 - Instrument pool rules: Christophe Pietras
 - SXR-II round robin logistics/schedule: Gerhard Meister

4:00 SeaBASS 2001 hands-on data

All investigators will have access to the new SeaBASS 2001 during the entire period of the meeting. Support will be available from Sean and Jeremy only during this workshop. This workshop is hands-on data, data issues, clarifications on data submission (FCHECK), database queries etc. It is recommended that all investigators review the website postings about data format, SeaBASS account rules and data policies. Please contact Jeremy to set up and activate your "SIMBIOS quarterly report" web page on our website.

Feel free to contact our staff for clarification: jeremy@simbios.gsfc.nasa.gov
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pietras@simbios.gsfc.nasa.gov
meister@simbios.gsfc.nasa.gov

1b) HPLC SAMPLES DONE BY SIMBIOS PROJECT: LOGISTICS AND ISSUES

3:30-5:00 Bldg. 28, Room S210
Chairman: Chuck Trees

- Eligible US PI's for pigment analysis are: Arnone, Chavez, Harding, Hooker, Nelson, Mitchell, Morrison, Siegel, Stumpf and Subramaniam- Other PIs are welcome to attend this meeting.
- HPLC samples are targeted only to the first 20 m of the water column (due to economic constrains)

- All US PI's eligible must have tentative cruise schedule for 2001 and # of samples by PI and by cruise. We would like this information prior the meeting. Please email Giulietta at gfargion@simbios.gsfc.nasa.gov

3:30 Chuck Trees will give an overview:

- HPLC protocols for SIMBIOS pigment analysis
- Filter retention variability based on volume differences
- Sample collection, storage, labeling, PI numbering scheme, shipping, etc.
- Pigment delivery dates.

Topics to be discussed:

- priority and # of samples processed by PI
- possible pigment intercalibration efforts between international and national laboratories.
- Ancillary documentation (e.g. station #, depth, date, lat and long, duplicate fluor. analysis at sea)

NOTE: Results of the SIMBIOS Project round robin by Laurie Van Heukelem (HPL/Univ. of Maryland) will be available in the poster session. Laurie will also be available in this workshop for questions.

2) ATMOSPHERIC CORRECTION ISSUES

2:40-5:00 Bldg. 28, Room Skybox (N270)
Chairmen: Gene Feldman and Chuck McClain

Topics to be discussed:

- Model suite
- Turbid waters
- Absorption aerosols
- Dust algorithms
- Other
- Discussion on strategy for comparison of atmospheric correction schemes used for various ocean-color sensors

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- **DAY 2:** January 30, 2001
Bldg. 28

12:30 Lunch in Bldg. 28 (Room W176)

3) SIMBIOS PROJECT OBJECTIVES ON DATA MERGING (2000-2003)

1:30-5:30 Bldg. 28, Room Skybox (N270)
Chairman: TBD

Topics to be discussed:

The first issue that this working group should address is to define what are the concrete objectives to achieve (i.e., what results and end products), now that various satellite ocean-color data sets are available and several ocean-color instruments are flying at the same time. The Project would like to propose two data merger examples of end products.

1) a climatology of chl-a that blends in-situ and satellite data i.e., monthly global fields on a typical 9 km grid. Satellite data input to start should be the first years of SeaWiFS data, OCTS and/or POLDER, and CZCS data, adding in other satellite data (i.e., MODIS, etc) later.

The climatology could be updated every year or two, by including more data as they become available. The blending/interpolation methodology, based on neural networks or more classical concepts (Reynolds, 1988), should be general -- and the methodology could also be a deliverable. It would use either level 3 data (i.e., chl-a), or level 2 data using consistent bio-optical algorithms, or both.

For example, Watson and Project could work on the techniques for blending level 3 data, and Stephane/Dave level 2 data. Comparison of the results from various techniques and the production of the climatology -- and its update, would be made by the SIMBIOS Project.

2) A set of products that blend data from several satellite ocean-color sensors flying at the same time, e.g., SeaWiFS and MODIS, with extension to MERIS and, then GLI, POLDER-2. These products, at the levels 2 and 3, would be similar to those produced by the SeaWiFS project (or perhaps a reduced number of them), but improved in quality because they will combine several data sets. They will not be a climatology, but a time series. The SIMBIOS Project would generate these improved products routinely, adding data from more sensors as they become available.

Several approaches could be investigated to merge the products. This could be done (1) at the top-of-atmosphere level, where the data from one sensor would be mapped spectrally to that of a reference instrument (e.g., SeaWiFS) and then the same atmospheric correction applied, (2) using water-leaving radiances, obtained independently for each instrument, but with consistent atmospheric correction schemes, or (3) at level 3.

The SIMBIOS Project will continue to address specific topics, namely (1) radiometric calibration (i.e., radiometric models and pre-launch calibration, post-launch onboard calibration, vicarious calibration); (2) evaluation of algorithms and products (i.e., bio-optical algorithms, and atmospheric correction), and (3) trails of merging techniques of satellite/other data sets.

At the close of this meeting, the Project would like to identify a small executive team for data merging activities for the 2000-2003. Membership to this team will be by appointment and renewal each year. A tight scientific collaboration is envisioned with stages requiring visits to GSFC. The role of the SIMBIOS Project is to implement the approaches provided by the science team and executive team.

4) IN SITU RADIOMETRIC MEASUREMENTS AND VALIDATION

1:30-5:30 **Bldg. 28, Room E210**
Chairman: Jim Mueller

Topics to be discussed:

- Uncertainty budgets and sources - theory and observation
- Surface waves, ocean BRDF, sky radiance variability...
- Plaque reflectance vs. incident spectral irradiance
- Comparative data sets
- Instrument calibration round-robin (SIRREX follow-on)- participating labs
- SQM and radiometers calibrated by PIs
- Other topics

5) AOT IN SITU MEASUREMENTS

1:30-5:00 **Bldg. 28, Room S210**
Chairmen: Mary Jane Bartholomew and Christophe Pietras

Topics to be discussed:

PREDE, MicroTops, LIDAR, SIMBADA and SHADOW BAND

- Calibrations
- Uncertainty budgets and error sources - theory and observation
- Processing code (algorithms etc.)
- ACE activities/coordination
- LIDAR deployment
- Other topics

6) BIO-OPTICAL ALGORITHMS

3:00-5:00 **Bldg. 28, Room W230F**
Chairman: Bob Arnone

Topics to be discussed:

- CDOM
- TSS
- S/Q bidirectionality of the ocean reflectance in Case 1 and Case 2 waters
- SeaWiFS ocean color archived and evaluation products
- Mask and flag algorithms
- Other

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- **DAY 3** January 31, 2001

7) OPTICS PROTOCOLS REVIEW / FUTURE UPDATES

8:30-12:00 **Bldg. 28, Room Skybox (N270)**
Chairman: Jim Mueller

8:30-9:00 SIMBIOS Protocols overview: Jim Mueller

Discussion on future updates

- Optical and bio-optical arrays and moored and drifting buoys,
- Normalized Remote Sensing reflectance BRDF and other factor
- Inherent Optical Properties (IOP)
- Airborne remote sensing protocols
- other

Jim Mueller's objective is to finalize the outline, authorship, and schedule for revision 3 to the protocols (final draft to GSFC on 1 Oct. 2001 and publication by 1 Dec 2001), and to earmark new chapters and major revisions deferred to revision 4 (Oct and Dec 2002). For each new chapter, or major revision to an existing one, the Project would like an agreement and firm commitments on:

- Scope and outline of the new or revised chapter.
- Lead Author and co-authors
- Schedule, including deadline for first complete draft, revisions, and final draft

8) INTERNATIONAL COLLABORATION ON OCEAN COLOR VALIDATION

10:00-12:00 Bldg. 28, Room E210

Chairmen: Chuck McClain and G. Fargion

Topics to be discussed:

- MOBY data products
- Preparation for MERIS, KOMPSAT, ADEOS II (GLI & POLDER)
- OCTS data distribution
- In situ data (SeaBASS & counterpart databases)
- Vicarious calibration methods used by the Project and others
- Validation match-up and time-series data analysis
- Opportunities for collaboration and international cruises
- Other

12:30 Lunch in Bldg. 28 (Room W176)

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SECURITY CLEARANCE

Civil servant personnel from NASA Headquarters and other NASA centers may enter GSFC via the Main Gate located on Greenbelt Road (Route 193). You need only show your NASA badge to the guard as you drive through. All other meeting participants must obtain a Special Event/Visitors Badge at the Main Gate. As you turn into Goddard off of Greenbelt Road, pull into the visitors parking lot immediate to your right and go into the Gatehouse. Please have a valid, government issued photo identification (i.e., driver's license, passport). If you have a green card and/or a passport, you must have the original document with you at all times. Xeroxed or faxed copies of a green card or passport will not be accepted. The Special Event/Visitors Badge should be kept on you at all times while on GSFC grounds.

TRANSPORTATION

- We have a 47-passenger bus to transport participants. The schedule is as follows:

January 29, 2001

7:30 am	Leave Holiday Inn-Greenbelt
7:45 am	Stop at Goddard Security Gate for participants to pickup badges
8:00 am	Arrive Bldg. 3 Auditorium
12:20 am	Take participants from Bldg. 3 Auditorium to Bldg. 28
8:30 pm	Leave Bldg. 28
8:45 pm	Drop people at the Holiday Inn-Greenbelt

January 30, 2001

8:00 am	Leave Holiday Inn-Greenbelt
8:15 am	Stop at Goddard Security Gate for participants to pickup badges
8:30 am	Arrive Building 3 Auditorium
12:20 am	Take participants from Bldg. 3 Auditorium to Bldg. 28
6:00 pm	Leave Bldg. 28
6:15 pm	Drop people at the Holiday Inn-Greenbelt

January 31, 2001

8:00 am	Leave Holiday Inn-Greenbelt
8:15 am	Stop at Goddard Security Gate for participants to pickup badges

8:30 am Arrive Bldg. 28
2:00 pm-5:00 pm The bus will be waiting in the parking lot for those that may have to be taken to front gate to be picked up for the airport or taken back to the Holiday Inn Greenbelt

MEALS

- Day One** – Continental Breakfast (Bldg. 3), Lunch (Bldg. 28 Atrium), and Afternoon Break (Bldg. 28, Atrium)
Day Two – Continental Breakfast (Bldg. 3), Lunch (Bldg. 28 Atrium), and Afternoon Break (Bldg. 28, Rm. Atrium)
Day Three - Continental Breakfast (Bldg. 28, Rm. W176), Lunch (Bldg. 28 Atrium), and Afternoon Break (Bldg. 28, Atrium)