

Minutes

**NORTH AMERICAN SIMMOD USER'S GROUP
(NASUG)
OAK RIDGE, TENNESSEE
SEPTEMBER 16 & 17 1999**

This sixth meeting of the North American SIMMOD User's Group (NASUG) was graciously hosted by Rajendra Jain of InteliSim Inc., and was chaired by Dorothy Brady of HNTB.

Attendees included:

Eric Boyajian, ATAC
Greg Bradford, ATAC
Dorothy Brady, HNTB
Frank Fullone, Landrum & Brown
Belinda Hargrove, TransSolutions
Shahab Hasan, NASA Ames

Rajendra Jain, InteliSim Inc.
Qianlin Li, Landrum & Brown
Alan Miller, TPG America
Roger Price, NAV CANADA
Mihir Shah, Ricondo & Associates

AGENDA ITEMS 1 THROUGH 4

The first day's agenda was preceded by participant registration, sign-ups for Thursdays social evening, and a Friday afternoon tour of Oak Ridge National Lab nuclear facilities. Dorothy thanked those present for attending and indicated that the presence of hurricane Floyd, which was currently lying off the U.S. east coast, had prevented several members of the NASUG from attending this meeting. As a result agenda item 6, Anchorage SIMMOD Study, to be presented by Al Schwartz of the FAA Tech Center, and agenda item 11, Batch Runs to be presented by Qianlin Li, of Landrum & Brown were deferred until the next meeting. (***ACTION – Dorothy Brady***)

Dorothy indicated that our current secretary, Tony Vanchieri, was unable to attend and there would be no minutes available from the last meeting. Hence, there was no review of the minutes and no record of action items for follow-up. Further, due to funding and other restrictions to his office, Tony will no longer be able to act as Secretary for NASUG meetings. Dorothy asked that a member volunteer to act as secretary for this meeting. Roger Price agreed to take notes and prepare minutes of the meeting.

AGENDA ITEM 5 – NASA AS SIMMOD CARETAKER: STATUS AND PLANS (Shahab Hasan, NASA Ames)

Shahab gave an overview of past SIMMOD development and funding history, followed by current status and future plans. Briefly, NASA assumed the role of "SIMMOD Caretaker" from the FAA for the 1999 fiscal year. As has been done in the past, maintenance and distribution of the SIMMOD engine is being contracted out to the ATAC Corporation through NASA (indirectly through the FAA). ATAC under contract to NASA has been asked to consolidate bug fixes and logic changes undertaken by other users, and produce an updated SIMMOD engine (Version 2.3). This contract expires October 1999, and it is anticipated that ATAC will release SIMMOD Version 2.3 late in October 1999. Greg Bradford offered that ATAC had received logic code changes and bug fixes from Eurocontrol and Virginia Tech, and anticipated receiving information from TransSolutions in the near future. Shahab indicated that NASA intends to continue supporting SIMMOD. A SIMMOD maintenance contract for the 2000 fiscal year is to be determined, but Shahab did indicate that the prospects for funding look promising. Shahab briefly touched on the issue of the selection process for a future development/maintenance contract. It was indicated that the contractor must be selected

in a fair and open competition. Inquiries may be directed to Nellie Powell at 605-604-3003 or npowell@mail.arc.nasa.gov.

Shahab's presentation elicited numerous questions, followed by discussion on some of the issues raised. Among the issues discussed were:

- Would the FAA bless this new Version 2.3 as "Official"?
- What platforms would be supported (UNIX still active in some circles, Europe especially)?
- The establishment of another "official" tester besides ATAC, with possible ESUG involvement (AENA);
- The establishment of a "wish list" of logic changes and/or bug fixes; and
- Version control and integration of logic/bug fix/code changes.

Of the issues raised, the issue of establishing and prioritizing a SIMMOD "wish list" received the most discussion. It was resolved that ESUG and NASUG members should submit their "wish list" of logic upgrades/changes to NASA through ATAC's web site. (**ACTION – All Members**)

It was asked that ATAC establish the priorities for wish list submissions and then solicit comment/feedback from the users via e-mail on a quarterly basis. It was noted that "Engine" changes/upgrades should take priority over SIMMOD *Plus* pre/post processor requests. (**ACTION – ATAC**)

***AGENDA ITEM 6 – ANCHORAGE SIMMOD STUDY (Al Schwartz, FAA Tech Center)
DEFERRED TO NEXT MEETING***

AGENDA ITEMS 8 & 10 – RECENT SIMMOD ENGINE BUG FIXES/NEW FEATURES & Y2K COMPLIANCE (Eric Boyajian, ATAC)

Eric began with a brief synopsis of the recent developments in the SIMMOD engine and re-iterated some of what was brought to light in Shahab's presentation on NASA's involvement in the development of SIMMOD. ATAC is currently under contract to NASA to configure a new "Official" SIMMOD engine and all SIMMOD engine developers were encouraged to contribute. The new SIMMOD engine, Version 2.3 will be released mid-October 1999. Eric capsulated recent engine changes and enhancements, including procedure and runway logic modifications, taxi logic modifications, and Input/Output modification.

Discussion ensued on bug fixes, new versions and new version release notes. The point was made that logic changes need be clearly documented, with consequences of the logic changes clearly explained. There was dialogue exchanged between the members on methods of documenting and distributing release notes.

Members exchanged information on known bugs. Among those identified were:

- de-icing logic problems , and a so called de-icing queue “black hole”;
- U-turn logic – aircraft are not recognized as being on the runway, an arriving aircraft will land on top of another aircraft which has had U-turn logic imposed on it;
- procedure logic - aircraft being released from a departure queue then being blocked by a close in arrival.

There was a raised question with regard to trace numbers and their associated messages for the new engine. Members agreed that there, is a requirement to precisely define all trace numbers and what the output message represents. An updated detailed list of trace numbers and message output definitions is called for. (**ACTION – Belinda Hargrove**)

There was a brief discussion on Y2K issues. Eric offered that ATAC has the Y2K compliant windows based compiler for the SIMMOD engine and the first Y2K compliant version released was Version 2.2.27.2.

Finally, Eric indicated that when contacting ATAC with SIMMOD *Plus* inquiries, questions/inquiries with regard to the engine should be addressed to himself and pre/post processor and GUI questions should be addressed to Greg Bradford.

AGENDA ITEM 7 – CALIBRATION PROCESS (Belinda Hargrove, TransSolutions)

Belinda Hargrove provided an informative presentation on the “SIMMOD Calibration Process”. Her talk addressed the question of why it is important to calibrate a SIMMOD model and differentiated between verification and calibration. She briefly outlined the approach that TransSolutions takes when undertaking a calibration exercise, and covered calibration measures or indicators which could be used in the exercise. Data sources for the three main calibration measures of flight demand, airspace activity, and airfield activity were identified, and there were several examples shown of OOOI data, taxi time data, traffic data and runway usage.

There was a brief discussion at the end of the presentation on SIMMOD *Plus* reporter capabilities or lack thereof. It was also mentioned that previous versions of the DOS reporter provided gate utilization statistics and that in some modeling exercises these statistics could also be a good indicator or measure to use in calibrating the model. The issues of the DOS reporter and whether there may be any Y2K problems associated with that executable was also brought up.

AGENDA ITEM 12 – NASUG HOME PAGE DISCUSSION (Dorothy Brady, HNTB)

Dorothy Brady provided a short presentation on an initiative to create a NASUG Web site. The presentation was intended to provoke conversation and discussion on the idea, and to provide

answer to questions such as: where will it reside; who will create it and maintain it; and what will the contents be? Dorothy provided a sample of what the Web site could contain as far as contents and links to other sites. There was discussion on the following proposed contents:

- Welcome Page, containing NASUG Charter, Chair, Secretary, SIMMOD info;
- Member page, with click to join NASUG e-mail list;
- Minutes of last and previous meetings;
- Information on upcoming meetings (NASUG and possibly ESUG);
- Wish list information (as discussed under Agenda Item 5 above), and link to ATAC wish list site; and
- Links to NASA Ames, ATAC, Le Tech, ESUG, Eurocontrol, FAA, Consultants sites.

There were several identified items which needed to be addressed before a NASUG Web site could be established, they were:

1. The establishment of a host server (**ACTION – Greg Bradford**);
2. The registering of a domain name (**ACTION – Raj Jain**); and
3. The development of HTML code for the site (**ACTION – Belinda Hargrove/Dorothy Brady**).

AGENDA ITEM 13 – SIMMOD NEWSGROUPS, SIMMOD BUG REPORTING/TRACKING SYSTEM (Greg Bradford, ATAC)

An insightful presentation on two SIMMOD resources available on the Internet was provided by Greg Bradford of ATAC. Greg first introduced information regarding ATAC's soon to be available SIMMOD maintenance WWW site. ATAC's goal for this site is to have a complete SIMMOD support WWW site. The site will include a user's database, a facility to report SIMMOD bugs, the capability to check for progress on reported bugs and a search capability to view similar bugs. Although the site was not ready at the time of the meeting Greg provided samples pages from the site including, the Login page, the SIMMOD Engine main page, the Report a Bug page and the Search page and examples.

The second item in Greg's presentation dealt with ATAC's recently activated SIMMOD Newsgroup System. ATAC's goal for the newsgroup is to let SIMMOD users locate each other, exchange ideas, ask questions, and trade files. Although the site has only been active for a short period, there has been broad participation by SIMMOD users. The site is located at <http://www.atac.com/plus/news/news.html>. SIMMOD users are urged to read and check the system on a regular basis and if you know the answer to a question do not hesitate to reply.

AGENDA ITEM 9 – BENEFIT COST ANALYSIS (Qianlin Li, Landrum & Brown)

The airport at Dayton Ohio is Emery Worldwide's principle hub. Qianlin Li of Landrum & Brown provided an interesting presentation on L&B's use of SIMMOD to assess the ability of the existing airfield and it's proposed Master Plan alternatives to meet Emery's operating

requirements. The exercise undertaken quantified the benefits of the proposed Master Plan alternatives over the existing airfield, and determined the time frame for implementation of the specific alternatives. Those alternatives included an extension to Runway 06R/24L, the extension and displacement of Runway 18/36 and finally the addition of a third parallel runway.

It was determined that the existing Dayton airside infrastructure would not meet Emery's night time operating window requirements in the year 2003 and beyond. By the year 2008 Emery's hub operation would be severely disrupted without any airfield improvements. Through an analysis of operating performance and operational benefits the optimum time frame for implementation of airside developments was identified. It was determined that the extension to Runway 06R/24L should be implemented by the year 2003, with a payback period for construction costs being recovered in operating benefits in approximately 2 to 3 years. The extension and displacement of Runway 18/36 would provide operating benefits above and beyond those of the Runway 06R/24L extension, around the year 2010. The third parallel runway would not be required until after 2015.

AGENDA ITEM 14 – EXPERT WORKSHOP: PROCEDURES (Belinda Hargrove, TransSolutions)

The last presentation for this meeting was a workshop on procedures given by Belinda Hargrove of TransSolutions. Belinda covered all facets of procedure development and included the following topics:

- procedure inputs;
- related procedures
- procedure inputs and guidelines;
- modeling land and hold short operations;
- modeling departure queues on and off the runway; and
- specifics of arrival and departure procedures.

The workshop precipitated much discussion on application of procedures and procedure logic. One of the important items that was brought to light was that distance blocking in departure/departure procedures is no longer taken from the interface node. The logic has recently been changed so that distance blocking for subsequent departures is taken from the first node that an aircraft encounters on the runway. This change in logic underscores the necessity to sufficiently document and communicate such changes to the user community.

The meeting concluded with discussions on the date, place, time, format and agenda for the next meeting.

The location of the next meeting will be Herndon Virginia, to be hosted by Geoffrey Baskir of Parsons Brinckerhoff. It was decided that we would try a change in format, from a two day, to a one day meeting, with a dinner the night before the meeting. The tentative date set was Thursday March 9, 2000, with a dinner to be held the evening of Wednesday March 8th.

Suggested agenda items included:

- presentations left over from this meeting
 1. Anchorage SIMMOD Study – Al Schwartz, FAA Tech Center
 2. Batch Runs – Qianlin Li, Landrum & Brown
 3. discussion/review of the NASUG Charter
- Montreal Dorval Engineered Performance Standards, SIMMOD and TAAM parallel study - Nathalie Martel, ADM
- 3D Graphics (virtual reality type) – Dorothy Brady, HNTB to ask Waymon Armstrong, Vice President of Engineering & Computer Simulations, Inc.
- Today's actual performance vs. SIMMOD results
- FAA's San Diego Study, Tech Center
- West Coast Airport Study, Al Schwartz, Tech Center
- Software developers perspective, moving from SimScript to some other language/architecture, Raj Jain
- ATAC technical design document for SIMMOD with C++
- Ways to present SIMMOD results, HNTB, L&B, ATAC, TransSolutions, Tom Nissalke
- Update on SIMMOD engine bug fixes/new features
- NASA contract status
- Review of TRB SIMMOD/TAAM Workshop