Minutes

NORTH AMERICAN SIMMOD USERS GROUP (NASUG)
WASHINGTON, DC
MARCH 9, 2000

This seventh meeting of the North American SIMMOD Users Group (NASUG)was graciously hosted by Geoffrey

Baskir of Parsons Brickerhofff, and was chaired by Dorothy Brady of HNTB.

Attendees included:

Geoffrey Baskir, Parsons Brickerhofff
Dorothy Brady, HNTB
Frank Fullone, Landrum & Brown
Suna Hafizogullari, TransSolutions
Shahab Hasan, NASA Ames
Angela Jamison, HNTB
Qianlin Li, Landrum & Brown
Scott McMichael, ECS
Tom Nissalke, City of Atlanta, Dept. of Aviation
Roger Price, Roger D. Price Inc.
Robert Samis, FAA
Brent Smith, ECS
David Winer, FAA - Retired
Eric Boyajian, ATAC
Frank Cheung, Ricondo & Associates
Don Guffey, FAA – System Capacity
Belinda Hargrove, TransSolutions
Raj Jain, Intelifirm Inc.
Asraf Jan, FAA
Paul McGraw, ATA
Alan Miller, TPG America
Daniel C. Penrith, FAA
Jasenka Rakas, Univ. of Maryland
Paul Sconfeld, Univ. of Maryland
Toni Trani, Virginia Tech

Agenda Items 1 through 5

Dorothy called the meeting to order and thanked those present for attending. It was noted that the attendance for this meeting was more than double of that of the previous meeting, for which the presence of hurricane Floyd, last September, had prevented several members of the NASUG from attending

The agenda was reviewed and it was agreed that Item 17 – Date and Location of the Next Meeting, would be moved forward and discussed at the beginning of the meeting prior to Item 6 - The NASA Update.

Dorothy indicated that Tony Vanchieri, was no longer be able to act as Secretary for NASUG meetings. Roger Price had volunteered to take notes and prepare minutes of the September 1999 meeting and would continue those duties, with the approval of the group. There were no objections, and Roger agreed to continue as Secretary through Dorothy's tenure as Chairperson.

The minutes of the September meeting were reviewed and the following was noted on the Action Items:

- The Anchorage SIMMOD Study which was originally to be presented by Al Schwartz in Oak Ridge Tenn. will be rescheduled to a future meeting. (***ACTION*** **– Dorothy Brady)**
- It was suggested that a more formal mechanism, other than the SIMMOD News Groups at the ATAC sponsored web site, needs to be established for the management of the SIMMOD wish list. Raj Jain indicated that he would be willing to set up a list server for this purpose. (***ACTION*** **– Raj Jain)**

- From the previous meeting a question was raised 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. Belinda Hargrove will pass what information TransSolutions has on this item to Greg Bradford of ATAC. (***ACTION*** **– Belinda Hargrove**)

Item 17 – Date and Location of Next Meeting

Landrum and Brown's Chicago office has graciously offered to host the next meeting. There was discussion of whether the meeting should be one or two days. It was agreed to limit the meeting to one day, with a tour and diner the afternoon and evening before. Preliminary dates were set as Thursday September 7th and Friday September 8th. L&B will arrange for a tour of Chicago O'Hare Airport on the afternoon of Thursday September 7th, with a diner to follow in the evening. A full days meeting will be scheduled for Friday September 8th.

Item 6 - NASA Update (Shahab Hasan, NASA Ames)

Past & Current

In 1999 NASA assumed the "caretaker" role for SIMMOD from the FAA. The maintenance and distribution for the SIMMOD engine was contracted out to ATAC Corporation and ATAC released SIMMOD V2.3, the new "official" version of the engine.
For FY 2000 NASA is again paying for the maintenance and distribution of the SIMMOD engine with the work again being done by ATAC Corporation. The contract vehicle is through NASA's Aviation Safety Program which has a NAS Modeling component. The FY 2000 contract expires October 15, 2000.

Future

NASA intends to continue supporting SIMMOD. Shahab indicated that funding availability is less uncertain now, so future support of SIMMOD is more likely. Future funding for SIMMOD support will most likely come through NASA's Advanced Air Transportation Technologies (AATT) Air Traffic Management System Development and Integration (ATSMSDI) contract which was awarded in March 2000 and will run through fiscal year 2004.

In addition to maintenance and distribution, NASA also plans to fund SIMMOD enhancements. Possible enhancements proposed by NASA include:

- Traffic Demand Schedule Generation. This involves the automation and specification of turnarounds.
- Gate Utilization Planning. Given a flight schedule and airport gate resource data, the planning logic would output a flight schedule with a gate assigned to each flight.
- Dynamic Gate Reallocation. This would be a logical extension of the Gate Utilization

Planning

There was subsequent discussion on what parts of SIMMOD qualify for NASA funding. It was offered that items such as input/output files, history file output upgrades may be considered to qualify as "core" components. Shahab re-asserted that NASA funding would be directed at the software "core" and that support would not be intended for pre or post processors.

Discussion migrated to the "wish list" for enhancements and fixes which was brought up at the last meeting. Some of the items which were identified were, in addition to those identified by Shahab were:

- New updated Inprep file with more detailed travel and delay results by flight (for example, 1) departure gate hold due to a full departure queue is currently added in with "Gate Delay" and is not easy to separate out, and 2) when departures are delayed from pushing back due to perhaps DSD Path limits the delay is added in with "Gate Use" and is not easy to separate out).
- Better Dynamic Taxipath Logic (optimal taxipath logic that chooses the best path depending on what other aircraft are doing, and updates the plan when necessary).
- Automatic Arrival Spread Logic (the user tells SIMMOD to spread arrivals enough so that one or more departures can take off between subsequent arrivals).
- Departures consider procedure, air node, wake turbulence, and route separations before being released for takeoff.
- Improved Landing roll and departure takeoff roll profiles (based on algorithms developed by Toni Trani at Virginia Tech).
- Batch run capabilities.
- Arrival Spread capability due to departures on other dependent runways.

There was some discussion that perhaps fixes and corrections to existing SIMMOD logic should take precedent above

adding new features.

As mentioned previously, it was suggested that a more formal mechanism than the SIMMOD News Groups at the ATAC sponsored web site needs to be established for the management of the SIMMOD wish list. Raj Jain indicated that he would be willing to set up a list server for this purpose. It was resolved that members should submit their "wish list" of logic upgrades/changes through the list server to be established by Raj Jain. (***ACTION*** **– Raj Jain / Members)**

Raj Jain proposed that SIMMOD should be re-written or transferred to a higher level language. Shahab indicated that such an initiative was beyond the immediate scope of the funding, and could perhaps be considered at some future point.

Dorothy indicated that ESUG should be kept "in the loop" on wish list issues and initiatives. She will contact Peter Crick and coordinate their involvement. It was also mentioned that future tele/video conferencing between ESUG/NASUG may be advantageous in dealing with issues of common interest. . **(*ACTION* – Dorothy Brady)**

Agenda Item 7 – 3D-Animation/Virtual Reality Demo, Brent Smith & Scott Mc Michael ECS Inc.

Brent Smith and Scott Mc Michael of Engineering and computer simulations Inc. gave a demonstration of their company's 3D Simulation/Virtual Reality software. ECS has been involved in real time 3D simulation since 1994 and is a member of the National Center for Simulation. They are currently providing services to 14 international airports including, Atlanta, Miami, Orlando, Jacksonville and Dayton. It was explained that the runtime applications of the 3D simulations are written in C++, which allows the import of data from other simulation software packages, including SIMMOD.

SIMMOD's input and output files (link/node systems and animation files) are integrated with CAD files into a real-time interactive 3D environment. 3D representation of aircraft traverse a 3D model of the airport following SIMMOD's animation file direction and the software includes a curve smoothing algorithm for the more realistic depiction of turning aircraft. The software is also capable of tracking aircraft from any viewpoint, and users can look upon the airport/airspace environment from any perspective they choose, including that of a controller looking out of the ATC Tower cab.

The software is currently not implemented in the PC platforms, but the company anticipates that there will be future portability to PC graphics cards. The next revisions of the software will also include more intelligence which will eliminate node sharing which is built into the SIMMOD link/node structures, and will include a node editor which will allow the user to move nodes in real time.

For more information visit the ECS website at www.ecsorl.com.

Agenda Item 8 – RECENT SIMMOD ENGINE BUG FIXES (Eric Boyajian, ATAC)

Eric began with a brief synopsis of the recent developments in the SIMMOD engine. ATAC is currently under contract to NASA to carry out bug fixes and enhancements to the new "Official" SIMMOD engine (v2.3). The updated SIMMOD engine, V 2.3.1 is expected to be released in April 2000 and includes seven enhancements and bug fixes to version 2.3. Eric capsulated recent engine changes and enhancements, which are described below:

- Modified taxi logic. Previously, aircraft rolling on runway (and high speed exit) links during takeoff and landing rolls would not be included in ground link occupancy counts. Such aircraft are now counted.

- Enhanced checkpoint logic. Previously, it was necessary to define staging areas if a default checkpoint was defined for a gate. Staging areas no longer need to be defined for the arrival checkpoint/gate logic to function properly.

- Enhanced landing logic. Previously, the landing logic assumed that the arrival interface node would be located at the arrival end of the runway. The new logic assumes that the arrival interface node is located at the arrival procedure start node which may be any node on the runway. If the procedure start node is "upstream" of a defined runway

threshold, the aircraft will overfly a sufficient distance along the runway links so that it touches down at the displaced threshold. If a procedure touch-down distance is defined, the aircraft will overfly that amount of ground link distance from the procedure start node. Any overflight of the runway due to a displaced threshold will concurrently satisfy that amount of a defined touch-down distance and vice versa.

- Restored the alternative usage of the QI and QO codes in SIMU26 history file. Changed the effect of the use_depq_hold_codes global input. These codes are provided when the use_depq_hold_codes is set to 2. Each time a departing aircraft must hold while taxiing to the departure queue, all the links in its taxi plan between its current ground node and the departure queue are checked to determine if they are filled to capacity. On the first occurrence when this is true, a QI code is written for that aircraft (in addition to the appropriate hold code). If no QI code is written while the aircraft is taxiing, one is written when it enters the departure queue. A QO code is written when the aircraft exits the departure queue. Consequently, a single QI/QO code pair is written for each departure flight. If the ground link is not filled but is part of a DSDPATH that is filled, the ground link is considered to be filled to capacity.

- Enhanced DSDPATH logic. Previously, a ground link could be assigned to only one DSDPATH. Now, a ground link may be assigned to any number of DSDPATHs.

- Added AFLINK_SPEED_TYPES input. This set of inputs allows the analyst to group airfield links into airfield link types. For each airfield link type, the analyst can then specify a taxi speed for any combination of aircraft model and arrival/departure type. Any such defined speed supersedes the airfield link taxi speed specified in the AFLINK inputs.

- Fixed a bug in the procedure logic. Previously, an arrival would not activate its procedure logic if it was more than two links away from its interface node, regardless of the value of the global variable max_num_final_arrival_links. This is now working correctly.

Eric also introduced a possible change to departure procedure logic. Currently, if an arrival lays down runway reservations while a departure is taxiing from the departure queue to the runway, the departure will be stopped at its procedure start node on the runway, because the departure rechecks for runway reservations when reaching the runway. The proposal was to eliminate the reservation check by the departing aircraft but for it to continue to perform the runway occupancy recheck.

Discussion followed on bug fixes, enhancements and the "wish list". Eric's proposal for the change in departure logic was accepted by the group. Dorothy identified the "spread gap logic" as another item which may be considered as a possible high priority on the "wish list". Instead of having the analyst try different values in a trial and error approach, have SIMMOD determine what is required automatically in order to facilitate departures between subsequent arrivals.

Finally, there was a suggestion by Raj Bain that the list server be used to communicate interim engine changes and bug fixes. There was ensuing discussion and it was decided that for the present the ATAC SIMMOD engine site would continue to serve that function.

Agenda Item 9 – TransSolutions SIMMOD Engine Modifications (Suna Hafizogullari, TransSolutions)

Suna indicated that the logic enhancements discussed in her presentation were driven by requirements to accurately model operations at DFW and were funded by DFW. The logic enhancements included changes to:

- Aircraft separation multipliers;
- Banks;
- Runway crossing; and
- Procedure selection.

The following is a brief overview of the changes and enhancements detailed in Suna's presentation.

Aircraft Separation Multipliers Logic Changes

Suna pointed out that in the AIRCRAFT card, the user can specify a probability distribution as a multiplier for the aircraft separation. The intrail separation multiplication factor for an aircraft group is common for both arrivals and departures. TransSolutions modified the multiplier logic to enable the user to differentiate separations multipliers for arrivals and departures.

Banks Logic Changes

The BANKS card allows the user to hold departures at their gates until the connecting arrival flights have parked at the gates, and provides the ability to specify sufficient time to connect passengers, crew, and bags. TransSolutions modified the logic so that a flight number can exist in one bank/complex as an arrival and be a departure in a different bank/complex.

Runway Crossing Logic

Currently the RWYCROSS logic allows inputs for each crossing for the waiting time and number of aircraft to switch priority between departures and runway crossings. SETXNG allows an input for the airport for the total number of aircraft crossing a runway. TransSolutions modified the SETXNG logic so that the user can differentiate between runways. An optional input has been introduced so that the user can specify the number of aircraft waiting to cross for each runway.

Procedures Selection Logic

Suna stated that currently, only one procedure per aircraft group can exist for an arrival operation on a given runway. If more than one exists, SIMMOD will use the first applicable procedure. TransSolutions has added new logic, SETCHOOSEPROC so that a probability distribution determines which of two valid procedures will be used for each flight. This is useful in modeling LAHSO to represent a percentage of aircraft that will not accept LAHSO.

Recommendations

Suna stated that TransSolutions would like to is solicit NASUG members to beta-test a new engine with the aforementioned enhancements incorporated. After testing, TransSolutions will deliver the modified logic and documentation to NASA. TransSolutions recommends that the logic modifications be made to the 'official' SIMMOD engine.

Agenda Item 10 – High Intensity Runway Operations (Roger Price, Roger D. Price Inc.)

Roger began with an overview of the presentation which included:

- Toronto LBPIA Layout;
- The airport operating philosophy;
- Current and predicted traffic;
- Capacity/Efficiency Initiatives including:
    - Airside Infrastructure;
    - Technology; and
    - Operational.
- The concept of High Intensity Runway Operations (HIRO);
- How HIRO is established;
- The results and conclusions of the HIRO exercise; and

- Recommendations

Toronto LBPIA Layout

Slides were displayed showing the current runway, taxiway and terminal layouts at Toronto LBPIA. Toronto has two sets of parallel runways oriented 06/24 and 15/33. The east/west parallels (06/24) are separated by approximately 10,000 feet and the north/south parallels (15/33) are separated by approximately 3,800 feet. The three main passenger terminals are located north of Runway 24L/06R and east of Runway 33R/15L. There are two general aviation areas, one located north of Runway 24R/06L, and the other located south of Runway 24L/06R.

Operating Philosophy

Approximately 95% the airport operates independent parallel operations from east/west parallels with mixed operations from each runway, yielding 50-55 movements per hour per runway in VFR conditions. The other 5% of the time the airport operates utilizing dependent operations from the north/south parallels. This is a dedicated mode operation, and yields throughput in the mid to high70's.

Current and Predicted Traffic

In 1998, according to the APO facility ranking for control tower Toronto LBPIA stood 21st in total traffic with 427,095 movements. However, from the standpoint of solely air carrier traffic the airport stood 5th with 390,595 movements. Future traffic is expected to grow to approximately 500,000 total movements by 2005 and to 600,000 movements by 2014.

Capacity/Efficiency Initiatives

Roger briefly outlined the capacity and efficiency initiative which are being considered to more effectively manage the traffic at LBPIA. Those initiaitives were broadky categorized under the headings of airside infrastructure, CNS/ATM technologies and operational efficiencies. The following is a brief list of the initiatives:

- FSM (Flight Schedule Monitor)
- CTAS (Center Tracon Automated System)
- PRM (Precision Runway Monitor)
- TTAG (Tower/Terminal Advisory Group)
- 2 Feeder sectors in TCU
- Double Stream Arrivals at YWT (west corner post)
- Arrival/Departure Delay Analysis Data Base
- High Intensity Runway Operations (HIRO)
- 2 1/2 miles spacing (dedicated runway)
- Reduction from 5 miles in-trail (mixed operations)

HIRO Concept

Roger explained that HIRO, as a concept, is intended to increase and airports operational efficiency by safely reducing runway occupancy times (ROTs) through the establishment and maintenance of what could be termed a "Code of Best Practice". This "Code of Best Practice" is attained through a communication and education process with, and between, NAV CANADA staff (ATC) and the airport user community.

Implementing HIRO

HIRO at Toronto LBPIA was implemented in three phases, which were:

- Phase I - Baseline Operations Analysis
- Phase II - HIRO Communication, Education & Publication Initiatives
- Phase III - Post HIRO Operations Analysis

Phase I , the baseline operations analysis, involved the gathering and analysis of data, from all runways. Arrival and departure ROTs, and runway exit utilization were recorded over a three week period with approximately 1500 observations in the final database. Data was recorded by a/c type, airline, and weight group.

Phase II involved HIRO communication, education and publication initiatives. A HIRO working committee was established which facilitated the publishing of operations bulletins, letters, and crew briefings by air carriers. It was arranged for charts to be placed in the Canada Air Pilot and Jeppesson, there was a HIRO NOTAM published and a HIRO message was placed on the ATIS.

Phase III involved a post HIRO operations analysis to compare with the baseline. Data gathering took place 3 weeks after implementation and involved the same process as the baseline, with the exception that no data was available for the north/south parallels. There approximately 1200 observations, and again the data was gathered Data by a/c type, airline, and weight group.

Results and Conclusions

Analysis of the baseline and post HIRO data determined that:

- reduced arrival spacing on Runway 06L wass not feasible with the current runway exit infrastructure;
- reduced arrival spacing on Runway 06R may be achievable through further reduction in ROTs and/or the re-alignment of "W" taxiway; and
- arrival ROTs on the parallel 24's have reduced to a point where "tactical" use of reduced arrival spacing may be considered.

Recommendations

The recommendations which eminated from the HIRO initiative at Toronto LBPIA were as follows:

1.Continued reinforcement of the requirement to minimize ROTs, with special emphasis on departure procedures;
2.Amend ATSAMM 513 to specifically exclude "HEAVIES" from runway occupancy time surveys when considering reduced inter-arrival spacing; and
3.Under specific conditions, and in consultation with tower supervisors and Flow Management, arrival spacing may be reduced to under 5 miles. Conditions may include but not limited to:

- bare and dry runways;
- availability of runway exits;
- 160 knot speed to the FAF;
- minimum 10 knot headwind component;and
- early establishment of final spacing.

Agenda Item 11 – Batch Runs (Qianlin Li, Landrum & Brown)

Qianlin gave a brief overview of her presentation. The basic question to be answered included:

- Why do we need batch runs?
- What are types of batch runs?
- How to do batch runs?

Qianlin indicated that the requirement for batch runs stems from the requirement to ascertain and prove the stability of the simulation model. In addtion, in a case where there are time constraints batch runs increase the efficiency of the modeling process and assist in getting required answer in a minimum amount of time.

Qianlin briefly mentioned the different types of batch runs which were used at L&B. They included the replication

of a single simulation using different random number (rundata file) and the simulation of different simulation cases.

There was ensuing discussion on how to execute, debug and balance a single simulation case.

Agenda Item 12 – Impact of Runway Crossings on Departure Production at ATL (Tom Nissalke, ATL)

Tom began with an overview of ATL basics including 1999 passenger, traffic and delay stats. Tom continued with a brief discussion of the airfield layout, terminal layout and gate structures. Operational information on arrival and departure throughput was discussed. Typically, the operation wil accommodate arrivals on the outboard runways and departures on the inboard runways. Arrival throughput is approximately 90 per in VMC and 68-84 in IMC. Departure rates are in the vicinity of 94 per hour in VMC and 80 per hour in IMC.

Tom next outlined factors which affect departure throughput these included:

- airline factors;
- ATC factors;
- weather; and
- the airport sponsor.

Airline factors which may typically impact departure throughput include, the fleet mix, delays due to mechanicals, and emergency landings, which would typically be carried out on the inboard runways. ATC factors which may impact departure throughput include, runway crossing efficiency, stepped-on transmissions, overloaded departure controllers and miles-in-trail restrictions due to volume. Weather may also precipitate miles-in-trail restrictions, and localized thunderstorm cells may stop departures all together. The airport sponsor may impact departures through their airfield maintenance schedule and more importantly how they have and will develop the airfield infrastructure.

Tom posed the question, “How do you get more departure production from the four runway layout at ATL? One of the answers was to do something to reduce the impact of runway crossings by arriving aircraft on departure throughput. In order to accomplish this Tom explained that it was necessary to develop and understanding of the runway crossing operations and quantify the relationship between runway crossings and departure throughput.

Tom identified the data sources which he used in his analysis. Data sources for departures came from ARTS data from the tower and the airport sponsors noise and operations monitoring system. Data sources for runway crossings were basically non existent and only manual observation of the operation could yield useful data. Tom briefly discussed the process by which data was gathered on runway crossing and summarized his findings.

In all, the data was gathered from approximately 60 departure pushes in 1997, 1998 and 1999, with both north and south field included with both east and west flow operations. In all data on approximately 2860 departure was collected.

Finally, Tom displayed a slide detailing the results of the analysis, which showed an increase in departure throughput for 1999 over 1997 and 1998 for five different scenarios of crossing policy and procedure.

Agenda Item 13 – Ways to Present SIMMOD Results

Dorothy Brady, Belinda Hargrove and Qianlin Li provided examples of how they, and their companies display SIMMOD output and results.
There were various charts in all configuration illustrating much of the data that is available directly from the DOS reporter module.

Different graph formats available in common spreadsheet programs such as EXCEL were also illustrated showing a variety of data including, OOOI (out, off, on, in) data and individual node delay.

There was a brief discussion, and all were in agreement that there was a myriad of data available in the output files. The way the data is displayed and presented is only limited by the individual analyst's imagination, or that of his/her companies graphics department.

Agenda Item 14 – Expert Workshop: New Aircraft Considerations (Belinda Hargrove, TransSolutions)

Belinda began with a quick primer on the aircraft models in SIMMOD. SIMMOD includes 107 aircraft models as defaults. These are contained in the SIMU01file which contains the aircraft model names and weights. Historically, this was the same input file as used in the Integrated Noise Model and was last updated in 1994. Belinda pointed out that aircraft weights were formerly used in gate sizes and airfield links, but currently not used.

The aircraft models are grouped with aircraft of similar size or characteristics so that input is not required for each individual model. Theses groupings are contained in the Simu03 file in the AIRCRAFT card and in *SIMMOD PLUS* database in the AIR_AC_GROUP dbf file. Aircraft airspace speeds are specified by airspace link type and aircraft airspace separation are also defined by airspace group. Similarly, aircraft ground groups are defined in the Simu07 file in the TAMPS card and in SIMMOD *PLUS* in the GND_AC_GROUP .dbf file. Landing and takeoff rolls as well as
gate service times are defined for each TAMPS or GND_AC_GROUP.

Belinda continued that there are several newer aircraft types which have been introduced in commercial fleets that are not included in the 107 models SIMMOD or INM files. Included in those are the B777, A319, ATR42, ATR72, and the RJ's: CRJ-150, EMB145. In addition, there are new aircraft in development, including the NLA (New Large Aircraft) and the B717. How do you include these new aircraft in the SIMU01 file. There are two options, Option 1, change the name of an unused model to the new aircraft you need, for example there are several different models of older aircraft (B707, DC8, etc.) which are included in the 107 models as are military aircraft such as the F16 and the KC135. Option 2, add additional aircraft models into the Simu01 file and if working in *SIMMOD Plus* to the AC_MODEL .dbf and AC_MODEL_FAA .dbf files. It was noted that since weights are no longer used, the analyst can merely use "0" for all the weights (they are required input).

When adding new aircraft there are always items to consider, including:

- the aircraft wingspan; at which gates can the aircraft park? (*Simmod PLUS!*: GATEUSE); does it block other gates? (*Simmod PLUS!*: GATEUSE); is it blocked by aircraft in other/adjacent gates? (*Simmod PLUS!*: GATEUSEM, GATEUSEG); are there certain taxiways it cannot use? (*Simmod PLUS!*: GND_LINK: AGS_ID_USED & AC_GROUP_SIZE_MODELS); will taxiing on one taxiway block another taxiway? (*Simmod PLUS!*: DYNAMIC_TAXIPATH)
- the aircraft weight or landing gear; are there certain taxiways it cannot use? (*Simmod PLUS!*: GND_LINK: AGS_ID_USED & AC_GROUP_SIZE_MODELS)

Finally, adding new aircraft may mean that you will need to create new AIRCRAFT and/or TAMPS groups, wake turbulence separations, landing rolls & takeoff rolls, speeds in airspace, and/or runway procedures

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Agenda Item 15 – NASUG Terms of Reference Review

The Terms of Reference for the NASUG was briefly discussed among the group and it was decided that there was no need to amend or make any changes to the document at this time.

Agenda Item 16 – Member Suggested Items and Other Business

Belinda solicited the members to see if there was any other business which needed to be discussed. A point was brought up which was mentioned earlier in the meeting, that perhaps we should have closer ties to ESUG. The issue or tele or video conferencing to discuss issues of mutual interested. Raj Bain indicated that there was an internet call service (dialpad.com) which may be of use in setting up a call for the next meeting. **(*ACTION* – Dorothy Brady/ Raj Bain)**

Agenda Item 18 – Member Suggested Items and Other Business

Finally, topics for the next meeting were discussed. Suggested agenda items included:

- presentations and/or suggested topics left over from previous meetings, ie the Anchorage SIMMOD Study – Al Schwartz, FAA Tech Center; Montreal Dorval Engineered Performance Standards, SIMMOD and TAAM parallel study - Nathalie Martel, ADM; FAA's San Diago Study, Tech Center; West Coast Airport Study, Al Schwartz; Software developers perspective, moving from SimScript to some other language/architecture, Raj Jain; ATAC technical design document for SIMMOD with C++
- Update on SIMMOD engine bug fixes/new features, "wish list" items
- NASA contract status
- today's actual performance vs. SIMMOD results or a post programme review (a look a past studies to see how they turned out)
- different ways of collecting data, different sources of data
- video capture ROT survey (Toni Trani) and
- more expert workshops

Belinda Hargrove suggested that the agenda topics do not necessarily need to deal directly with SIMMOD. More research and analysis subjects such as the ATL runway crossing presentation, which was be very informative, would be a welcome change.

Dorothy closed the meeting by reminding those present that the next meeting would be hosted by Landrum and Brown, tentatively scheduled for Chicago, September 7th and 8th.