

Symposium for Partner and NATO Nations  
on  
*Application of Operations Research Tools and  
Methodologies in Support of Defense Planning and  
Decision Making*

**Report to  
Studies, Analysis, and Simulation Panel  
ISMOR  
Sep 1, 1998**

Dr. Jacqueline Henningsen, Symposium Chair

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OSD/PA&E

**Background**

- Proposed as first Partnership for Peace (PFP) and NATO Operations Analysis Symposium
- Approved by
  - Defense Research Group (now Research & Technology Board) in September 1996
  - Included in 1997-1998 Partnership Work Programme (AC/259-D/1698)
- Sponsors
  - Organized under auspices of Studies, Analysis, and Simulation Panel
  - Hosted by
    - United States Office of the Secretary of Defense, Program Analysis and Evaluation
    - George C. Marshall Center for Security Studies
- Location and Time
  - Garmisch-Partenkirchen, Germany
  - March 24-27, 1998

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**Symposium Objectives**

- Foster closer relations among NATO and PFP nations on analytic matters
- Provide hands-on opportunity to explore military operations research tools and methodologies applicable to defense planning issues
- Involve participants from NATO and PFP nations with an interest in
  - Strengthening the interface between analysts and senior decision makers
  - Enhancing their capability to address pressing defense planning issues through use of analysis

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**Structure of Symposium**

- Participants
  - Over ninety analysts and decision makers
  - Representing
    - Twenty PFP nations
    - Eight NATO nations
    - EUCOM, NC3A, Marshall Center, Logistics Management Institute
- Program
  - *Keynote Address - Defense Planning and Decision Making: The Commander's View* by Lt Gen Paul Van Riper, USMC (ret)
  - Invited presentations by five PFP and five NATO representatives
  - Country Presentations by twenty-seven countries
  - Demonstrations of seventeen analytic tools
  - Special Presentations and Workshops by six participants

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**Results of Symposium**

- Participants
  - Encouraged future opportunities to jointly explore the applications of military operations research to planning needs
  - Follow-on symposium in about two years
  - Joint study efforts and smaller regional conferences focused on common interest areas
    - force planning
    - logistics planning
    - crisis response
    - resource and budget planning
    - peace operations support
- Co-sponsors applauded the success of the meeting

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**Conclusions**

- Symposium
  - Strengthened the understanding by participants of military planning tools and analytic methodologies
  - Mutually assisted NATO and PFP countries in beginning to develop common analytic methodologies and frameworks for defense planning and decision making
  - Fostered closer cooperation and relations among NATO and PFP nations on analytic matters as a result of the positive interaction among participants
- Next Steps:
  - Information on Symposium was presented to May 1998 meeting of SAS
  - Based on feedback from members, the RTB will be asked to consider another meeting military operations analysis meeting with NATO and partner nations in two years.
  - A proposal for a SAS activity on Peace operations, which was one of the common interest areas, is under discussion. SAS members are encouraged to provide feedback to the U.S. Representatives.

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TECHNICAL PROGRAMME  
SYMPOSIUM DIRECTOR : Dr. Jacqueline Henningsen

MONDAY, 23 March, 1998

- 1330 Conference staff available to test hardware/software (if required)  
1800 Welcome Mixer at Conference Hotel (until 1930)

TUESDAY, 24 March, 1998

- 0730 Registration
- 0815 Opening Dr. Henningsen  
Welcome by Sponsors  
U.S. Deputy Director, Marshall Center Lt Gen Otjen, USA (ret)  
Director, NATO Research & Technology Agency Dr. van Hoek, NATO  
Deputy Director, Program Analysis & Evaluation, OSD Mr. Johnson, United States
- 0900 KEYNOTE ADDRESS:  
*Analysis in Support of Decisions* Lt Gen Van Riper, USMC (ret)
- 0950 Group Photograph
- 1000 Break
- 1030 *Allied Command Europe Bosnia Analysis* Dr. Rose/United Kingdom
- 1110 *Application of OA in the Planning and Realization Process of Armaments and Military R&D* Col Worwa/Poland
- 1145 *Web Sites for Military Analysis* Dr. Forder/United Kingdom
- 1200 Lunch
- 1330 *Introduction to Defense Resource Management Studies (DRMS)* Ms. Djuteska/Former Yugoslav Republic of Macedonia, and Maj Kunigelis/Lithuania
- 1420 *Differential versus Stochastic Models* Col Harman/Slovak Republic
- 1440 *Military Stability* Dr. Christensen/Denmark
- 1500 Break
- 1530 Country Defense Analysis Overviews\*  
Presentations by: Albania, Belarus, Bulgaria, Czech Republic, Estonia, Finland, FYR of Macedonia
- 1700 Tuesday Wrap-up

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- \* Country Defense Analysis Overviews: Panel format with ten minute presentation that highlight the role of defense analysis and current analysis activities of each country, country with tool demonstrations will have an extra ten minutes for a tool introduction.

WEDNESDAY, 25 March, 1998

0815	Opening Comments Country Defense Analysis Overviews with Tool Introductions* Presentations by:	Dr. Henningsen  Canada, Denmark, France, Germany
1000	Break	
1030	Group A Workshop (Main Conference Room): <i>Agent Based Modeling of Conflict</i> Group B Country Tool Demonstrations (Rooms 1 & 2)	Dr. Horne/United States Canada, Denmark, France, Germany**
1200	Lunch	
1330	Group A Country Tool Demonstrations (Rooms 1 & 2)  Group B Workshop (Main Conference Room): <i>Agent Based Modeling of Conflict</i>	Canada, Denmark, France, Germany**  Dr. Horne/United States
1500	Break	
1530	Country Defense Analysis Overviews* Presentations by:	Georgia Hungary, Kazakhstan, Latvia Kyrghyz Republic, Lithuania, Poland
1700	Wednesday Wrap-up	
1715	Buses to Garmisch for Open Time	
1930	Hosted Dinner in Garmisch	

\*\*Wednesday Tool Demonstration Agenda

Canada	
<i>Analysis of High Level Defence Problems Using the H-Frame Methodology</i>	Mr. Mason
Denmark	
<i>Flyvak Model</i>	Mr. Hansen
France	
<i>Optimization of the Evaluation Engineer Support Propensity for Crisis</i>	LTC de Langlois Dr. Lascar
Germany	
<i>OR Model Architecture for Supporting Army Operations Planning and Analysis</i>	Dr. Reidelhuber
Standing Demonstrations	
<i>Tools from the ARRC-Bosnia Defense Resource Management Model WEB Tools</i>	Dr. Rose Col Morgan/Mr. Drake Col Methered

THURSDAY, 26 March, 1998

0815	Opening Comments Country Defense Analysis Overviews with Tool Introductions* Presentations by:	Dr. Henningsen <del>Russian Federation</del> Netherlands, Turkey, Slovak Republic, United Kingdom
1000	Break	
1030	Group A Workshop (Main Conference Room): <i>NC3A Decision Support Tools</i>  <i>Analysis, Management, and Resolution of Interoperability Issues</i>  Group B Country OA Tool Demonstrations (Rooms 1 & 2)	Mr. Niemeyer/Mr. Goad Mr. Lehmann/Mr. Thuve Mr. Kaplan/Mr. Golden United States  Netherlands, Turkey, Slovak Republic, U.K.**
1200	Lunch	
1330	Group A Country OA Tool Demonstrations (Rooms 1 & 2)  Group B Workshop (Main Conference Room) <i>NC3A Decision Support Tools</i>  <i>Analysis, Management and Resolution of Interoperability Issues</i>	Netherlands, Turkey, Slovak Republic, U.K.**  Mr. Niemeyer/Mr. Goad Mr. Lehmann/Mr. Thuve Mr. Kaplan/Mr. Golden United States
1500	Break	
1530	Country Defense Analysis Overview with Tool Introduction* Presentation by: Country Defense Analysis Overviews* Presentations by:	United States  Romania, Slovenia, Republic of Tajikistan, <del>Turkmenistan</del> , Ukraine, Uzbekistan
1700	Thursday Wrap-up	
<b>**Thursday Tool Demonstration Agenda</b>		
	Netherlands <i>Tool for Military Logistics Planning of PSOs</i>	Mr. Van Merrienboer
	Slovak Republic <i>Air Defense Engagement Modeling</i>	Col Zak
	Turkey <i>Fire Support Assessment Simulations</i>	Cpt Ozkil
	United Kingdom <i>Simple Force Structure Planning Tools</i>	Mr. Lea
	<i>The NEMO Wargame</i>	Dr. Forder
	<i>PJHQ Estimate Tool</i>	LCdr Wood
	Standing Demonstrations <i>Tools from the ARRC-Bosnia</i>	Dr. Rose
	<i>WEB Tools</i>	Col Methered

FRIDAY, 27 March, 1998

0815	Opening Comments Marshall Center Overview	Dr. Henningsen Col Reindl
0850	<i>Group A</i> General Session (Main Conference Room): <i>Human Resources Planning and Personnel Dynamics Simulations Use of Soft OA Techniques in Peacekeeping Scenerio Strengthening the Interface between Decision Makers and Analysts</i>	Cpt Ozkil/Turkey Mr. Richardson/U.K. TBA
	<i>Group B</i> Country OA Tool Demonstrations (Rooms 1 & 2)	NC3A, United States
1000	Break	
1030	<i>Group A</i> Country OA Tool Demonstrations (Rooms 1 & 2)	NC3A, United States
	<i>Group B</i> General Session (Main Conference Room): <i>Human Resources Planning and Personnel Dynamics Simulations Use of Soft OA Techniques in Peacekeeping Scenerio Strengthening the Interface between Decision Makers and Analysts</i>	Cpt Ozkil/Turkey Mr. Richardson/U.K. TBA
1145	Closing Activities	
1230	End of Symposium	

\*\*Friday Tool Demonstration Agenda

NC3A Tool Set Demonstrations <i>Defence Requirements/Force Goals Assessment</i>	Mr. Niemeyer/Mr. Goad
<i>IFORS/SFORS - Movement Planning (ADAMS)</i> United States	Mr. Lehmann/Mr. Thuve
<i>Multiyear Planning &amp; Programming of Defense Expenditures Using Rank and Optimization Spreadsheet Methodology for Determining Ammunition Requirements</i>	Dr. Anderson Cpt Bates/Cpt Bargeron
<i>Analysis, Management and Resolution of Interoperability Issues</i>	Mr. Kaplan/Mr. Golden

**A SYMPOSIUM FOR PARTNERSHIP FOR  
PEACE (PFP) PARTNER STATES AND NATO NATIONS**

**“APPLICATION OF OPERATIONS ANALYSIS METHODOLOGIES AND  
TECHNIQUES IN SUPPORT OF  
DEFENSE PLANNING AND DECISION MAKING”**

**Sponsored by the**

**NATO Research and Technology Board, Studies, Analysis & Simulation Panel;  
United States Office of the Secretary of Defense, Program Analysis and Evaluation;**

**And**

**The George C. Marshall European Center for Security Studies**

**24-27 March 1998**

**Garmisch-Partenkirchen, Germany**

**EXECUTIVE SUMMARY**

**I. BACKGROUND**

1. The first Partnership for Peace (PfP) and NATO Operations Analysis Symposium *Application of Operations Analysis Methodologies and Techniques in Support of Defense Planning and Decision Making* was held in Garmisch-Partenkirchen, Germany on 24-27 March 1998. This meeting was organized under the auspices of the NATO Research and Technology Board's Studies, Analysis, and Simulation Panel; the United States Office of the Secretary of Defense, Program Analysis and Evaluation; and the George C. Marshall European Center for Security Studies.
2. In September 1996, the Defense Research Group (now Research & Technology Board) approved the Panel 7 (now Studies, Analysis, and Simulation Panel) proposal for a Symposium in 1998 to explore the role of Operations Analysis in defense decision making. This Symposium was included in the 1997-1998 Partnership Work Program (AC/259-D/1698).
3. The United States agreed to lead the planning of the meeting and appointed Dr. Jacqueline Henningsen as the Symposium Director. Subsequently, a proposal was submitted to the George C. Marshall European Center for Security Studies requesting consideration of this symposium as part of its 1998 PfP Conference Schedule. The proposal was approved and the Marshall Center assumed the major role in administration of the symposium with regard to the PfP participants and oversight of

conference site support and planning. The Marshall Center provided simultaneous translation throughout the conference in English, German, and Russian. The Resource Technology Board provided French-English translators.

## II. SUMMARY OF THE SYMPOSIUM

4. Analysts and country decision makers from the following twenty PfP and eight NATO nations attended the Symposium: Albania, Republic of Belarus, Republic of Bulgaria, Canada, Czech Republic, Denmark, Republic of Estonia, Finland, France, Republic of Georgia, Federal Republic of Germany, Republic of Hungary, Republic of Kazakhstan, Kyrgyz Republic, Republic of Latvia, Republic of Lithuania, Former Yugoslavian Republic of Macedonia, Netherlands, Poland, Romania, Republic of Slovenia, Slovak Republic, Republic of Tajikistan, Turkey, Ukraine, United Kingdom, United States, and Republic of Uzbekistan. In addition, representatives from the NATO Research and Technology Board; NATO Consultative, Command and Control Agency (NC3A); United States European Command; and the Marshall Center were participants:
5. The Symposium began on 24 March 1998 with welcoming remarks from the representatives of the three sponsoring organizations: Lieutenant General (Ret) John Otjen, USA, Deputy Director, the George C. Marshall European Center for Security Studies; Dr. E.A. Van Hoek, Director, NATO Research & Technology Agency; and Mr. James Johnson, Deputy Director, Program Analysis & Evaluation, United States Office of the Secretary of Defense.
6. The Keynote Address *Analysis in Support of Decisions* was given by Lieutenant General (Ret) Paul Van Riper, USMC, recently retired Commanding General Marine Corps Combat Development Command. In his presentation, Lt Gen Van Riper traced the history of operations analysis, focusing on the concept of warfare as a complex, adaptive system. He postulated that formal analysis to support commanders in the future requires new ways of doing business, and described recent activities in the USMC using complexity theory to explore tactical warfare. He concluded his presentation with the following advice: "Analysis must remain a field of continual learning."
7. A Plenary Session was held following the keynote address with six invited presentations designed to introduce participants to a wide range of operations analysis activities. Three of the presentations were provided by representatives from the PfP countries and three from NATO nations.
8. Two additional plenary session presentations were given on the Marshall Center and the Research and Technology Organization. In the first one, Col Ingo Reindl, Director the George C. Marshall European Center for Security Studies Conference



Center, presented a Marshall Center Overview. He described the five types of program supported: Defense and Security Studies Program, Foreign Area Officer Training Program, Foreign Language Training Program, Research Program, and the Conference Program (that supported this Symposium.) He also updated the Partner Nation representatives on their country's involvement in Marshall Center courses. [Many of the partner representatives had an opportunity during the week of the Symposium to visit with students from their country who are enrolled in courses.] During the same session, Mr. Dmitri Stamatopolous presented an overview of the new Research and Technology Board Panel Structure.

9. An invited presentation titled "Understanding the Interface Between Analysts and Decision makers" was given by Dr. Andrzej Karkoszka of Poland. Dr. Karkoszka is currently a visiting professor at the Marshall Center. He has held many high-level positions in the Polish Ministry of Defence, most recently serving as the Secretary of State, First Deputy Minister of National Defence, between 1995 and 1997. Dr. Karkoszka pointed out that larger political realities frequently over-ride the seemingly straight forward logic of analysis, and noted that decision makers' requirements are often time sensitive and exacting. The bottom-line is that analysts must strive to develop products that are understandable, timely, and to-the-point, and let the decision makers deal with the politics.
10. Countries were invited to give presentations during other plenary sessions scheduled throughout the week. A total of twenty-seven country presentations were given. In these presentations, country representatives introduced interesting features of their countries' military structures, described where analysis is done and how analysts are trained, discussed current analytic projects, and described some of the decision making and planning challenges facing their countries. These challenges ranged from the universal problem of constrained budgets, to training officers and civilian leaders (and analysts), to more stressful issues of fostering stability. Countries also used this time to introduce tools that they planned to demonstrate later in the Symposium.
11. A major feature of the Symposium was three days of sessions devoted to the demonstration of country tools and models. A total of seventeen different tools were demonstrated by thirteen different countries or organizations. A one page overview was developed to describe each of the tools presented. These overviews are included in the *Symposium Proceedings*. For the tool demonstrations, the symposium participants were sub-divided into smaller groups, thereby enabling participants to have a more personal introduction and hands-on experience with the tool. Interpreters were available to assist with the descriptions. Participants alternated between tool demonstrations and three special presentations in order to provide variety and insure better exchange of information.

12. The Symposium closed at 12:30 on 27 March with representatives of each of the sponsors thanking the organizers, the support staff, and the participants.

### **III. MAJOR CONCLUSIONS AND RECOMMENDATIONS**

13. Participants from the PfP and NATO nations endorsed the proposal for future opportunities to jointly explore the use of military operations analysis methodologies and techniques applicable to their defense planning and decision making needs. They recommended joint study efforts and smaller regional conferences be focused on the five top identified interest areas: force planning, logistics planning, crisis response, resource and budget planning, and peace operations support. Further, they indicated that they would like to have another symposium of this type in one or two years.

### **IV. MILITARY IMPLICATIONS**

14. This Symposium provided PfP and NATO nations with an opportunity to explore the use of military operations analysis methodologies and techniques applicable to their defense planning and decision making needs. In addition, the Symposium aided in the development of cooperative military relations between PfP and NATO countries, strengthened the understanding of joint planning tools, and mutually assisted NATO and PfP countries in beginning the process of developing common analytic methodologies and frameworks for defense planning and decision making.
15. Participants discussed their current defense organizational structures, described defense planning and decision making issues, and identified ways defense analysis is currently used in their countries. The interaction among the participants promises to foster closer cooperation and relations among NATO and PfP nations on analytical matters. Participants exchanged plans for further interactions and several volunteered to host subsequent meetings on defense decision support and analysis.