EURO Bulletin

from EURO President Maurice Shutler

EURO's New Instruments

A A number of members have asked me to provide an up to date list of EURO's New Instruments, this term denoting those approved in the last 2-3 years. I am happy to do so through your columns, as follows. The name at the end of each one is that of the responsible EURO Officer.

European Summer Institutes (modification): (a) Three ESI's may be approved in any two year period. (b) Winter Institutes may also be designated within the maxima of (a). **Tuula Kinnunen.**

EURO Prime (Uρ'): These may be organised by member societies in years in which there are no EURO-K Conferences, i.e. every third year. They should be by and for young people, i.e. < 35 years. **Tuula Kinnunen**

EURO Fellowships: These may be awarded to students who carry out specific research in support of an officer of EURO. Up to CHF 1000 is payable to each student. **Any Officer**

Eastern European Conference Initiative: Up to CHF 5000 may be paid to fund travel by speakers to a conference in Central or Eastern Europe organised jointly by an OR Society in that region and by a Western one. **Jaap Spronk**

General Support: From 1st January 1995 up to CHF 5000 is available in response to bids from organs of EURO or organisers of EURO sponsored events for support for actions in a EURO context not covered by other instruments. Special consideration is give to the need of students. Competitive bids may be made during each 6 month period. **Denis Bouyssou.**

Maurice Shutler

DEADLINE REMINDER

ESI XII Application to Nat. OR Soc.: Jan. 31, 95

Copy for next EURO Bulletin issue: March 1, 95

EURO XIV early registration fee: April 30, 1995

Season's Greetings

The Space of Freedom of the Decision Maker or Modelling the Human Brain

Excerpt from the talk of Jean-Pierre Brans EURO Gold Medal 1994

Dear colleagues in the field of O.R., ladies and gentlemen, let me first thank very sincerely the EURO Association and more especially the jury of the EURO GOLD MEDAL for this prestigious award. My personal contribution to the field of O.R. has never been the contribution of an isolated man. I always was fortunate enough to be surrounded and to collaborate with fascinating people. I would like to dedicate this award to all of them and more especially to:

- The EURO officers with whom it has been so nice to set up progressively the EURO Association as it is presently. I not only appreciated the strong motivation and irresistible enthusiasm of the early pioneers of EURO such as Hans ZIMMERMANN, Roger EDDISON, Germain KREWERAS, Birgen RAPP, Bernard ROY, Dominique de WERRA, Rolfe TOMLINSON, ... but also the wise know-how of our recent leaders such as Jaap SPRONK, Jakob KRARUP, Maurice SHUTLER, Paolo TOTH,... I am particularly proud to rank most of them among my best friends.

- My scientific collaborators at the Universities of Brussels, the ULB and the VUB. I especially think over Paul GILLIS my PhD promoter, Leonard KAUFMAN, Marc DE-SPONTIN, Philippe VINCKE, Frank PLASTRIA, Bertrand

MARESCHAL, and many others. Let me thank them very much for their efficient assistance and congratulate them for the nice work done together during so many years.

- The laureates of all the EURO SUMMER INSTITUTES having taken place from 1984 up to now. The president of the jury was so kind to recall my role as initiator of the ESI's for the European promising young people. I confirm I like this EURO instrument very much. It is the most efficient investment for the future of our Science. The laureates are about 200 now and I consider them all as my scientific children. Let me thank more especially two of them, both laureates of the 2nd ESI. First Carlos BANA E COSTA for having called me PAPA for the first time and then Valerie BELTON for having taken the risk to organise the 3rd ESI in the U.K. after the two first issues I organised in BRUSSELS to launch the idea. From that time I was sure that my "baby" was going to be safe and to tour progressively in all European countries.

- To my dear wife CLAIRE for her permanent support and for the nice atmosphere she succeeded to create for so many constructive EURO meetings held at home during so many years.

EURO Gold Medal 1994

- To hundred of other collaborators and friends who will forgive me for having no room enough here to nominate them all.

The tradition requests from the EURO medalist some views about the past, the present or the future of Operational Research. I decided to devote my address to the Space of Freedom of the Decision-maker or Modelling the Human Brain. It is a particular ambitious programme and of course the answer will be modest. However some proposals will be made and it will give me the opportunity to give my own views about the work already done in the past and to integrate some scientific work recently developed in our Brussels O.R. lab.

As a matter of conclusion, I would like to suggest to open a new age for Operational Research, possibly an age of 25 years again.

An age where not only single criterion models and multicriteria models would be considered but also models where some room would be preserved for the space of freedom of the Decision-maker. What I suggest is to include a quantification of this space of freedom in the model itself.

It will provide new classes of models, some kind of Meta Models, quite less prescriptive, offering to the Decision-maker not only a quantification of the Real-World situation but also a view of his own image and of the freedom he has in facing the Real-World. This should be done in some ways for all our models, even the basic ones.

It is a question of identity of O.R. It emphasises the difference between O.R. and Physics where the quantification of the unit (?, God, G.A.,...) corresponding to the Decision-maker makes no sense.

The link OR-ANALYST in the OR modelisation is a Mathematical link. Everything that has been produced in the framework of this link will move back to the field of pure Mathematics. All the beautiful contributions such as Linear Programming, the KUHN and TUCKER. Mathematical Programming theory, Stochastic processes, Graphs, Combinatorial complexity, ... produced in the frame of O.R. will move back to the field of pure Mathematics, just as the beautiful NEWTON tools and the optimisation tools developed in the frame of Physics already moved to the field of pure Mathematics.

The real identity of O.R., and to my point of view the only one, consists in including the Decision-maker in our models. It is a hard task, it is difficult, but it is beautiful and as the poet said: "A thing of beauty is a joy for ever".

Excerpt from the talk of Laurence A. Wolsey EURO Gold Medal 1994

Progress with Single Item Lot-Sizing

The goal in this talk is to look at the history of the single item uncapacitated lot-sizing problem that was apparently well-solved in 1958, and point out a variety of new results that have been obtained in the last few years.

For young researchers there is perhaps a moral: the important questions may not have been asked or may change with time, so it is wrong to assume that previous generations have solved all the easy questions and only left them the hard ones! A secondary goal is to indicate the practical reasons for continuing interest in this model.

The outline of the talk is as follows.

First we present the simplest multi-item model of practical interest and indicate how various solution algorithms lead naturally to ULS sub problems.

We then take a historical viewpoint starting in 1958. In Section 3 (1958-1975) we describe the basic results of Wagner-Whitin on the structure of optimal solutions leading a dynamic programming algorithm. We then mention briefly some of the important extensions to the model analysed up to the early 70's.

In Section 4 (1975-1990) we describe some important reformulations either involving additional variables or the addition of valid inequalities, and indicate also how they can be used in practice.

In Section 5 (1990-present) we cite some surprising new results, in particular the improvements in the dynamic programming algorithm and the simplification of the formulations when a "Wagner-Whitin" cost structure is present.

We terminate with a brief indication of work in progress on some of the more important extensions to ULS, namely models with capacities and start-up costs and times, as well as a new profit-maximising variant of the ULS model.

Eighth Meeting of the EURO Working Group on Locational Analysis Lambrecht, 24 - 28 September 1995

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

The eighth Meeting of the EURO Working Group on Locational Analysis will take place at the Pfalzakademie Lambrecht, Germany, from Sunday, September 24 until Thursday, September 28, 1995. The scientific program starts Monday, September 25 and ends on Wednesday, September 27, 1995.

The Pfalzakademie is located in the heart of the Palatinate near to Neustadt/Weinstrasse. This area is ideal for hiking-tours and also well-known for its wine products. There is space for 80 persons to be accommodated within the conference building. Therefore, a good working atmosphere is guaranteed and travel overhead is avoided. The charge is 100,00 DM (approx. $ 65,00) for a double-room including all meals.

All contributions on location, transportation and related fields are welcome, be it modeling, applications, theory or algorithms. The main aim being the stimulation of cooperation between researchers in Europe and abroad working in these fields, communications are encouraged to describe current research, even in a beginning phase, and stressing open problems. As usual, ample room will be available for discussion.

Time schedule:

February 1995: Second announcement with further information and preliminary list of participants
July 1, 1995: Deadline for abstracts
August 1995: Last announcement with preliminary program

Contact Address:

Prof. Dr. H.W. Hamacher, FB Mathematik, Universitaet Kaiserslautern, Postfach 3049, 67653 Kaiserslautern, Germany (Tel: +631 205 2267, +631 205 2511, Fax: +631 29081, E-mail: ewgla8@mathematik.uni-kl.de

Preliminary Registration

Please return your preliminary registration to:

Dipl.-Math. Stefan Nickel, Universitaet Kaiserslautern, Fachbereich Mathematik, Postfach 3049, 67653 Kaiserslautern, Germany (E-mail:

Tenth EURO Summer Institute on COMBINATORIAL OPTIMIZATION 2 - 15 July 94, Jouy en Josas, France

Organising Committee

Catherine ROUCAIROL, chairperson, Université de Versailles, UVSQ-PRISM, 45, avenue des Etats-Unis, F-78000 Versailles, France; Hervé THIRIEZ, chairperson, Groupe HEC, 1 rue de la Libération, F-78350 Jouy-en-Josas, France; Jakob KRARUP, co-organizers, DIKU, Department of Computer Science, University of Copenhagen, Universitetsparken 1, DK-2100 Copenhagen, Denmark; Gérard PLATEAU, co-organizers, LIPN, Université Paris-Nord, Institut Galilée, Avenue J.-B. Clément, F-93430 Villetaneuse, France; Pierre TOLLA, co-organizers, LAMSADE, Université de Paris-Dauphine, Pl. du Maréchal de Lattre du Tassigny, F-75775 Paris Cedex 16, France.

ESI X, the 10th EURO Summer Institute, was held on 2-15 July 1994 on the campus of Groupe HEC (Ecole des Haute Etudes Commerciales) southwest of Paris, close to the small village of Jouy-en-Josas and to Versailles.

The theme of ESI X was Combinatorial Optimization. Combinatorial optimization has indeed experienced a tremendous growth during the last few years. Much significant research has been carried out on many frontiers in the intervening 15-20 years and a wide variety of new applications have been reported on in the literature. However, in view of the theoretical developments, the documented ability to solve realistic problems, the wealth of open questions that still remain, and for the benefits of the next generation of researchers, the idea of organizing a EURO Summer Institute on the subject appeared to be both timely and pertinent.

But the organization of such an event is subject to a number of difficulties. The first one related to the selection of the participants.

The selection process

The objective of the ESI, as defined by tradition, was to select 20 promising young scientists (aged _ 35). But most national OR Societies submitted at least 2 candidates, Italy offering no less than 6 candidates !

The Scientific Committee was happy to observe that Combinatorial Optimization was attractive to so many qualified researchers, but faced a more than difficult task in the selection which had to follow.

The ultimate selection process was a

ESI X (continued)

complex affair involving several conflicting objectives. The quality of the papers submitted was obviously taken into account but also the national distribution and the distribution of the papers among the numerous subfields of Combinatorial Optimization. As a consequence, we were in some cases led to reject papers of high quality .

The final number of 25 candidates representing 15 different countries - but originating from 19 countries ! - appeared to be surprisingly large.

The final candidates were sent by the following OR societies : Austria (2) - Belgium (2) - Denmark (2) - Finland - France (4) - Germany - Greece - Italy (3) - Norway - Poland (2) - Portugal - Spain - Switzerland - Turkey - U.K. (2). And that includes participants originating from Albania, Algeria, China and Irak ! The average age was 24, with a minimum of 20 and a maximum of 28. The themes represented by the final candidates covered the recent trends in Combinatorial Optimization - meta-heuristics, polyhedral approaches - as well as more traditional problem areas such as scheduling, knapsack, 0-1 quadratic programming, ...

The scientific program

During the first week, each participant presented his research paper to the ESI. Here is the list of papers :

George Adamopoulos (GR): Optimal multicriteria scheduling on parallel non identical processors; Alper Atamtürk (TK): Efficient algorithms for the minimum cost perfect matching problem on general graphs; Mette Helene Bjoern-dal (N): A model for combining leased lines and compression devices in a private telephone network; Bertrand Bugnon (CH): A new method for dynamic scheduling; Alberto Caprara (I): Odd cut sets, odd cycles and zero-1/2 Chwatal-Gomory cuts; Eranda Cela (A) Heuristics for biquadratic assignment problems and their computational comparison
Peter Ivan Cowling (B): Bounds for the symmetric TSP through matroïd formulation; Frederico Della Croce (I): Generalized pairwise interchanges and machine scheduling; Maciej Drozdowski (PL): On the complexity of multiprocessor task scheduling; Virginie Gabrel (F): Détermination d'ensembles stables maxima et évaluation du nombre de stabilité pour le problème de la planification à moyen terme de la production d'un satellite d'observation; Jarmo Hemminki (SF): Container loading with variable strategies in each layer; Goli-nar I. Jalal (DK): The p-active facility location problem; Safia Kedad (F): Parallel Machine Scheduling : Applications to the packaging lines in the food industry; Valérie Lampe (B): An industrial disposing problem : a simulated annealing solution; Carrie Lin Ka Yuk (UK): A comparative study of both standard and adaptive versions of threshhold accepting and simulated annealing in three scheduling problems Frederico Malucelli (I): Lower bounds for the quadratic semi-assignment problem; Alexander Jason Orman (UK): On the complexity of coupled-task scheduling; Ulrich Pferschy (A): The inverse-parametric knapsack problem; David Pisinger (DK): A minimal algorithm for the multiple-choice knapsack problem; Helena Ramalhinho Lourenço (P): Local optimization and the job-shop scheduling problem; César Rego (F): An efficient implementation of ejection chain procedures for vehicle routing problems; Laure

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Renotte (F): Approximability preserving reductions for NP-complete problems; Juan Jose Salazar Gonzalez (SP): The symmetric generalized traveling salesman polytope; Stefan Tschöke (D): Solving the two-dimensional cutting-stock problem using a portable parallel branch and bound library; Rafal Walkowiak (PL): Parallel tabu search for two-dimensional irregular cutting.

For some participants, this was their first presentation outside their home country. Overall, the presentations were of excellent quality. As a matter of fact, a sort of competition grew out of these presentations and - as time went - they became more and more sophisticated and creative (nice fonts, color, graphic illustrations, special effects...). This culminated with an original and beautiful presentation (of Italian origin) without transparencies, using the blackboard as the only visual aid (in the old tradition of "discrete" mathematicians) which brought down the house.

During the second week, there were parallel working sessions by theme, the main themes being : Heuristics - Graph - Scheduling - Knapsack - Cutting stock & Location - Polyhedral and Quadratic Assignment Problem. The most demanding part of the organizers' task was to run the working sessions, where the contributions to this special issue of EJOR were prepared.

In the second week, there were also presentations of recent work by Profs. Jakob Krarup (DIKU), Gerd Finke (IMAG, Grenoble), Hervé Thiriez (Groupe HEC) and Dominique de Werra (EPFL, Switzerland), with presentations of "open" problems. Special thanks must be extended to Jakob Krarup who spent the two full weeks with the group and was a tremendous help as well on the scientific side as with the social life.

Keeping in pace with tradition, this special issue of EJOR is dedicated to this Institute. The selection procedure for the papers included in this issue took place in December and was quite demanding, since only 11 papers - by lack of space - could be kept amongst the 20 papers eventually submitted.

Considering the enthousiasm and dynamism the participants to this ESI showed in regard to Combinatorial Optimization, the Scientific Committee felt it was interesting to break with the tradition by which such special issues open with an invited review. We therefore invited the participants, the researchers of the next decade (at least), to write this review by themselves.

ESI X (continued)

The took the gamble and set up a workgroup to that purpose. Their work continued well after the ESI, with meetings in Italy and numerous e-mail exchanges. As a consequence, you will enjoy this review on Combinatorial Optimization by participants of the ESI.

Social program

The social program is always a major component for the integration of people from so many different origins. There were many unforgettable moments : the visit of the Château de Versailles and of its gardens, the latter by a searing heat - the BBQ at the University of Versailles - Montmartre - the French Senate (which is normally not open to public visits) - an evening at the home of Hervé Thiriez - several evenings down by the lake at HEC. As far as the social activities are concerned, the ESI wishes to thank the new President of AFCET, Eric Jaquet-Lagrèze, who also took the whole group for dinner to his home.

Groupe HEC was also most helpful by providing the ESI not only with meeting rooms but also with extensive sports facilities, personal e-mail accounts, and a food of far better quality than typical university standards.

Jouy-en-Josas is close to Versailles and Paris, just far enough from Paris to avoid participants running away to Paris instead of taking part in the afternoon sessions... but close enough for the "14 juillet" national day : "Liberté, Egalité, Fraternité" is a motto which should appeal to all young Europeans !

The main problem we met with the social program was that the World Cup often was a major distraction : never program a ESI during a soccer World Cup !

Acknowledgments

The funding of an ESI is always a difficult process, since the participants are completely taken in charge : room, board, social activities, ... In this case, the total budget was around $ 30,000 with EURO picking up over over 40 % of the tab, and many other contributors helping out. We wish to extend our thanks to all the sponsors who made this event possible: EURO, Groupe HEC (Ecole des Hautes Etudes Commerciales), Ministère de la Défense : DRET, Direction des Recherches, Etudes et Techniques, EDF, Electricité de France, AFCET, the OR society of France, OR, the OR Society of UK, LAMSADE, Laboratoire d'Aide à la Décision de Dauphine, Ecole Centrale de Paris, Beyers & Partners, Artemis/IMAG, Laboratoire de Grenoble, Diagma, a French consulting company, Cosytec, a French consulting company.

Concluding remarks

We have learned much through the organization of this ESI. We hope others will continue in these tracks, both with the organization of other ESIs, and with work in Combinatorial Optimization. Our special thanks go to the new EURO Gold Medalist, Jean-Pierre Brans, who created the ESI concept in 1984.

IFORS SPC 4 on OR and Engineering Design

IFORS 4th Specialised Conference on Operations Research and Engineering Design October 24-27, 1995.

IFORS is sponsoring a specialised international conference on Operations Research and Engineering Design in St. Louis, Missouri, USA on October 24-27, 1995. The meeting should appeal to researchers and practitioners from operations research, engineering design, and related areas. The conference will include invited and contributed papers, tutorials, and panel discussions. Social activities, including a reception and golf tournament, are planned.

CONFERENCE OBJECTIVES:
1. To promote an interdisciplinary approach to optimal design,
2. To introduce OR to several distinct engineering design areas and to communicate to design engineers the value of incorporating OR techniques into engineering design,
3. To stimulate additional interest in the application of OR methods to engineering design.

PLENARY SPEAKERS: Thomas L. Magnanti, Massachusetts Institute of Technology, Jaroslaw Sobieszczanski-Sobieski, Langley Research Centre, National Aeronautics and Space Administration

TRACKS AND CHAIRS: OR Techniques in Aerospace Engineering: Prabhat Hajela, Rensselaer Polytechnic Institute; OR Techniques in Chemical Engineering: Nikolaos Sahinidis, University of Illinois; OR and Civil Engineering: Luis Valadares Tavares, Instituto Superior Tecnico; Applications of OR in Mining Engineering: Tuncel M. Yegulalp, Columbia University; Applications of OR to Structural Design: S. Adali, University of Natal; Computer and Communication Network Design: June Park, University of Iowa; Non-linear Programming Software: Leon Lasdon, University of Texas; Intelligent Vehicle-Highway Systems: Massoud Amin, Washington University

TUTORIALS: Current Advancements in Non-linear Programming Software: Leon Lasdon, University of Texas; Current Advancements in Structural Optimisation: Uri Kirsch, Technion; Effective Engineering Design Through Simulation: John S.Ramberg, University of Arizona; Susan M. Sanchez, Univ. of Missouri-St. Louis; Paul Sanchez, Indalo Software.

SPECIAL SESSIONS AND CHAIRS: Applications of OR to the Pipeline Industry: Richard G. Carter, Stoner Associates; The Role of Computer Aided Activities in Integrated Optimal Design: Erik L. J. Bohez, Asian Institute of Technology; Evolutionary Programming: Dongjun Wu, The Wharton School of the University of Pennsylvania; Applications of Virtual Environment Technology in Engineering Design and Simulation: William L. Chapin, Centre for Design Research, Stanford University

SUBMISSION GUIDELINES: The Program Committee invites papers on all topics that integrate OR and engineering design. This includes, but is not limited to, the topics addressed in the invited tracks, special sessions, and

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tutorials. We welcome proposals for panel discussions and other sessions.

1. Authors wishing to contribute papers are requested to submit an abstract of not more than 200 words and the Information Form via email to ifors.stl@whimsy.umsl.edu or to the address below. Abstracts must be received no later than February 1, 1995.
2. Three hard copies of the full paper (in English) should be sent to the address below and must be received no later than April 3, 1995. Full papers will be carefully screened to ensure the quality of the presentations. A check or money order for $50 (US), made payable to IFORS SPC on OR and Engineering Design' must accompany the full paper. This will be applied toward registration if the paper is accepted and returned if the paper is not accepted.
3. Notification of acceptance on the basis of review of the full paper will be communicated by July 3, 1995.

Send abstracts to: IFORS SPC-4, Professor James Campbell, School of Business Administration, University of Missouri - St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121-4499 USA (e-mail: ifors.stl@whimsy.umsl.edu, fax: 314-553-6420 & phone: 314-553-6125 until January 1995, fax: 314-516-6420 & phone: 314-516-6125 after January 1995. We encourage electronic submission of Information Forms and abstracts.

OTHER INFORMATION: In lieu of conference proceedings, the new IFORS journal International Transactions in Operational Research (ITOR) is planning to dedicate at least four issues to the conference. Papers presented will be further screened for possible publication in ITOR at the author's request. A complimentary one-year subscription to ITOR will be provided to all regular registrants.

Registration rates and deadlines: $300 (US) on or before September 1, 1995, $360 (US) after September 1, 1995. A limited number of discounted registrations for full-time students will be available.

ORGANISING COMMITTEE: General Chair: Reuven R. Levary, Saint Louis University, phone: 314-977-3878, fax: 314-977-3897, e-mail: ifors.stl@whimsy.umsl.edu; Program Co-Chairs: Massoud Amin, Washington University, James Campbell, University of Missouri-St. Louis; Arrangements: David Ronen, University of Missouri-St. Louis; Administration: Susan M. Sanchez, University of Missouri-St. Louis; Exhibits: Robert J. Banis, Banis and Associates.

INTERNATIONAL PROGRAMME COMMITTEE: L. F. Gelders, Belgium; K. B. Haley, UK; P. C. Bell, Canada; C. Sparks, UK; R.V.V. Vidal, Denmark; A. B. Templeman, UK; H. J. Zimmermann, Germany;A. Garcia-Ortiz, USA; N. K. Jaiswal, India; S. I. Gass, USA; R. Karni, Israel; I. E. Grossmann, USA;U. Kirsch, Israel; P. Hajela, USA; I. Inoue, Japan; D. M. Himmelblau, USA; L.V. Tavares, Portugal; L. Lasdon, USA; S. Adali, South Africa; C.-L. Li, USA; E. L. J. Bohez, Thailand; T. L. Magnanti, USA; H. Pastijn, Thailand.

NATO Advanced Study Institute on Current Issues and Challenges in the Reliability and Maintenance of Complex Systems, 12-22 June 1995, Antalya, Turkey

PURPOSE OF THE INSTITUTE

Technological developments in recent decades prompted the design and production of devices with many components which are substantially more complex in structure than their earlier versions. Computers, telecommunication devices, airplanes and manufacturing robots are only a few examples. Such high technology devices are usually quite expensive and critical in the functioning of the system they are installed in; thus, it is of utmost importance that they should be highly reliable in design and properly maintained to achieve an extended economically useful lifetime. The proposed ASI aims to focus on this theme via a carefully blended mixture of lectures and discussions organised in 5 complementary sessions that cover important aspects of reliability and maintenance.

SESSIONS AND LECTURERS

Stochastic Models of Reliability and Maintenance: Erhan Cinlar (Princeton University, USA), George J. Shanthikumar (University of California at Berkeley, USA), Uwe Jensen (University of Hohenheim, Germany) **Reliability and Maintenance of Complex Systems**: Frank Van der Duyn Schouten (Tilburg University, The Netherlands), Suleyman Ozekici (Bogazici University, Turkey), Menachem Berg (University of Haifa, Israel), Terje Aven (Rogaland University Center, Norway).
Stochastic Methods in Software Engineering: Nozer D. Singpurwalla (George Washington University, USA), John Musa (AT&T Bell Labs, USA), Refik Soyer (George Washington University, USA).
Computational Methods and Simulation in Reliability and Maintenance: Jack Kleijnen (Tilburg University, The Netherlands), Kishor Trivedi (Duke University, USA), Philip Heidelberger (IBM T. J. Watson Research Center, USA), Fabio Spizzichino (University of Rome 'La Sapienza', Italy).
Maintenance Management Systems: Rommert Dekker (Erasmus University Rotterdam, The Netherlands), Anthony H. Christer (University of Salford, UK), Wim P. Groenendijk (Woodside Offshore Petroleum, Australia)

LOCATION

Antalya, Turkey's principal holiday resort on the Mediterranean coast, is an attractive city with shady palm lined boulevards and a prize winning marina. Since its founding in the 2nd century BC by Attalus II, a king of Pergamon, who named the city Attaleai after

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himself, Antalya has been continuously inhabited. The Romans, Byzantines and Seljuks in turn occupied the city before it came under Ottoman rule. The elegant fluted minaret of Yivli Minareli Mosque in the centre of the city, built by a Seljuk sultan in the 13th century, has become the symbol of Antalya. Antalya is an authentic city with several ancient Seljuk caravanserais, theological colleges and Ottoman mosques. The area around Antalya is full of historical places from which one day trips may be made to ancient Lycian, Pisidian and Pamphylian sites like Termessos, Perge, Aspendos, and Side.

GENERAL INFORMATION

The ASI site is Hotel Bilkent, a four star resort hotel with excellent facilities located 45 km west of Antalya International Airport. Participants are expected to check in on June 11 and check out on June 23. The total cost of the ASI is $750 including all meals and accommodation for each person in a double room, a copy of the proceedings which will be published by Springer-Verlag, social activities, and a full day excursion. The single room supplement is $200 for those who wish to stay in a single room.

Persons who are willing to attend the ASI should write to: Professor Suleyman Ozekici, Director, NATO-ASI, Department of Industrial Engineering, Bogazici University, 80815 Bebek-Istanbul,Turkey (email: ozekici@hisar.cc.boun.edu.tr, fax: 90 (212) 265 18 00, tel.: 90 (212) 257 50 37).

Applicants should include a current CV with information on academic qualifications, present nationality, position, place of work and a list of recent publications. Closing date for applications is 31 January 1995. Financial support will be granted to qualified applicants to cover part of their travel and living expenses. Requests for financial aid must be specified and justified in the letter of application. Decisions on admission and financial aid will be made in consultation with the organising committee composed of Professors S. Ozekici, E. Cinlar, F. Van der Duyn Schouten, N. D. Singpurwalla, J. Kleijnen, and R. Dekker. Detailed information and the final program of the ASI, including the timetable of the lecturers will be sent to successful applicants together with the letter of acceptance.

MARKETING STREAM AT IFORS 1996

Now that the dates have finally been fixed for 8 - 13 July 1996 at the Hyatt Regency in Vancouver, it is appropriate to start tentative planning. Alan Mercer, who is an EJOR editor, is organising the Marketing stream. Previous IFORS meetings have been notable for the absence of good papers in the marketing area. Hence it is intended that the 1996 Marketing stream will be focused to appeal more to general conference participants. Expressions of interest are therefore invited from authors of possible papers in any area of Industrial Marketing, including pricing in general and competitive bidding in particular. The intention in Consumer Marketing is that the contributions should relate to the interface of Marketing with production, logistics (so that inventory is included) and strategic planning. Preliminary ideas, which carry no firm commitments, should be sent as soon as possible to Professor Alan Mercer, The Management School, Lancaster University, Lancaster, LA 1 4YX, UK.

International Symposium on Theory and applications of Sensitivity Analysis of Model Output in computer simulation (SAMO '95) Hotel Vila Carlotta, Belgirate, Italy, 25th-27th September 1995.

SAMO '95, Belgirate, Italy, 25-27th September 1995

Background

The objective of the symposium, organised by the European Commission DG XII/F, RTD Action: Energy, and by the Joint Research Centre, Environment Institute, is to bring together people from different disciplines involved in practical and theoretical aspects of sensitivity analysis and to review the present state of the art. Sensitivity Analysis of Model Output (SAMO) investigates the relative importance of input model parameters in determining model predictions. This usually involves numerical experiments performed on computational models. SAMO is often performed together with, or as part of, uncertainty analysis, whereby the uncertainty in model predictions is characterised. It can also be used for screening active factors in systems with many uncertain parameters. SAMO may be crucial in model verification and quality assurance, model calibration in the presence of uncertainties, and model comparison and benchmarking.

Sensitivity analysis can be applied to all branches of modelling and computer experiments. Its development is very much application driven. New strategies for numerical experiments in SAMO are being put forward by mathematicians and statisticians, as well as by chemists, physicists, engineers and economists.

The symposium is intended as a cross-fertilisation exercise, bringing together scientific communities active in SAMO and in its fields of application from different disciplines and countries.

Programme

The symposium is organised by the European Commission, DG XII/F5, Nuclear Fuel Cycle - Radioactive Waste, and by the Environment Institute of the Joint Research Centre. The conference facility is the Hotel Villa Carlotta, in Belgirate on Lake Maggiore (I), and the symposium will last two and a half days, from 9.00 on Monday 25th to noon Wednesday 27th of September 1995. The provisional outline of the conference sessions is:

-Identifying active factors in large batches. Sampling strategies and parameter screening.
-Importance measures, Fourier Amplitude Sensitivity Test and sensitivity indices.
-Correlation / regression based techniques and response surface replacement.
-Other strategies for sensitivity analysis, eg FORM (reliability analysis applied to SAMO), differential analysis, two sample tests, sensitivity analysis for stochastic differential equations,...). Papers are also elicited on the relation of sensitivity to uncertainty analysis.

Participation

The present announcement is being sent to about 3,000 addresses, including universities, research institutes, international groups active in computer experiments and sensitivity analysis practitioners. The addressees are invited to distribute the announcement to other scientists active or interested in the field. The symposium's target is between 40 and 50 papers. Posters will

SAMO '95

be also accepted. Since the number of participants is limited to about one hundred, preference will be given to those presenting a paper. English will be the working language of the symposium.

Papers

Papers will be presented in oral (20+5min) and poster (height=150 cm, width 100 cm board area) sessions. Authors should send one page abstract in English according to the following format: Title, Author(s), Organisation, Text, on DIN A4 paper, with all margins not less than 4 cm. Abstract should reach the symposium secretariat (c/o A. Saltelli, JRC - TP 321, Environment Institute, I-21020 Ispra (VA), Italy by: March 1st, 1995. Paper acceptance or rejection shall be notified to the Authors by May 1st, 1995. Extended 3 page abstracts shall be required by July 1st, 1995. The final papers, to go in the conference proceedings, should reach the secretariat two months after the symposium, by the end of November, 1995.

Proceedings

The proceedings will be published by the EC. A selected subset of the contributions will be submitted to the Journal of Statistical Computation and Simulation, to form a special issue of that journal after proper review.

Registration

Participants should return the annexed registration form by March 1st, 1995 at the latest.

Registration fee

The participation fee will be LIT 500,000 (~260 ECU, ~315 US$ at present changes) and will cover lunches, one social dinner, coffee breaks and transportation by special bus service on arrival and departure, and should reach the symposium organisation before July 1st, 1995. Hotel expenses will be covered by participants. A 15% reduction (LIT 425,000 instead of LIT 500,000) will be given to registrations made in advance of May, 1st, 1995. Payment may be made by either (a) International money order payable to "European Commission, JRC - Ispra" sent to the symposium secretariat, and the indication SAMO'95 under "Motive for Payment") or (b) Bank transfer addressed to: Banca Nazionale del Lavoro (BNL) di Varese, account 5500/SAMO'95 c/o CCR Ispra (I) (Beware: SAMO'95 specification is essential for a successful registration). An additional 50,000 LIT will be charged for registrations received after July 1st, 1995.

General Information

The symposium programme will be sent to the registered participants by July 15th, 1995 at the latest. Additional information can be obtained by contacting: Organising Committee, G. Cottone, EC, DG XII/F5, Energy, Brussels (B), telephone +32 2 29 51 589,facsimile +32 2 29 54 991; A. Saltelli, JRC/EI, Ispra (I), telephone +39 332 78 9696, facsimile +39 332 78 5466, e_mail: andrea.saltelli@jrc.it; D. Schlittenhardt, JRC Public Rel.+Publ. Unit, Ispra (I), telephone +39 332 78 9370, facsimile +39 332 785818.

Invited Papers

"Sampling methods and sensitivity analyses for large parameter sets", from T. H. Andres, of AECL Canada, Whiteshell Establishment, CAN.

"Probabilistic sensitivity measures as applied to saturatedand unsaturated subsurface flow and transport", from J. Cawlfield, Ming-Chee Wu, J. Piggott, and S. Boateng, Department of Geological and Petroleum Engineering, University of Missouri at Rolla, USA.

"Sensitivity analysis in the presence of stochastic and subjective uncertainty", from J. C. Helton, Department of Mathematics, Arizona State University, Tempe, AZ, USA.

"On benefits and drawbacks of customary sensitivity measures", from E. Hofer and B. Krzykacz-Hausmann, Gesellschaft fur Anlagen und Reaktorsicherheit (GRS), Garching, D.

"Global sensitivity indices in nuclear safety problems", from T. Homma, Institute of Nuclear Safety, Nuclear Power Engineering Cooperation, Tokyo, J.

"Sensitivity, uncertainty and decision analyses in the prioritization of research", from S. C. Hora, University of Hawaii at Hilo, Hawaii, USA.

"Sensitivity analysis, uncertainty analysis, and validation: a survey of statistical techniques and case studies ", from J. P. C. Kleijnen, Department of Economics of the Tilburg University, NL.

"Application of FAST to a closed ecosystem model", from D. Liepman, University of California, Mechanical Engeneering Department., Berkeley, USA.

"The EVEREST project : Sensitivity analyses of geological disposal systems", from J. Marivoet, CEN/SCK, Mol, (B), P. Escalier des Orres and J. M. Gomit, CEA-IPSN, Fontenay-aux-Roses (F), J. Wibin, CEN/SCK, Mol, (B), J. Prij, ECN, Petten (NL) and K.H. Martens, GRS Koln, (D).

"A sequential method for assessing prediction uncertainty", from M. D. McKay, Statistics Group, Los Alamos National Laboratory, Los Alamos, NM USA.

"Identification of critical variables and functions in chemical systems", from H. Rabitz, Chemistry Department, Princeton University, USA

"Sensitivity analysis for probabilistic safety assessment: PSACOIN Level S", from P. C. Robinson, Intera Information Technologies Ltd., UK.

"Testing and assessment of environmental models", from M. Scott, Department of Statistics, University of Glasgow, UK.

"Sensitivity analysis of nonlinear models using sensitivity indices", from I. M. Sobol', Institute for Mathematical Modelling of the Russian Academy of Science, Moscow, CIS.

"Sensitivity analysis using Lyapunov exponents: Application to chemical reactors", from F. Strozzi, V. Calenbuhr, M. A. Alos, and J. M. Zaldivar, Safety and Technology Institute of the JRC, Ispra, EC.

1995 will be the 20th Anniversary of the foudation of EURO

ORS Training Programme 1995

The UK OR Society is organising a greatly expanded training programme in 1995, comprising 66 courses of one to ten day's duration on all aspects of OR.

Members of all societies in EURO may attend these courses at ORS members' rates, whilst places for student members are available for as 10% of the ORS.

For more information call ORS, Seymour House, 12 Edward Street, Birmingham B1 2RX, UK (tel.: +121 233 9300, fax: +121 233 0321).

-Practical linear programming: H Paul Williams on 10th January 1995, Birmingham.
-Practical dynamic programming: H Paul Williams on 11th January 1995, Birmingham.
-Management Information Systems: Tom Gough on 17th January, Birmingham.
-Interviewing skills: Paul Clark on 19th January, Birmingham.
-Data Envelopment Analysis: Robert Dyson, Emmanuel Thanassoulis and Antreas Athanassopoulos on 24th January, Coventry.
-Games and drama: Jim Bryant and Charles Ritchie on 25th January, Birmingham.
-Management skills and practice: N Connell, A Coddard and J Johnson from 31st January to 2nd February, Birmingham.
-Critical path networks: Jonathan Klein on 7th February, Birmingham.
-Computer simulation methods: Mike Pidd et al from 8th to 9th February, Lancaster.
-The management of complexity: Tony Hindle, Mike Pidd and Peter Checkland from 13thto 17th February, Lancaster.
-Modem problem solving methods: A Wren, R D Boyle and B M Smith on 1st March, Leeds.
-Introduction to system dynamics: C F Raggetton 7th March, Birmingham.
-Performance measurement: Martin Hazell on 8th March, Birmingham.
-Persuasion and negotiation skills: Paul Clark on 9th March, Birmingham.
-Decision analysis: Simon French on 14th March, Birmingham.
-Distribution: Alan Mercer on 15th March, Birmingham.

EURO XIV

14th European Conference on Operational Research

"OR: Towards Intelligent Decision Support"

Jerusalem, Israel, July 3-6, 1995

For further details please contact the:

EURO XIV Secretariat

c/o Ortra Ltd.
P.O. Box 50432, Tel Aviv 61500, Israel
Tel.: +972 3 517 7888, Fax: +972 3 517 4433, E-mail: euro@bgumail.Bgu.ac.il

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Present section was closed on 21 December 1994. «*» denotes information featured previously.

January 10-12, 1995
6th International Workshop, Network Mathematical Decision Science, Lunteren, The Netherlands.
Information: Mrs. L. van den Eersten-Schultze (E-mail: lieke@cwi.nl).

January 15-18, 1995
*3rd IFORS Special Conference on Digital Technologies/Multimedia: OR/MS in Strategy, Operations and Decision Support, Santa Monica, California, USA.
Papers deadline: October 15, 1994.
Information: IFORS SPC 3 c/o Dean W. Pierskalla, Anderson Graduate School of Management, University of California, Los Angeles, 405 Hilgard Ave. Los Angeles, CA 90024, USA (+310 825 7982, fax: +310 206 2002, email: sps3@agsm.ucla.edu)

January 19-20, 1995
*ORBEL 9, ninth National Conference on Quantitaive Methods for Decision Making, Brussels, Belgium.
Abstracts deadline: October 1, 1994.
Information: Prof. Yves Crama, Faculté d'Economie, de Gestion et de Sciences Sociales, Université de Liège, 7 Bld. du Rectorat bât. B31, B-4000 Liège, Belgium (tel +41 563077, +41 562721, fax: +41 562821, E-mail: crama@vm1.ulg.ac.be).

January 20, 1995
NGB Meeting on «Kennissystemen en Operations Research», Utrecht, The Netherlands.
Information: Jos van Heiningen, Beyers & Partners Nederland (tel.: +10 450 60 67); Marc Salomon p/a ORTEC Consultants, Groningenweg 6-02, NL-2803 PV Gouda, The Netherlands (fax: +1820 33707).

January 25, 1995
Journée «Multimédia», Namur, Belgium.
Information: Monique Noirhomme-Fraiture, Institut d'Informatique, 21 rue Grandgagnage, B-5000 Namur, Belgium (tel.: +32 81 724 979, fax: +32 81 724 967, E-mail: mno@info.fundp.ac.be).

January 25-27, 1995
*International Workshop on the Design of Cooperative Systems, Antibes - Juan les Pins, France.
Information: Unité de recherche de Sophia Antipolis, Relations extérieures, Bureau des colloques, 2004, route des Lucioles, BP 93, F-06902 Sophia Antipolis Cedex, France (tel.: +33 93 65 78 64, fax: +33 93 65 79 55).

February 7-10, 1995
*FRACTAL'95 «Fractals in the Natural and Apllied Sciences», 3rd International Working Conference, Marseille, France.
Information: M.M Novak, School of Physics, Kingston University, Surrey KT1 2EE, UK (fax: +44 81 5477562, E-mail: novak@kingston.ac.uk).

March 16-17 or 23-24, 1995
*41th EWG Meeting on Multicriteria Aid for Decisions, Lausanne, Switzerland.
Information: Bernard Roy, LAMSADE, Université Paris-Dauphine, Place Maréchal De Lattre de Tassigny, F-75775 Paris Cedex 16, France (tel.: +33 1 44 05 42 88, fax: +33 1 44 05 40 91, e-mail: roy@lamsade.dauphine.fr).

March 20-24, 1995
*4th IEEE International Conference on Fuzzy Systems and 2nd International Fuzzy Engineering Symposium, Yokohama, Japan.
Information: Mieko Hemmi (Ms), LIFE, Siber Hegner Building 4FL 89-1 Yamashita-cho, Naka-ku, Yokohama, 231, Japan (tel.: +81 45 212 8268, fax: +81 45 212 8255).

March 22-24, 1995
*International Conference on Forecasting Financial Markets, London, UK.
Papers deadline: October 15, 1994.
Information: Nigel Meade, The Management School, Imperial College, 52 Prince's Gate, Exhibition Road, London SW7 2PG, UK (tel.: +594 9116, fax: 823 7685).

March 23-25 March, 1995
Third Meeting on «Mathématiques de l'Optimisation et de la Décision», Brest, France.
Abstracts deadline: December 1, 1994.
Information: Département IASC, Journées MODES, TELECOM Bretagne, BP 832, F-29285 Brest, France (tel.: +98 00 12 40, fax: +98 00 10 30, E-mail: jp.barthelemy@enst-bretagne.fr).

April 1995
*Seminar on Probalistic Reasoning and Computational Learning, LOndon, UK.
Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd., Uxbridge, Middlesex UB8 3PH, UK (tel.: +895 256 484, fax: +895 813 095).

April 1-4, 1995
*International Conference on Survey Methodology and Process Quality, Bristol, UK.
Information: L. Lyberg, R&D Dept., Statistics Sweden, S-11581 Stockholm, Sweden (fax: +46 8 7834288).

April 3-5, 1995

Seminar on Applied Decision Technologies, London, UK.
Abstracts deadline: January 14, 1995.
Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd., Uxbridge, Middlesex UB8 3PH, UK (tel.: +895 256 484, fax: +895 813 095, E-mail: unicom@unicom.demon.co.uk).

April 3-5, 1995
*Symposium on Applied Mathematical Programming and Modelling, London, UK.
Abstracts deadline: January 14, 1995.
Information: Molly Demmar, Department of Mathematics and Statistics, Brunel University, Uxbridge, Middlesex UB8 3PH, UK (tel.: +895 274 000, fax: +895 203 303, email: molly.demmar@brunel.ac.uk).

April 4-7, 1995
*International Conference on Industrial Engineering and Production Management, Marrakech, Morocco.
Information: Mrs. D. Raulier, FuCaM, Chaussée de Binche, 151, B-7000 Mons, Belgium, (tel.: +32 65 32 32 17, fax: +32 65 31 56 91).

April 18-21, 1995
International Conference on Artificial Neural Networks and Genitic Algorithms, Alès, France.
Information: David Pearson, Laboratoire d'électronique, d'automatique et d'informatique, Ecole des mines d'Alès, 6 avenue de Clavières, F-30319 Alès Cedex, France (fax: +33 66 785 201, E-mail: dpearson@soleil.ensm-ales.fr).

April 18-29, 1995
* 11th EURO Summer Institute on Maintenance Replacement and Reliability Modelling, Greater Manchester, UK.
Information: Prof. A. H. Christer, University of Salford, Greater Manchester M5 4 WT, UK (fax: +61 7 455 999).

April 19-21, 1995
*2nd International Conference on Mathematical Modelling, Manchester, UK.
Information: Prof. A. H. Christer, University of Salford, Salford M5 4 WT, UK (fax: +61 7 455 999).

April 20-21, 1995
*1st Meeting of the EWG on Group Decision Support Systems, Tilburg, The Netherlands.
Information: M. Smits, School of Economics, Tilburg University, P.O. Box 90153, NL-5000 LE Tilburg, The Netherlands (email: msmits@kub.nl).

May 8-10, 1995
*ECCO VIII Conference of the European Chapter on Combinatorial Optimisation, Poznan, Poland.

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Abstracts deadline: January 31, 1995.
Information: Prof. Jacek Blazewicz, Institute of Computing Science, Poznan University of Technology, ul. Piotrowo 3a, PL-60 965 Poznan, Poland (fax: (4861) 771 525, email: ecco@pozn1v.tup.edu.pl).

May 9-12, 1995
International Emergency Management and Engineering Conference on Globalization of Emergency Management and Engineering: National and International Issues concerning Research and Applications, Nice, France.
Information: Jean-Luc Wybo, Ecole des Mines de Paris, CEMEF, B.P. 207, F-06904 Sophia Antipolis Cedex, France (tel.: +33 9395 7575, E-mail: wybo@cemef.cma.fr).

May 23-25, 1995
***Canadian Operational Research Society Annual Meeting**, Calgary, Alberta, Canada.
Abstracts deadline: December 31, 1994.
Information: Dr. Cornelius Van de Panne, Department of Economics, University of Calgary, Calgary, Alberta T2N 1N4, Canada (tel: (403) 220 5862, fax: (403) 282 5262, email: vandepan@acs.ucalgary.ca)

May 25-26, 1995
7th Symposium on Mathematical Programming with Data Perturbations, Washington D.C., USA.
Abstacts deadline: March 17, 1995.
Information: Anthony V. Fiacco, The George Washington University, Washington D.C. 20052, USA (tel.: +202 994 7511).

May 26-27, 1995
1st International Symposium on Fuzzy Logic, Zurich, Switzerland.
Information: ICSS Secretariat, P.O. Box 657, CH-8055 Zurich, Switzerland ((fax: +41 1 761 9627).

May 28-31, 1995
2nd International EurOMA Conference on Management and New Production Systems, Twente, The Netherlands.
Abstracts deadline: November 15, 1994.
Information: University of Twente, School of Management Studies, Conference Secretary EurOMA Conference, attn: Jeannette Visser-Groeneveld, P.O. Box 217, NL 7500 AE Enschede, The Netherlands tel.: +31 53 894 533, fax: +31 53 339 885, E-mail: j.m.visser@sms.utwente.nl).

May 29-31, 1995
4th IPCO Conference on Integer Programming and Combinatorial Optimization, Copenhagen, Denmark.
Abstracts Deadline: October 31, 1994.
Information: Jens Clausen, DIKU, Univer-

sitetsparken 1, DK-2100 Æ, Denmark (fax: +45 35 321 401, E-mail: clausen@diku.dk).

May 29-31, 1995
***2nd IFAC/IFIP/EurAgEng Workshop on Artificial Intelligence in Agriculture**, Wageningen, The Netherlands.
Abstracts deadline: November 1, 1994.
Information: Alexander Udink Ten Cate, Agricultural Research Department, DLO, P.O. Box 59, NL-6700 AB Wageningen, The Netherlands (tel.: +8370 74132, fax: +8370 24060, email: udink@dlo.agro.nl).

June 1-3, 1995
***3rd European Conference on Information Systems ECIS'95**, Athens, Greece.
Papers deadline: November 30, 1994
Information: Prof. Georgios Doukidis, ECIS'95 Programme Chair, Athens University of Economics and Business, 76 Patission Str., G-104 34 Athens, Greece (tel.: +30 1 823 3523, fax: +30 1 822 6105, +30 1 822 6204, email: gdouk@isosun.ariadne-t.gr).

June 4-8, 1995
***4th Meeting on Model Oriented Data Analysis MODA4**, Spetses, Greece.
Information: C.P. Kitsos, Athens University of Economics and Business, 76 Patission Street, Athens, Greece (fax: +30 1 8226204).

June 7-9, 1995
***4th Twente Workshop on Graphs and Combinatorial Optimisation**, Enschede, The Netherlands.
Information: U. Faigle or C. Hoede, Department of Applied Mathematics, University of Twente, P.O. Box 217, NL-7500 AE Enschede, The Netherlands (email: faigle@math.utwente.nl, hoede@math.utwente.nl, hunting@math.utwente.nl).

June 11-14, 1995
FRANCORO Rencontres francophones de recherche opérationnelle, Mons, Belgium.
Abstracts deadline: January 31, 1995.
Information: FRANCORO, Facultés Polytechniques de Mons, 9 rue de Houdain, B-7000 Mons, Belgium (fax: +32 65 374 500, email: francoro@mathro.fpms.ac.be).

June 12-22, 1995
NATO Advanced Institute on Current Issues and Challenges in the Reliability and Maintenance of Complex Systems, Antalya, Turkey.
Closing date for application: January 31, 1995.
Information: Prof. Suleyman Ozekici, Director, NATO-ASI, Dept. of Industrial Engineering, Bogazici University, TR-80815 Bebek-Istanbul, Turkey (tel.: +90 212 257 50 37, fax: +90 212 265 18 00, E-mail: ozekici@hisar.cc.boun.edu.tr).

June 17-30, 1995
***12th EURO Summer School ESI XII on

Locational Analysis**, Puerto de la Cruz, Tenerife, Spain.
Applicant submission deadline to national OR Society: January 31, 1995.
Information: Dr. Jose A. Moreno Perez, D. Estadistica, I.O. y C., Facultad de Matematicas, Universidad de La Laguna, E-38271 La Laguna, Spain (tel.: +34 22 603 777, fax: +34 22 630 040, email: esi95@ull.es).

June 19-23, 1995
***12th International Conference on Multiple Criteria Decision Making**, Hagen, Germany.
Abstracts deadline: January 1, 1995.
Information: Prof. Dr. Günter Fandel, FernUniversität Hagen, Faculty of Economics, AVZ II, D-58084 Hagen, Germany (tel.: +49 2331 9872625, fax: +49 2331 987313, email: mcdm95@fernuni-hagen.de).

June 27-30, 1995
***4th Intenational Conference on Applications of Advanced Technologies in Transportation Engineering**, Capri, Italy.
Abstracts deadline: October 30, 1994.
Information: Maurizio Bielli, Italian Project on Transportation, National Research Council, Viale Manzoni 30, I-00185 Roma, Italy (tel.: +39 6 7716462, fax: +39 6 7716461, email: bielli@iasi.rm.cnr.it).

June 29-July 1, 1995
International Conference on Environment and Informatics, Budapest, Hungary.
Abstracts Deadline: January 31, 1995.
Information: EN+IN Conference, Viktor Richter, Computer and Automation Research Institute, H-1518 Budapest, P.O. Box 63, Hungary (tel.: +361 181 0511, 166-5644, fax: +361 186 9378, 166-7503, E-mail: h874ric@ella.hu).

July 3-6, 1995
***EURO XIV Conference '95**, Jerusalem, Israel.
Abstracts Deadline: November 15, 1994.
Information: Prof. Zilla. Sinuany-Stern c/o Ortra Ltd. P.O. Box 50432, Tel-Aviv 61500, Israel (tel.: +972 3 664825, fax: +972 3 660952, email: euro14@bgumail.bgu.ac.il).

July 5-7, 1995
***European Conference on Management of Technology**, Birmingham, UK.
Abstracts deadline: September 22, 1994.
Information: Mrs Julie Ellen, Aston Business School Research Institute, Aston University, Birmingham B4 7ET, UK (tel.: +44 21 359 3611 ext 4599, fax: +44 21 333 5620).

July 10-14, 1995
17th IFIC TC7 Conference on System Modelling and Optimisation, Praha, Czech Republic.
Information: 17th IFIC TC7 Conference, Institute of Information Theory and Automation, Academy of Science of the Czech Republic, P.O. Box 18, Pod vodàrenskou vezi 4, CZ-18208 Praha, Czech Republic (fax: +42 2 6641

EVENTS

4903, E-mail: ifip@utia.cas.cz).

July 10-14, 1995
*4th International Conference on Critical Issues in Systems Theory and Practice, Hull, UK.
Abstracts deadline: August 12, 1994.
Information: Keith Ellis, Director of Research, School of Computing and Information Systems, University of Humberside, Cottinham Road, Hull HU6 7RT, UK (tel.: +482 440 550).

July 11-12, 1995
Conference on the Evaluation of Information Technology, Henley Management College, UK.
Paper submission deadline: February 17, 1995.
Information: Mrs Ann Brown, Programme Chair, IS Division, City University Business School, Frobisher, Barbican Centre, London EC1V 0HB, UK.

July 17-19, 1995
*Conference on Optimization '95, Braga, Portugal.
Abstracts deadline: March 30, 1995.
Information: Conference on Optimization '95, Departamento de Produção e Sistemas, Escola de Engenharia, Universidade do Minho, P-4700 Braga, Portugal (tel.: +351 53 604455, fax: +351 53 604456, email: copt95@ci.uminho.pt).

July 18-20, 1995
1st Joint International Symposium London Business School - IFORS on Energy Models for Policy and Planning, London, UK.
Abstracts deadline: February 28, 1995.
Information: Derek W. Bunn, London Business School, Sussex Place, Regents Park, London, NW1 4SA, UK (fax: (44) 71 724 7875, email: energy@lbs.lon.ac.uk).

July 19-23, 1995
12th International Conference on Multiple Criteria Decision Making, Hagen, Germany.
Abstracts deadline: January 1, 1995.
Information: Prof. Gunter Fandel, FernUniversitat Hagen, Faculty of Economics, AVZ II, D-58084 Hagen, Germany (fax: +49 2331 987313, E-mail: mcdm@fernuni-hagen.de).

July 23-29, 1995
*1st International Conference on Multiple Objective Decision Support Systems for Agricultural and Environmental Management: Concepts, Approaches, and Applications, Hononulu, Hawai, USA.
Information: Int. Conference on MODSS for Agriculture and Environment, Department of Agronomy and Soil Science, College of Tropical Agriculture and Human Resources,

1910 East West Road, Hononulu, Hawai, USA (fax: +1 808 956 6539).

August 6-10, 1995
*13th International Conference on Production Research, Jerusalem, Israel.
Information: 13th ICPR Conference Secretariat c/o International Travel & Congresses Ltd., P.O. Box 29313, 61202 Tel Aviv, Israel (tel.: (972) 3 510 538, fax: (972) 3 660 604), tlx.: 371767 INTVL IL).

September 20-22, 1995
*AIRO'95 Annual Conference on Enterprise Systems: Management of Technological and Organizational Changes (Models, Methods, Tools), Ancona, Italy.
Abstracts deadline: April 30, 1995.
Information: AIRO'95, Prof. Ferdinando Pezzella, Istituto di Informatica, Facoltà di Ingegneria, Università degli Studi di Ancona, Via Brecce Bianche, I-60131 Ancona, Italy (tel.: +71 220 4826, fax: +71 220 4474,).

September 24-28, 1995
8th Meeting of the EURO Working Group on Locational Analysis, Lambrecht, Germany.
Abstracts deadline: July 1, 1995.
Information: Prof. Dr. H.W. Hamacher, FB Mathematik, Universitaet Kaiserslautern, Postfach 3049, 67653 Kaiserslautern, Germany (tel.: +631 205 2267, +631 205 2511, fax: +631 29081, E-mail: ewgla8@mathematik.uni-kl.de).

September 25-27, 1995
International Symposium on Theory and Applications of Sensitivity Analysis of Model Output in Computer Simulation, Belgirate, Italy.
Abstracts deadline: March 1, 1995.
Information: A. Saltelli, JRC TP 321, Environment Institute, I-21020 Ispra, Italy (tel.: +39 332 78 9696, fax: +39 332 78 5466, E-mail: andrea.saltelli@jrc.it).

October, 5-6 or 12-13, 1995
*42th EWG Meeting on Multicriteria Aid for Decisions, Brussels, Belgium.
Information: Bernard Roy, LAMSADE, Université Paris-Dauphine, Place Maréchal De Lattre de Tassigny, F-75775 Paris Cedex 16, France (tel.: +33 1 44 05 42 88, fax: +33 1 44 05 40 91, e-mail: roy@lamsade.dauphine.fr).

October 10-13, 1995
*INRIA/IEEE Conference on Emerging Technologies and Factory Automation, Paris, France.
Papers deadline: January 10, 1995.
Information: INRIA Rocquencourt, Service des Relations Extérieures, Marie-Claude Sance, Bureau Cours / Colloques, Domaine de Voluceau, BP 105, F-78153 Le Chesnay Cedex, France (tel.: +33 (1) 39 63 56 75, fax: +33 (1) 39 63 56 38, email: symposia@inria.fr).

October 25-27, 1995
AFCET 1995 Conference on « Le rôle des technologies de l'information et de la connaissance dans la mutation des sociétés industrielles», Toulouse, France.
Information: AFCET, 156 Bd. Péreire, F-75017 Paris, France (tel.: +33 1 47 66 2419, fax: +33 1 42 67 9312).

October 24-27, 1995
4th IFORS Specialized Conference on Operations Research and Enginnering Design, St. Louis, Missouri, USA.
Abstracts deadline: February 1, 1995.
Information: IFORS SPC-4, Prof. James Campbell, School of Business Administration, University of Missouri - St. Louis 8001 Natural Bridge Road, St. Louis, Missouri 63121-4499, USA (E-mail: ifors.stl@whimsy.umsl.edu).

October 31-November 4, 1994
27th International Symposium on Advanced Transportation Applications, Aachen, Germany.
Information: ISATA Secretariat, 42 Lloyd Park Avenue, Croydon CRO 5SB, UK (tel.: +8168 13069, fax: +8168 61490).

November 14-17, 1995
XXII Congresso Nacional de Estadistica e Investigation Operativa, Sevilla, Spain.
Information: D. Rafael Infante Marcia, Direc. Dpto. de Estadistica e I.O., Univ. de Sevilla, Avda. Reina Mercedes, E-41012 Sevilla, Spain.

January 8-10, 1996
4th International Workshop on Artificial Intelligence in Economics and Management, Tel-Aviv, Israel.
Abstracts deadline: March 1, 1995.
Information: AIEM4, c/o Dr. Moshe Zviran, Faculty of Management, Tel-Aviv University, Tel-Aviv, Israel (tel.: +972 3 640 8025, fax: +972 3 640 9560, E-mail: aiem96@vm.tau.ac.il).

February 12-23, 1996
*9th International Working Seminar on Production Economics, Innsbruck, Austria.
Abstracts deadline: November 1, 1995.
Information: Janerik Lundquist, Department of Production Economics, Linköping Institute of Technology, S-581 83 Linköping, Sweden. (tel.: +46 1328 1505, fax: +46 1328 1873, email: rwg@ipe.liu.se).

July, 1996
*IFORS XIV Conference on «Bridging the Theory and Practice of Decision Making», Vancouver, Canada.
Information: IFORS Secretariat, Ms. Helle R. Welling, c/o IMSOR, bldg. 321, Technical University of Denmark, DK-2800 Lyngby, Denmark (fax: +45 42 88 13 97).

PROMOTING IN EUROPE THE INTERCHANGE OF PRACTICE IN OPERATIONAL RESEARCH MANAGEMENT SCIENCES AND SYSTEMS

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