

OTHER SCIENTIFIC ACTIVITIES OF THE CENTRE

Meetings and workshops held at C-MMACS

C-MMACS WORKSHOP ON BASIC MSC/NASTRAN STRUCTURAL ANALYSIS PROGRAM, July 26, 1994

C-MMACS organised a 3-day workshop on Basic MSC/NASTRAN Structural Analysis Program. The workshop was inaugurated by Dr.B.R. Somashekar, Advisor (M), NAL and the welcome address was given by Dr. K.S.Yajnik, Head, C-MMACS. The workshop, which was attended by 16 participants, covered the topics of statics, dynamics and normal modes. There were also sessions on hands-on experience of MSC/NASTRAN FEM package on Convex C3820 Supercomputer.

DISCUSSION MEETING ON MODELLING MACROSEGREGATION IN METALLIC ALLOYS, Aug. 22-26, 1994

In view of the importance of macrosegregation in several areas related to metallurgy, foundry and materials science, C-MMACS organised a five-day workshop on macrosegregation with several participants from industry, R & D labs and educational institutions. The programme consisted of presentation by participants and brainstorming sessions. Potential areas of future research and problem areas were also identified.

INTENSIVE COURSE ON MODELLING OF OCEANIC AND ATMOSPHERIC PROCESSES, Nov.7-16, 1994

Modelling today is an invaluable tool for understanding the complex, nonlinear dynamics that govern oceanic and atmospheric processes. With the advent and availability of high speed computing and sophisticated visualization facilities in the country, it is now feasible to attempt operational forecasting of these processes. However, availability of trained manpower in this area, where new techniques and concepts are emerging continuously, remains a major problem. Keeping this in view, a two-week intensive course on modelling of oceanic and atmospheric processes was organised by C-MMACS with DST sponsorship to provide a comprehensive, upto-date exposure on various issues in modelling to an audience of about thirty participants. The participants were selected by a national selection committee, on the basis of this applications, from R & D laboratories, operational organisations, and educational institutions. The course faculty comprised scientists from C-MMACS and other Indian institutions, Prof.R.V. Madala from the Naval Research Laboratory, and Prof. Sethu Raman from the North Carolina State University. The course covered both fundamentals and advanced topics. The programme included

hands-on sessions and discussion sessions. In addition, the participants were given lecture notes, with illustrative programs on a floppy.

INTENSIVE COURSE ON ASSIMILATION OF DATA IN ATMOSPHERIC AND OCEANIC MODELS (Jan 16 - Feb 4, 1995)

An important issue in operational forecasting of complex oceanic and atmospheric flows is the prescription of proper initial conditions. The operational meteorological observations systems cannot produce the syndromes, regularly spaced measurements of all the fields, that would be required to prescribe the initial conditions. Assimilation of observations provides an objective and consistent methodology to estimate the fields at times and locations at which observations are not available. Despite the importance of the assimilation procedures, there are very few places in the country where a systematic training is imparted in these areas. The three-week intensive course organised at C-MMACS aimed at providing an integrated exposure to and training on all the important aspects of acquisition, analysis and assimilation of data in large-scale numerical models. The course, supported by the Department of Science and Technology, was attended by about thirty participants, who were selected by a national selection committee to ensure a fair distribution among universities, research laboratories and operational organisations. The principal faculty for the course was Dr. O. Talagrand from the Laboratory for Dynamic Meteorology, CNRS, Paris, France, who covered the main topic of data assimilation. In addition, scientists from C-MMACS the National Centre for Medium Range Weather Forecasting (NCM-RWF), the National Geophysical Research Institute (NGRI), and the Indian Institute of Tropical Meteorology (IITM), Pune also par-

ticipated as faculty members. The course was structured so as to allow for contact sessions, informal discussions, and hands on sessions.

LECTURES AT C-MMACS

1. DYNAMIC INTERACTION BETWEEN BOUNDARY LAYER FLOW AND GROUND WATER FLOW SEPERATED BY A POROUS BED, Dr. K. Narsimha Rao, Mathematics, IIT-Delhi, 29 April 94.
2. DENSITY WAVE OSCILLATIONS IN AN EVAPORATING SYSTEM, Dr. S. Pushpavanam, Chemical Engg. IIT, Kanpur, 3 June 94.
3. PRESENTATION AND DEMONSTRATION ON NISA FAMILY OF PROGRAMMES, Dr. Kant Kothawala, EMRC, USA, 17 June 94.
4. CHAOS AND INTERANNUAL VARIABILITY OF CLIMATE, Dr. V. Krishnamurthi, CAS, I.I.Sc., Bangalore, 27 June 94.
5. MITIGATION OF SEISMIC HAZARDS, Prof. Pradeep Talwani, University of South Carolina, USA, 29 June 94.
6. MSC's FEA PRODUCTS PRESENTATION, Mr. Gary Beall, MSC-EUROPE, 13 July 94.
7. ERROR ANALYSIS OF LINEAR SOLVERS, Dr.S.B.Athreya, IOWA State University, USA, 19 July 94.
8. MULTILAYERED PERCEPTIONS AND METHOD OF DELAYS IN NON-LINEAR TIME SERIES PREDICTION, Dr. Subrata Sarangi, Physical Research Laboratory, Ahmedabad, 26 July 94.

9. ON THE DEAN PROBLEM: CENTRIFUGAL INSTABILITY IN AN OPEN CHANNEL FLOW, Prof. K.Nandakumar, Dept. of Chemical Engineering, University of Alberta, Edmonton, Alberta, Canada, 27 July 94.
10. NON-HYDROSTATIC APPROACH TO MESOSCALE OCEAN MODELLING, Dr. Amala Mahadevan, Stanford University USA, 1 August 94.
11. BIFURCATION METHODS IN COMPUTATIONAL FLUID DYNAMICS, Prof. K. Nandakumar University of Alberta, Edmonton, Alberta, Canada, 10 August 94.
12. MODELLING OF ANTICYCLONIC GYRE IN THE BAY OF BENGAL, Shri. S. Doraiswamy, C-MMACS, 30 September 94.
13. MODELLING OF COUPLED INTER-ANNUAL AND INTRASEASONAL VARIABILITIES, Dr. P. Goswami, C-MMACS, 17 October 94.
14. TIMINGS WITH GPS SIGNALS, Dr. P.Benarjee, NPL New Delhi, 18 October 94.
15. TROPICAL CYCLONES OF INDIAN SEAS: STRUCTURE, CLIMATOLOGY AND FORECASTING, Dr. P.V. Joseph, Cochin, 28 October 94.
16. HIGH PERFORMANCE COMPUTING IN INDIA AND OTHER ASIAN COUNTRIES, Dr.K.S.Yajnik, C-MMACS, 9 December 94.
17. OCEANOGRAPHIC AND METEOROLOGICAL INSTRUMENTATION, Dr. Jim Bull, Head, Engg. Division, Environment, Canada, 9 December 94.
18. EVOLUTION OF THE EARTH'S CRUST, Prof.William S.Fyfe, USA, 20 December 94.
19. MANTLE DYNAMICS, Prof. Dean Presnall, USA, 20 December 94.
20. PRIMODIAL EARTH: EVOLUTION OF THE MANTLE AND THE CORE, Prof. Dean Presnall, USA, 20 December 94.
21. NUMERICAL INVESTIGATION OF LEADING EDGE VORTEX BREAKDOWN, Dr. Anand Kumar, NAL, 15 February 95.
22. MOLECULAR DYNAMICS AND ITS SIGNIFICANCE IN BIOLOGY, Dr. Sudha Kawsik, Jawaharlal Nehru University, 15 February 95.
23. BLACKSTONE RIVER INITIATIVE: DISSOLVED OXYGEN MODELLING, Dr. Rajat Roy Chaudhuri, National Instt. of Ocean Technology, Madras, 20 March 1995.
24. GRAPH THEORY AND ITS SIGNIFICANCE IN MODELLING PHYSICAL AND CHEMICAL SCIENCES, Mr.Yegna Narayan, Annamalai University, 20 March 95.

VISITORS TO C-MMACS

1. DR. K. NARASIMHA RAO. IIT, Delhi, 29.4.94.
2. PROF. KEDAR LAL SHRESTHA, Vice Chancellor, Royal Nepal Academy of Science & Technolgy, Kathmandu, Nepal, 4.5.94.
3. DEVI PRASAD CHAPAGAIN, Chairman, National Computer Centre, Singh Durbar, Kathmandu, Nepal, 4.5.94.

4. B.V.NAIDU, Joint Director, Software Technology Park, Bangalore, 4.5.94.
5. SURESH MAN SINGH, System Engineer, Royal Nepal Academy of Science & Technology, Kathmandu, Nepal, 4.5.94.
6. DR. S. PUSHPAVANAM, IIT, Kanpur, 3.6.94.
7. DR. V. KRISHNAMURTHY, IISc, Bangalore, 27.6.94.
8. PROF. PRADEEP TALWANI, University of South Carolina, USA 29.6.94.
9. CHRISTOPHER WNUK, Geologist, U.S. Geological Survey, USA, 1.7.94.
10. DR. ROGER BILHAM, University of Colorado, USA, 9.7.94 to 16.7.94.
11. MR. T. NAGANO, Hitachi Research Institute, Tokyo, Japan, 15.7.94.
12. S. B. ATHREYA, Iowa State University, USA, 19.7.94.
13. PROF. ZHOU JLAGI, Executive Vice President of Chinese Aeronautical Establishment, 22.7.94
14. PROF. ZHANG YANZHONG, President of Chinese Aeronautical Establishment and Vice President of Aviation Industries of China, 22.7.94
15. PROF. YANG CHUNSHU, Director of Bureau of International Cooperation & Trade of AVIC, 22.7.94
16. FENG POIDE, Director of Flight Automatic Research Institute, 22.7.94
17. HUANG LIANSHU, Director of Harbin Aerodynamic Research Institute, 22.7.94
18. WANG FENGSHAN, Director of Aircraft Strength Research Institute, 22.7.94
19. Ms. CUII ZHIHUA, ASSO, Director of International Affairs, Office of CAE, 22.7.94
20. DR. AMALA MAHADEVAN, Stanford University, USA, 1.8.94.
21. PROF. K. NANDAKUMAR, University of Alberta, Edmonton, Canada. 10.8.94.
22. DR. JOSEPH P.V , Cochin, 28.10.94.
23. DR. BANERJEE P, NPL, New Delhi, 18.10.94.
24. PROF. DEAN PRESNALL, USA, 18-20.12.94.
25. PROF. W. S. FYFE, USA, 18.12.94
26. DR. JIM BULL, Head, Environment, Canada, 9.12.94.
27. DR. IYER H.M, U.S. Geological Survey, USA, 29.12.94.
28. DR. SUDHA KAWSIK, Jawaharlal Nehru University, Delhi. 15.2.94.
29. DR. RAJAT ROY CHAUDHURI, National Institute of Ocean Technology, Madras, 20.3.95.