

This Research Workshop is being co-sponsored by the:

EUROPEAN SPACE AGENCY (ESA, Paris, France)

&

THE ITALIAN SPACE AGENCY (ASI, Rome, Italy)

Course on

"Inverse Methods in Atmospheric Science"

1 – 12 October 2001

P R O G R A M M E

(as of 17 September 2001)

All Lectures will be held at the Adriatico Guesthouse, Kastler Lecture Hall (Lower Level 1)

Lecture Time: 45 + 15 minute discussion session

<u><i>WEEK 1</i></u>	
<u>Monday, 1 October</u>	
09:00 – 12:00	Registration (AGH – Lower Level 1) & Administrative Formalities (E. Fermi Building – Ground Floor)
12:00 – 12:45	<i>Welcome & Introduction – Organizers</i>
12:45 – 14:00	<i>Lunch</i>
<i>Afternoon Session</i>	

Remote Sensing – Programme

14:00 – 15:00	M. Jacobsen (Technical University of Denmark, Lyngby) "General Inverse Method"
15:00 – 16:00	M. Jacobsen "General Inverse Method"
16:00 – 16:15	Break
16:15 – 17:15	K. Shifrin (College of Oceanic & Atmospheric Sciences Oregon State University, Corvallis, USA) "Inverse method in Remote Sensing: The Approach of the Regularisation School"

<u>Tuesday, 2 October</u>	
09:00 – 10:00	M. Jacobsen "General Inverse Method"
10:00 – 11:00	M. Jacobsen "General Inverse Method"
11:00 – 11:15	Break
11:15 – 12:15	K. Shifrin "Inverse method in Remote Sensing: The Approach of the Regularisation School"
12:15 – 14:00	Lunch
Computer Sessions 14:00 – 17:00	(Adriatico – Informatics Laboratory)

<u>Wednesday, 3 October</u>	
09:00 – 10:00	C. Rodgers (Atmospheric Oceanic & Planetary Physics Clarendon Laboratory, Oxford, UK) "Atmospheric Remote Sensing: the Inverse Problem"
10:00 – 11:00	C. Rodgers "Atmospheric Remote Sensing: the Inverse Problem"
11:00 – 11:15	Break
11:15 – 12:15	K. Shifrin "Inverse method in Remote Sensing: The Approach of the Regularisation School"
12:15 – 14:00	Lunch

Remote Sensing – Programme

Computer Sessions	
14:00 – 17:00	(Adriatico – Informatics Laboratory)

Thursday, 4 October	
09:00 – 10:00	C. Rodgers "Atmospheric Remote Sensing: the Inverse Problem"
10:00 – 11:00	C. Rodgers "Atmospheric Remote Sensing: the Inverse Problem"
11:00 – 11:15	Break
11:15 – 12:15	K. Stamnes (Stevens Institute of Technology, Department of Physics, Hoboken–NJ, USA) "Numerical Methods for Forward Models"
12:15 – 14:00	Lunch
Computer Sessions	
14:00 – 17:00	(Adriatico – Informatics Laboratory)

Friday, 5 October	
09:00 – 10:00	C. Rodgers "Inverse Method in Remote Sensing"
10:00 – 11:00	K. Stamnes "Numerical Methods for Forward Models"
11:00 – 11:15	Break
11:15 – 12:15	K. Stamnes "Numerical Methods for Forward Models"
12:15 – 14:00	Lunch
Computer Sessions	
14:00 – 17:00	(Adriatico – Informatics Laboratory)

WEEK 2	
Monday, 8 October	
09:00 – 10:00	C. Kyrölä (Finnish Meteorological Institute, Geophysical Research Division, Helsinki, Finland) "Gomos"
10:00 – 11:00	C. Kyrölä "Gomos"

Remote Sensing – Programme

11:00 – 11:15	Break
11:15 – 12:15	P. Vanhellemont (Belgian Institute for Space Aeronomy, Brussels, Belgium) "Remote Sounding of the Atmosphere by the Occultation Radiometer ORA: Inverse Methods and Results"
12:15 – 14:00	Lunch
14:00 – 15:00	D. Fussen (Belgian Institute for Space Aeronomy, Brussels, Belgium) "Optimal Spectral Inversion of Atmospheric Radiometric Measurements in the Near-UV to Near-IR range: from Optical Thickness to Aerosol Size Distribution"
15:00 – 16:00	W. P. Chu (NASA Langley Research Center, Hampton-VA, USA) "SAGE III Inversion methodology"
16:00 – 16:15	Break
16:15 – 17:15	W. P. Chu "SAGE III Inversion methodology"

<u>Tuesday, 9 October</u>	
09:00 – 10:00	C. Serio (INFM, Gruppo Collegato di Potenza, Unità di Napoli, Italy) "Inversion of High Spectral Resolution Radiance from Satellite Infrared Sensors"
10:00 – 11:00	C. Serio "Inversion of High Spectral Resolution Radiance from Satellite Infrared Sensors"
11:00 – 11:15	Break
11:15 – 12:15	R. Guzzi (ISAO/CNR, Bologna, Italy) "Aerosol and Clouds Retrieved from GOME and SCIAMACHY Instruments. Methodological Approach and Results"
12:15 – 14:00	Lunch
14:00 – 15:00	R. Guzzi "Aerosol and Clouds Retrieved from GOME and SCIAMACHY Instruments. Methodological Approach and Results"

Remote Sensing – Programme

15:00 – 16:00	M. De Mazière (Belgian Institute for Space Aeronomy, Brussels, Belgium) "The Empirical Optimal Estimation Method Applied to the Retrieval of Atmospheric Constituent Profiles from FTIR Remote Sensing"
16:00 – 16:15	Break
16:15 – 17:15	Student Presentations

Wednesday, 10 October	
09:00 – 10:00	M. Carlotti (Università di Bologna ,Dipartimento di Chimica Fisica e Inorganica, Italy) "Retrieval algorithms for MIPAS data processing"
10:00 – 11:00	A. Lambert (Atmospheric Chemistry Division National Center for Atmospheric Research [NCAR] Boulder-CO, USA) "Retrieval of Atmospheric Profiles of Temperature and Trace Species from the High Resolution Dynamics Limb Sounder (HIRDLS)."
11:00 – 11:15	Break
11:15 – 12:15	A. Lambert "Retrieval of Atmospheric Profiles of Temperature and Trace Species from the High Resolution Dynamics Limb Sounder (HIRDLS)."
12:15 – 14:00	Lunch
14:00 – 15:00	G.P. Gobbi (Istituto per L'Inquinamento Atmosferico/CNR, Rome, Italy) "Deriving Aerosol Properties from LIDAR Signals"
15:00 – 16:00	G.P. Gobbi "Deriving Aerosol Properties from LIDAR Signals"
16:00 – 16:15	Break
16:15 – 17:15	Student Presentations

Thursday, 11 October	
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Remote Sensing – Programme

09:00 – 10:00	A. Dudhia (Atmospheric, Oceanic and Planetary Physics, Oxford University, UK) "Spectral Channel Optimisation"
10:00 – 11:00	N. Livesey (Microwave Atmospheric Science Team, Jet Propulsion Laboratory, Pasadena–CA, USA) "Aura LMS and Tomographic Approach to Retrievals"
11:00 – 11:15	Break
11:15 – 12:15	N. Livesey "Aura LMS and Tomographic Approach to Retrievals"
12:15 – 14:00	Lunch
14:00 – 15:00	C. Rodgers "Retrieval Approach for the Tropospheric Emission Spectrometer"
15:00 – 16:00	M. Carlotti "Retrieval algorithms for MIPAS data processing"
16:00 – 16:15	Break
16:15 – 17:15	O.I. Smokety (St. Petersburg Institute for Informatics and Automation of Russia Academy of Sciences St. Petersburg, Russia) "Analytical Methods of Direct–Inverse Problems Solutions in Radiative Transfer Theory"

Friday, 12 October	
09:00 – 10:00	A. McNally "Assimilating Remote Sounding Data"
10:00 – 11:00	A. McNally "Assimilating Remote Sounding Data"
11:00 – 11:15	Break
11:15 – 12:15	M. Vanroozendaale (Belgian Institute for Space Aeronomy, Brussels, Belgium) "DOAS retrievals"
12:15 – 14:00	Lunch
14:00 – 15:00	R. Skelton (Atmospheric, Oceanic and Planetary Physics, Oxford University, UK)

Remote Sensing – Programme

	<i>Computing Exercises</i>
15:00 – 16:00	R. Skelton <i>Computing Exercises</i>
16:00 – 16:15	Break
16:15 – 17:15	Student Presentations & CLOSING SESSION