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UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION  
**INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS**  
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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION



**INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY**

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## **Conference on Major Scientific Problems of the Atmospheric System and the Developing Countries**

S. M. RADICELLA

International Institute for Earth, Environmental and Marine Sciences and  
Technologies, and International Centre for Theoretical Physics  
Trieste, Italy

The Conference was held at the International Centre for Theoretical Physics [ICTP] premises in Trieste, Italy, on November 11-15, 1991. It was mainly supported by the International Institute for Environmental Earth and Marine Sciences and Technologies [IIEEM] of the International Centre for Science and High Technologies (a project of UNIDO), with the participation of ICTP. The Conference was co-sponsored by the International Association of Geomagnetism and Aeronomy (IAGA), the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) and the International Association of Meteorology and Atmospheric Physics (IAMAP). It was also financially supported by the Centre National d'Etudes Spatiales (CNES) and the Centre National de la Recherche Scientifique (CNRS) of France and one of the participants received full financial assistance from the Outer Space Affairs Division of the United Nations which approved a request of support from the Conference director. The activity was organized by the Programme Committee under the Chairmanship of Prof. S. M. Radicella (IIEEM & ICTP). The Programme Committee consists of Dr. M. L. Chanin (France), Dr. J. L. Fellous (CNES France), Dr. M. Geller (SCOSTEP Representative), Dr. R. Gendrin (CNRS France), Prof. K. Labitzke (IAMAP Representative), Prof. J. Roederer (University of Alaska, USA), Prof. F. Stravisi (University of Trieste and ICTP), Prof. J. Taubenheim (IAGA Representative). The Conference was co-directed by Prof. G. Furlan (University of Trieste & ICTP) and Prof. S. M. Radicella.

The participants were 62, from the following regions and countries:

*Africa* : Algeria, Egypt, and Nigeria

*Americas* : Argentina, Brazil, Jamaica, and United States

*Asia* : India, Indonesia, Malaysia, and People Republic of China

*Europe (West)* : France, Germany, Italy, Switzerland, and United Kingdom.

*Europe (East)*: Bulgaria, Czechoslovakia, Poland, Romania, Turkey, and USSR.

The main purpose of the Conference was to discuss the major open questions on the science of the atmosphere and near space environment - regarded as an interactive system - and to promote significant contributions of scientists in developing countries to ground based and space international programmes of the 1990's in the field of atmospheric sciences, including both their monitoring and research aspects.

The first scientific session was devoted to the description of the following International Programs and Projects: Solar Terrestrial Energy Program, International Geosphere-Biosphere Program (in particular those areas of the Program devoted to the atmospheric sciences), and international Equatorial Electrojet Year. The proposal for the establishment of an International Forum on Geospace Sciences for Developing Countries in Trieste was also described and discussed during the same session. The Forum was envisaged as a valid mechanism to promote the effective participation of scientists from developing countries together with those from more developed countries in the international programs and projects. The importance of the Schools that should be organized as part of the Forum activities and the need to define the structure of the SCHOOL ON PHYSICAL METHODS FOR THE STUDY OF THE UPPER AND LOWER ATMOSPHERE SYSTEM to be held in Trieste on October 26- November 6, 1992 and planned as a follow up of the Conference was stressed.

The subsequent scientific sessions were devoted to the following topics:

Topic 1.- Effects of the variability of the solar energy input on the atmospheric system.

Topic 2.- Lower and middle atmosphere aspects of the climatic variability.

Topic 3.- Interactive processes between lower and upper atmosphere.

Topic 4.- Ionospheric variability and its impact on telecommunications.

Topic 5.- Upper atmosphere-magnetosphere-near space coupling.

During these sessions tutorial lectures on the present status of the scientific problems related to the specific topic were delivered. The need for interdisciplinary and truly international approach was particularly stressed in each case. The lectures were followed by reports of developing countries scientists on the activities in their countries.

The participants split in five topical groups coordinated by two conveners and met to identify research areas where the scientists from all the countries represented at the Conference could work jointly. A series of such areas were defined and the corresponding ad-hoc working teams were organized. Specific suggestions on the subjects to be given at the 1992 School were discussed by each of the topical groups.

The conclusions of the group meetings were presented and discussed during a general meeting. The problems of long-term monitoring of atmospheric and near space sciences parameters were also discussed at the same meeting.

The approved research areas by topics are:

Topic 1 ( Conveners: Prof. K. Labitzke [Germany] and Prof. Zhang Qu [P. R. of China] ) : Analysis of the variability of precipitation and surface temperature by means of ground and satellite data.

Topic 2 ( Conveners: Prof. R. Bojkov [WMO] alternate Dr. M.L. Chanin [France] and Dr. I. Velasco [Argentina] ): Regional variability of stratospheric O<sub>3</sub> and temperature.

Topic 3 ( Conveners: Dr. M. Geller [U.S.A.] and Prof. S. H. Makarious [Egypt] ): a) Dynamical and electrical coupling between the lower atmosphere and the thermosphere/ionosphere; b) Influences of regional tropospheric weather disturbances on the middle and upper atmosphere.

Topic 4 ( Conveners: Prof. A. W. Wernik [Poland] and Prof. J.O.Oyinloye [Nigeria] ): a) Studies of the medium scale spatial and temporal variations in the ionosphere primarily related to the tropospheric storms, topography and earthquakes; b) Studies of low -latitudes spread F and scintillations aiming to the modeling of such phenomena; c) Studies on the International Reference Ionosphere accuracy using past and new measurements and, when appropriate, seek to produce new regional models of improved accuracy.

Topic 5 ( Prof. J. Roederer [U.S.A.] and Dr. J. H. Sobral [Brazil] ): a) Low-latitudes response to high-latitudes perturbations; b) Global study of major geomagnetic storms.

It was decided that a final report on the Conference will be prepared and circulated by Prof. S. M. Radicella after all the conveners will send him their revised Working Team reports with the list of the participants in each of the research areas identified. The final document should be used to describe the activities that have been planned as result of the Conference on a national and international level. Prof. S. M. Radicella was assigned with the coordination of such activities and was authorized to designate members of a Committee that will help him in such duties.

At the closing the following resolution was passed :

" The scientists participating in the Conference on Major Scientific Problems of the Atmospheric System and the Developing Countries express their gratitude to the International Centre for Science and High Technologies, the International Centre for Theoretical Physics and the other supporting organizations for their assistance and congratulate Professor Sandro M. Radicella for organizing a most unique and successful meeting. They further express their hope that Professor Radicella will receive continued support to assure the implementation of the important scientific recommendations formulated at the Conference ".

INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS  
Trieste, Italy

Conference on Major Scientific Problems of the  
Atmospheric System and the Developing Countries  
Trieste, 11 - 15 November 1991

UNIDO Project US/GLO/89/104  
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**FINANCIAL STATEMENT**

( in US\$ )

**1 DIRECTORS**

Chanin, M.L.	France	1,362.73
Gendrin, R.	France	365.86
Radicella, S.	Argentina	11,127.23
	<i>Subtotal</i>	<b>12,855.82</b>

**2 LECTURERS**

Costs reimbursed by C.N.R.S. - Paris, France

**3 PARTICIPANTS**

Abdu, M.	India	2,208.42
Chen, A.A.	Jamaica	2,265.04
Datta, J.	India	1,681.30
Fares, A.	Algeria	696.01
Halenka, T.	Czechoslovakia	292.68
Hassan, G.K.Y.	Egypt	1,320.30
Ibrahim, A.M.	Egypt	1,320.30
Jain, P.C.	India	2,295.19
Kartal, S.	Turkey	146.34
Lastovicka, J.	Czechoslovakia	292.68
Liu, R.	China	2,062.24
Ma, J.	China	2,014.11
Makarious, S.H.	Egypt	1,129.86
Manzano, J.R.	Argentina	1,839.10
Ogunade, S.O.	Nigeria	1,091.19
Ortiz De Adler, N.	Argentina	2,298.51
Piazza Rizzo, L.	Brazil	2,180.44
Rastogi, R.C.	India	1,596.74
Sarma Devi, M.	India	1,806.50
Serafimov, K.	Bulgaria	657.65
	To be carried fwd.	29,194.60

	Brought fwd:	29,194.60
Sobral, J.	Brazil	2,180.43
Sulaiman, H.	Indonesia	2,743.90
Temel, R.A.	Turkey	1,228.46
Velasco, I.	Argentina	2,113.65
Wang, J.	China	2,057.75
Wirasasmita, M.	India	2,743.90
Zain, A.F.M.	Malaysia	1,539.00
Zaitsev, A.	USSR	310.57
Zhang, Q.	China	1,983.56
Zoran Dida, M.	Romania	300.97

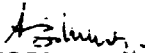
*Subtotal* **46,396.79**

**4 OVERHEADS**

UNIDO share of total overhead charges (inclusive of organization, supervision, technical assistance, secretariat, provision of facilities, etc.)

**10,747.39**

*Total* **70,000.00**

  
ICTP Finance/am  
1991-12-10