FERENC MISKOLCZI

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PROFESSIONAL EXPERIENCE

Senior Principal Scientist 2001-2006

Analytical Services & Materials Inc., Hampton, Virginia

- Analyzed the information content of the far infrared spectral range for remote sensing of the water vapor and temperature profiles using hyper-spectral measurements. Developed spectral filtering and cleaning procedure for the comparisons of the AIRS – CERES window radiances. Worked on the far infrared climatology and the theoretical assessment of the far infrared greenhouse effect. Developed new greenhouse effect formulation for global change applications. For surface based radiation measurement applications I developed an interactive quality checking and correction software. Worked on the problems of aerosol sounding in the oxygen-A band using the NASA- LAABS narrow-band visible spectrometer.

Senior Principal Scientist 1999-2001

Raytheon STX Corporation, Lanham, Maryland

- Worked on the development of the data evaluation software for the Ozone Mapping and Profiling Suite (OMPS) instrument of the National Polar-orbiting Operational Environmental Satellite System. In particular, developing correction algorithms for the limb sensor to compensate for inaccuracies due to the line-of-sight inhomogeneity of the ozone field.

Assistant Research Scientist 1996-1999

Department of Meteorology, University of Maryland

- Involved as a Co-Principal Investigator in a NASA EOS validation project. Deployed multi-channel sun-tracking photometers with satellite uplink at various geographical locations for validating aerosol optical depth retrievals.

- Worked on projects related to the Global Imager (GLI) instrument of the Advanced Earth Observing Satellite II (ADEOS) of National Space Development Agency (NASDA) of Japan. Developed algorithms for retrieval of surface temperature, outgoing long wave radiation (OLR) and precipitable water from radiances of the ADEOS and GOES Imagers.

- Implemented CO_2 Q-band line mixing computation algorithm into the HARTCODE line-by-line computer code using the most accurate relaxation operator method.

PROFESSIONAL EXPERIENCE (Continued)

- Worked on the evaluation of the performance of the HIS and other infrared interferometers, and joined in several validation campaigns aimed to identify the deficiencies of the different high-resolution spectral radiance codes. Focused on the problems of the accurate empirical H_2O continuum parameterization.

Research Associate 1991-1996

Department of Meteorology, University of Maryland

- Worked on the measurement and utilization of the photosynthetically active radiation (PAR) and its optimal conversion to photosynthetic photon flux density (PPFD).

- Developed the spectral flux version of HARTCODE line-by-line radiative transfer code. Using the improved HARTCODE flux algorithm, evaluated the operational accuracies of pyrgeometers.

Research Associate 1987-1989

International Center for Theoretical Physics, Trieste, Italy

- Worked on problems of validation of satellite IR measurements and the evaluation of surface downward IR radiation flux density, using pyrgeometers. Determined the quantitative effect of the non-uniform spectral distribution of the (silicon) dome transmittance on the accuracy.

- Awarded research grants by the International Center for Theoretical Physics, to work at the Instituto per lo Studio delle Metodologie Geofisiche Ambientali (IMGA-CNR) in Modena, Italy, on problems of radiation measurements and radiative transfer, in particular, on the development of a new IR high-resolution transmittance code.

Senior Lecturer 1983-1987

Department of Physics, University of Calabar, Calabar, Nigeria

- I worked as the leader of the Atmospheric Physics Group and the Geo-environmental Field Station, was a member of the Departmental Graduate Committee and Chairman of the Laboratory Physics Program Panel.

- Taught physics, physical meteorology, meteorological instrumentation and data analysis at both undergraduate and graduate level.

PROFESSIONAL EXPERIENCE (Continued)

Head of the Department of Atmospheric Radiation 1975-1983, 1990-1991

Institute for Atmospheric Physics, Budapest, Hungary

- Organized and performed various field measurement projects as needed for industrial and regional planning. Also, worked on the computerization of radiation measurements and implementation of new measuring instruments at the Budapest BSRN station.

- Participated with standard radiometers and a Dobson spectrophotometer in international calibration campaigns organized by the WMO in Davos and Arosa, Switzerland.

MEMBERSHIP

- American Geophysical Union

EDUCATION

- Ph.D. Degree in Earth Sciences, (1981)
  Hungarian Academy of Sciences, Budapest, Hungary
  Thesis:
  Determination of Total Ozone and the Main Characteristics of the Vertical Distribution of Ozone Using Satellite Infrared Measurements.

- Ph.D. Degree in Physics, (1975)
  Eotvos Lorand University, Budapest, Hungary
  Thesis:
  Evaluation of the CO_2 Atmospheric Transmission Functions for Remote Sensing of Temperature Profiles.

- MS. Degree in Physics, (1971)
  Eotvos Lorand University, Budapest, Hungary
  Thesis:
  Activation Analysis Using 14MeV Neutrons.

- Diploma in High-level Computer Programming, (1974)
  International Educational Center for Computer Technique, Budapest, Hungary

RECENT PUBLICATIONS

F. MISKOLCZI, M. BONZAGNI, R. GUZZI, (1990)
High-resolution Atmospheric Radiance-Transmittance Code HARTCODE
Meteorology and Environmental Sciences, World Scientific Pub. Co., 1990, 743-790

F. MISKOLCZI and R. GUZZI, (1993)
Effect of the Non-uniform Spectral Dome Transmittance on the Accuracy of the IR Radiation Measurements Using Shielded Pyrradiometers and Pyrgeometers
Applied Optics, Vol. 31, 3257-3265

R. T. PINKER, I. LASZLO, and F. MISKOLCZI, (1993)
Photosynthetically Active Radiation from Satellite Observations
IRS'92: Current Problems in Atmospheric Radiation, A. Deepak Pub., 202-206.

F. MISKOLCZI, (1994)
Modeling of Downward Surface Longwave Flux Density for Global Change Applications and Comparisons with Pyrgeometer Measurements
Journal of Atmospheric and Oceanic Technology, Vol. 11, No. 2, 608-612.

F. MISKOLCZI and G. KONIG LANGLO (1997)
Evaluation of Clear-Sky Downward Longwave Irradiance as Observed in Antarctic Atmosphere
IRS'96: Current Problems in Atmospheric Radiation, A. Deepak Pub., 50-53

F. MISKOLCZI, R. T. PINKER and T. O. ARO, (1997)
Surface Radiative Fluxes in sub-Sahel Africa
Journal of Applied Meteorology, Vol. 36, No. 5, 521-529

F. MISKOLCZI and R. RIZZI, (1997)
CO2 Q-Band Line Mixing in HARTCODE
Dipartimento di Fisica, Universita degli Studi di Bologna, Technical Note DFUB 97-1

F. MISKOLCZI and R. RIZZI (1998)
High accuracy skin temperature retrieval using spectral measurements of multi-channel imagers.
Paper presented at the International Radiation Symposium 1998, Madison, Wisconsin, USA

R. RIZZI, M. MATRICARDI and F. MISKOLCZI, (2002)
On the simulation of up-looking and down-looking high-resolution radiance spectra using two different radiative transfer models.
Applied Optics 41, 940-956

F. M. MISKOLCZI and MARTIN G. MLYNCZAK (2004)
The greenhouse effect and the spectral decomposition of the clear-sky terrestrial radiation.
IDŐJÁRÁS, Vol. 108, No. 4, 209–251