

Award winner's brief biodata

I GENERAL INFORMATION:

Name: Jorge Arturo Gutiérrez Camacho

Place of birth: San José, Costa Rica

Date of birth: January 1, 1962

Nationality: Costa Rican

II EDUCATION:

B.Sc. Physics, Universidad de Costa Rica, San José, Costa Rica, 1985.

M.Sc Physics, Ohio University, Athens Ohio, U.S.A., 1988.

M.Sc. Mathematics, Ohio University, Athens Ohio, U.S.A., 1990

Ph.D., Meteorology, University of Reading, Reading, Berkshire, England. 1997.

III POSITIONS:

(1983-1985) Physics laboratory assistant, Escuela de Física, Universidad de Costa Rica

(1985-1988) Graduate assistant (laboratory courses), Department of Physics, Ohio University, United States.

(1988-1990) Teaching assistant (algebra and calculus courses), Department of Mathematics, Ohio University, United States.

(1990-1992) Lecturer, a.i., (courses on electricity and magnetism, mechanics, electronics laboratory, classical mechanics laboratory), Escuela de Física, Universidad de Costa Rica.

(1990) Lecturer, a.i., (courses on calculus, algebra and complex variable), Escuela de Matemáticas, Universidad de Costa Rica.

(1997-1998) Invited Lecturer (M.Sc. courses on meteorology, dynamics of the atmosphere; extra-tropical systems, mesoscale dynamics, tropical dynamics, B.Sc. courses on meteorology, optics and atmospheric radiation, dynamics of the atmosphere, chaotic dynamical systems and their impact on weather forecasting.

(1999-present) Associate Professor of Meteorology, Universidad de Costa Rica.

IV PUBLICATIONS:

Gutiérrez, J.A. (1990). Saddle points and basin boundaries in the Duffing attractors. *Memorias: Tercer Congreso Nacional de Matemáticas, U.C.R., 15-19 octubre 1990.*

Gutiérrez, J.A. and A.J. Thorpe (1996). Vorticity and potential vorticity in stratified flows interacting with an isolated obstacle. *JCMM, Internal Report, 64, Joint Centre for Mesoscale Meteorology, United Kingdom.*

Gutiérrez, J.A. and A.J. Thorpe (1996). Lee vortices due to flow past mesoscale mountains. *Seventh Conference on Mesoscale Processes. American Meteorological Society and Royal Meteorological Society, September, 9-13, 1996. Reading, United Kingdom.*

Gutiérrez, J.A. (1997). Description of a mesoscale (limited area) numerical model. *Tópicos Meteorológicos y Oceanográficos 4(2).*

Gutiérrez, J.A. (1998). The effect of the Rossby number on vortex shedding and associated surface pressure drag in low Froude number flows. *Tópicos Meteorológicos y Oceanográficos. 4(3).*

Gutiérrez, J.A. (1999). Numerical simulation of mountain wave generation past an isolated obstacle. Accepted for publication in *Tópicos Meteorológicos y Oceanográficos.*

Gutiérrez, J.A. (1999). Numerical simulation of high Froude number flow past an isolated obstacle subject to background rotation. Accepted for publication in *Tópicos Meteorológicos y Oceanográficos.*

V HONORS:

Scholarship: 'Connaissance de la France', 1981. Ministry of Education of France

Scholarship granted by the World Meteorological Organisation to pursue doctoral studies in England.

VI RECENT RESEARCH AND ACADEMIC LABOR:

Dr. Jorge Gutiérrez has been dedicated to teaching and research activities at the University of Costa Rica. He mainly gives lectures on dynamics of the atmosphere, this includes synoptic and mesoscale circulations as well as extratropical and tropical systems. Dr. Gutiérrez lectures in both the M.Sc. and B.Sc. meteorology programs of the Department of Meteorology and Oceanography of the School of Physics of the University of Costa Rica.

His research interests include the use of three-dimensional numerical models to investigate the dynamics of flows interacting with orography and the influence of orography on the enhancement of rain.

Dr. Gutiérrez's research is of particular value in a country like Costa Rica due to the extensive mountain formations that cover large areas of the country.

Dr. Gutiérrez is interested in the use of mesoscale limited area models including the orography of Costa Rica in order to generate forecasts of precipitation. These forecasts could be of great importance in determining the areas more prone to be flooded and those mountainous regions where landslides could occur.

The use of these three-dimensional mesoscale computations can also provide forecast of atmospheric turbulence which are of interest in civil aviation, since turbulence is a hazard to planes.

His recent publications are:

Gutiérrez, J.A., Thorpe A.J. "Low froude number stratified flow interacting with an isolated obstacle", *Top. Meteor. Oceanogr.*, 4 (2): 109-128, 1997.

Gutiérrez, J.A. "Viscous low froude number flow interacting with mesoscale orography", *Top. Meteor. Oceanogr.*, 5 (1): 55-66, 1998.

Gutiérrez, J.A. "Impact of horizontal resolution in the generation and evolution of potential vorticity and vertical vorticity in orographic flows", *Top. Meteor. Oceanogr.*, 5 (1): 67-78, 1998.