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EDUCATION

M.S. Meteorology (May 2003) – San Jose State University, California, USA
Thesis: Dynamic and Thermal Circulations over the Tharsis Region on Mars
B.S. Computer Engineering (March 1999) - Ateneo de Manila University, Philippines
Thesis: Automated Guided Vehicle for Food and Mail Transport
B.S. Physics (March 1998) - Ateneo de Manila University, Philippines
Thesis: The Use of the Global Positioning System to Study the Ionosphere and the Troposphere

WORK EXPERIENCE

Research Assistant (April 1, 2005 – present) – Department of Civil and Environmental Engineering, Stanford University, Stanford, California
Research:
Modeling the feedback of large wind farms on weather and climate.
Research Associate (April 1, 2003 – February 28, 2005) – SETI Institute, Mountain View, California, USA
Research:
Development of state-of-the-art evaporation models and use of those models to investigate potential sites for melting on Mars
Graduate Assistant (July 24, 2000 – March 31, 2003) – Department of Meteorology, San Jose State University, San Jose, California, USA.
Research:
Mesoscale modeling of the Martian atmosphere, specifically atmospheric circulations over the Tharsis region.
Research Assistant (June 1, 1999 – June 30, 2000) – Regional Climate Modeling Group, Climate Studies Division, Manila Observatory, Quezon City, Philippines
Research:
Philippine Rainfall Climatology Using NCAR/NCEP and ECMWF Reanalyses
Feasibility study on the development of a wind farm in northwestern Luzon Island

PUBLICATIONS

Sta. Maria, M.R.V., M. Jacobson, 2009: Investigating the Effect of Large Wind Farms on Energy in the Atmosphere. *Energies*, **2**, 816-838.
Sta. Maria, M. R. V., S. C. Rafkin, T. I. Michaels, 2006: Bore Waves on Mars as Simulated by the Mars Regional Climate Model. *Icarus*, **185**, 383-394.
Rafkin, S. C. R., M. R. V. Sta. Maria, T. I. Michaels, 2002: Simulation of the Atmospheric Thermal Circulation of a Martian Volcano Using a Mesoscale Numerical Model. *Nature*, **419**, 697-699.

PRESENTATIONS

Sta. Maria, M.R.V., M. Jacobson, 2010: Implementation of the Blade Element Momentum Method into a High-Resolution 3-D Atmospheric Model: Evaluating a Parameterization for Wind Turbines. Presented, AGU 2010 Fall Meeting, San Francisco, California, Dec. 13-17, 2010.

- Sta. Maria, M.R.V., M. Jacobson, 2010: New Parameterization for the Interaction between Wind Turbines and the Atmosphere. Presented, Fifth International Symposium on Computational Wind Engineering, Chapel Hill, North Carolina, May 23-27, 2010.
- Sta. Maria, M.R.V., M. Jacobson, 2008: Investigating Interactions between Wind Turbines and the Atmosphere. Presented, AGU 2008 Fall Meeting, San Francisco, California, Dec. 15-19, 2008.
- Sta. Maria, M.R.V., M. Jacobson, 2007: Examining the effects of wind farms on array efficiency and regional meteorology. Presented, Windpower 2007, Los Angeles, California, June 3-6, 2007.
- Sta. Maria, M. R. V., F. Montmessin, R. M. Haberle, F. Forget, F. Han, 2004: Melting of Water Ice in the Martian Subsurface Near the Phoenix Landing Site: Results of a 1D Model. Presented, 36th Division of Planetary Science Meeting, 2004.
- Sta. Maria, M., S. C. Rafkin, 2002: Structure and seasonal variations of martian bore wave systems. Presented, AGU 2002 Fall Meeting, San Francisco, California, 2002.
- Sta. Maria, M., S. C. R. Rafkin, 2001: Simulation of Thermal Circulations Over the Slopes of Tharsis. Presented, 33rd Division of Planetary Science Meeting, 2001.
- Estoque, M., M. Sta. Maria, J. Villarín, 1999: Dynamics of El Niño and La Niña over Southeast Asia. Presented, 1999 National Physics Congress, Tacloban, Leyte, Philippines