

Curriculum Vitae of  
**Gregory John Husak**

Department of Geography  
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## **PROFESSIONAL POSITIONS**

2006-Present Assistant Researcher

- Performed research aimed at monitoring food insecurity in developing countries
- Created software modules to assist in the monitoring of rainfall
- Developed new veins of research for proposals
- Worked with graduate students to refine and enhance their studies

2005-2006 Research Specialist

- Created techniques for fusing station data with satellite rainfall estimates in Southeast Asia
- Worked with processing of satellite data for food production estimates in Africa
- Analysis of disparate rainfall datasets available for the conterminous United States

## **EDUCATION**

1999-2005 Ph.D. in Geography University of Calif., Santa Barbara

- Dissertation: Methods for Statistical Evaluation of African Precipitation
- Development of tools for merging forecast probabilities with climatologic information in Africa
- Created a working version of the Standardized Precipitation Index (SPI) for the African continent merging model data and satellite observations
- Used SPI methodology for improvement of the Basin Excess Rainfall Model (BERM) in use at EROS data center
- Worked on the development of the Forecast Interpretation Tool/FEWSNET AgroClimatological Toolkit (FIT/FACT)

1996-1999 M.A. in Geography University of Calif., Santa Barbara

- Thesis: The Impact of Landsat Thematic Mapper Positional Accuracy on the Validation of the DISCover Global Land Cover Database
- Developed methodology for preparation of Thematic Mapper satellite data for the validation of the DISCover dataset

1992-1996 B.S. in Environmental Science University of Calif., Santa Barbara

## **PUBLICATIONS**

### ***Peer-Reviewed Journal Articles***

Marshall M, GJ Husak, J Michaelsen, C Funk, D Pedreros, and A Adoum. A High Resolution Satellite Interpretation Technique for Crop Area Monitoring in Developing Countries. *International Journal of Remote Sensing*, in press.

Harrison L, J Michaelsen, C Funk and G Husak, 2011. Effects of Temperature Changes on Maize Production in Mozambique. *Climate Research*, 46(3):211-222.

Husak GJ, J Michaelsen, P Kyriakidis, JP Verdin, C Funk, G Galu, 2011. The Forecast Interpretation Tool – a Monte Carlo Technique for blending climatic distributions with probabilistic forecasts. *International Journal of Climatology*, 31(3): 461-467.  
doi: 10.1002/joc.2074

Husak GJ, MT Marshall, J Michaelsen, D Pedreros, C Funk, G Galu, 2008. Crop Area Estimation Using High and Medium Resolution Satellite Imagery in Areas with Complex Topography. *Journal of Geophysical Research*, 113, D14112.

Husak G, J Michaelsen, and C Funk, 2007. Use of the Gamma Distribution to Represent Monthly Rainfall in Africa for Drought Monitoring Applications. *International Journal of Climatology*, 27: 935-944.

Funk C, J Michaelsen, J Verdin, G Artan, G Husak, G Senay, H Gadain, and T Magadzire, 2003. The collaborative historical African rainfall model: Description and evaluation. *International Journal of Climatology*, 23(1): 47-66.

Husak GJ, BC Hadley, and KC McGwire, 1999. Landsat Thematic Mapper Registration Accuracy and its Effects on the IGBP Validation. *Photogrammetric Engineering & Remote Sensing*, 65(9): 1033-1039.

### ***Publications Submitted for Review***

Grace K, G Husak, L Harrison, D Pedreros and J Michaelsen. Using Demographic Data to Estimate Cropped Area in Highly Undernourished Countries. *Applied Geography*, *Accepted with revisions March 2011*.

Tarnavsky E, M Mulligan and GJ Husak. Spatial Disaggregation and Intensity Correction of TRMM-Based Rainfall Time Series for Hydrological Applications in Dryland Catchments. *Hydrological Sciences Journal*, *Accepted with revisions May 2011*.

Mahiny AS, C Funk and G Husak. Land Use and Cover Changes in Ethiopia, Observations and Implications for Drought and Food Security. *Remote Sensing and Environment*, *Submitted November 2010*.

Jankowska MM, Lopez-Carr D, Funk C, Husak GJ, Chafe ZA. Climate Change and Human Health: Spatial Modeling of Water Availability, Malnutrition, and Livelihoods in Mali, Africa. *Applied Geography*, *Submitted March 2011*.

Husak GJ, Funk CC, Michaelsen J, Magadzire T, Goldsberry KP. How the Past Can Help Prevent Future Food Shortages. *Journal of Applied Meteorology and Climatology*, *Submitted April 2011*.

### ***Non-Refereed Publications***

Verdin, J, G Galu, R Choularton, G Husak, 2008. Integrating Seasonal Forecasts into Food Security Outlook Analyses. *Submitted to Food Security and Environmental Change (ENVR 2008): April 2008*.

Crop Area Estimation Using High and Medium Resolution Satellite Imagery in Areas with Complex Topography. Husak, G., Marshall, M., Michaelsen, J., Pedreros, D., Funk, C., Galu, G. Crop and Rangelands Monitoring Workshop: March 2007.

Third Generation Rainfall Climatologies: Satellite Rainfall and Topography Provide a Basis for Smart Interpolation. Funk, C., Husak, G., Michaelsen, J., Love, T., Pedreros, D. Crop and Rangelands Monitoring Workshop: March 2007.

Integrating Observation and Statistical Forecasts Over Sub-Saharan Africa to Support Famine Early Warning. Funk, C., Verdin, J., Husak, G. American Meteorological Society Extended Abstract: November 2006.

Follow-up Analysis of Drought Situation in Southern Africa 2003/04 Growing Season. Funk, C., Magadzire, T., Masundire, T., Husak, G. AgroMet Special Update: February 2004.

June-July-August 2003 Rainfall Forecast Interpretation for Central America. Funk, C., Pedreros, D., Husak, G., Eilerts, G., Verdin, J., Rowland, J. FEWSNET Special Report: March 2003.

Interpretation of February-April 2003 Forecast Update: Implications on Maize Agriculture in the SADC Region. FEWSNET Special Report: February, 2003.

Observations on the Relationship Between October and Late-season Rainfall for Southern Africa. Husak, G., Funk, C., Rowland, J., Michealsen, J., Verdin, J. FEWSNET Weather Bulletin: December, 2002.

Forecasts of 2002/2003 Southern Africa Maize Growing Conditions Based on October 2002 Sea Surface Temperature and Climate Fields. Funk, C., Magadzire, T., Husak, G., Verdin, J., Michaelsen, J., Rowland, J. FEWSNET Special Report: November, 2002.

## **PRESENTATIONS AND LECTURES**

### ***Invited Talks***

- CHG Food Security Research: Turning Science into Decisions. Jena University, Department of Geoinformatics and Remote Sensing. Jena, Germany; March, 2010.
- Use of Hi-Res Satellite Imagery for Estimating Cropped Area. USGS Offices, Herndon, VA; October, 2009.
- FEWSNET West Shewa Cropped Area Estimate. Central Statistics Agency, Addis Ababa, Ethiopia; June, 2009.
- Remote Sensing Estimates of Cropped Area and Production in Africa. CSU Fullerton, Department of Geography Colloquium; January, 2008.
- The Forecast Interpretation Tool: Converting Probability to Rainfall. University of Costa Rica; March, 2006.

### ***Professional Meetings***

- Grace, K. and Husak, G., 2010. Estimating Cropped Area in Haiti and Guatemala. European Population Conference: Vienna, Austria.
- Grace, K. and Husak, G., 2010. Using Demographic Data to Estimate Cropped Area in Highly Undernourished Countries. Association of American Geographers Annual Conference: Washington D.C., USA.
- Verdin, J.P., Funk C., Budde M.E., Lietzow R., Senay G.B., Smith R., Pedreros D., Rowland J., Artan G.A., Husak G.J., Michaelsen J., Adoum A., Galu G., Magadzire T., Rodriguez M., 2009. Monitoring and modeling agricultural drought for famine early warning (*Invited*). American Geophysical Union Fall Meeting: San Francisco, California.
- Husak, G.J., Funk, C., Dettinger, M., Pedreros, D., Verdin, J.P., 2008. Investigation of the Impacts of Climate Change on Crop Productivity and Drought Events. Computational Methods in Water Resources, XVII International Conference: San Francisco, California.
- Husak, G.J. and Funk, C., 2007. SPI Forecasting in the Conterminous United States. American Association of Geographers Annual Meeting: San Francisco, California.
- Husak, G.J. and Artan, G., 2006. Data Infrastructure for Wide-Area Hydrologic Modeling. International Conference on Flash Flood Forecasting: San Jose, Costa Rica.

Husak, G.J. and Magadzire, T., 2005. Monitoring Southern African Rainfall Season Utilizing Growing Regions. American Geophysical Union Annual Meeting: San Francisco, California.

Husak, G.J., 2002. Forecast Interpretation Tool. Southern Africa Regional Climate Outlook Forum (SARCOF-6): Harare, Zimbabwe.

Husak, G.J., 1999. Coordinate Comparison of NLAPS and MRLC Data. Association of American Geographers, 95<sup>th</sup> Annual Meeting: Honolulu, Hawaii.

### *Chaired Sessions*

Forests and Precipitation. Association of American Geographers Annual Meeting: San Francisco, California. April 17-21, 2007.

### *Guest Lectures*

Geography 5: Food Aid in Africa. University of California, Santa Barbara; Spring, 2007.

Geography 110: Solar Radiation Balance. University of California, Santa Barbara; Winter, 2007.

Geography 115C: Estimating Rainfall from Space. University of California, Santa Barbara; Spring, 2005.

Geography 115B: Remote Sensing of the Atmosphere. University of California, Santa Barbara; Winter, 2004.

Geography 3A: African Cloud and Rainfall Monitoring. University of California, Santa Barbara; Summer, 2003.

Geography 115A: Introduction to Atmospheric Scattering. University of California, Santa Barbara; Fall, 2002.

### *Posters*

A statistical technique for defining rainfall forecast probabilities in southern Africa. GJ Husak, T Magadzire. American Geophysical Union Fall Meeting: San Francisco, CA. December 13-17, 2010.

The effect of El Nino on agricultural water balances in Guatemala. D Pedreros, J Michaelson, L Carvalho, C Funk, G Husak. American Geophysical Union Fall Meeting: San Francisco, CA. December 13-17, 2010.

Assessment of climate change impacts on water resources in semi-arid eastern Mediterranean Turkey. C Donmez, E Thomas, D Pedreros, G Husak, M Krause, M

Kunz, S Berberoglu, J Helmschrot. American Geophysical Union Fall Meeting: San Francisco, CA. December 13-17, 2010.

Weighted Standardized Precipitation Index for Crop Monitoring in the Greater Horn of Africa. GJ Husak. American Geophysical Union Fall Meeting: San Francisco, CA. December 14-18, 2009.

Using radiosonde data to examine trends in atmospheric stability in the tropical Pacific, Asia, and western Americas. AP Williams, GJ Husak. American Geophysical Union Fall Meeting: San Francisco, CA. December 14-18, 2009.

Forecasting Food Production for Zimbabwe. Husak, G.J., Williams, A.P., Funk, C. American Geophysical Union Fall Meeting: San Francisco, CA. December 15-19, 2008.

Climatic Controls on Summertime fog Patterns Along the U.S. West Coast. Williams, A.P., Still, C., Husak, G., Michaelsen, J. American Geophysical Union Fall Meeting: San Francisco, CA. December 15-19, 2008.

Developing Cropped Area Estimates for Niger From Multi-Sensor Satellite Imagery. Husak, G., Marshall, M., Funk, C., Pedreros, D., Michaelsen, J., Harrison, L. American Geophysical Union Fall Meeting: San Francisco, CA. December 10-14, 2007.

Improved Rainfall Estimation and Monitoring Tools Using the GeoFuse Process. Husak, G., Funk, C., Pedreros, D., Michaelsen, J. 5<sup>th</sup> Annual Mekong Flood Forum: Ho Chi Minh City, Vietnam. May 17-18, 2007.

Modeling Precipitation in Central America and Africa, Preliminary Results. Funk, C., Michaelsen, J., Pedreros, D., Davenport, F., Husak, G., Verdin, J., Verdin, K. NASA Precipitation Measurement Missions Science Team Meeting: Atlanta, GA. May 7-10, 2007.

Developing an Improved Gridded Standardized Precipitation Index for the United States. Husak, G.J. American Geophysical Union Fall Meeting: San Francisco, CA. December 11-15, 2006.

Crop Area Estimation Using High Spatial Resolution Satellite Imagery and Area Frame Sampling. Marshall, M.T., Husak, G.J., Pedreros, D., Alcaraz Velasco G. American Geophysical Union Fall Meeting: San Francisco, CA. December 11-15, 2006.

Utilization of RFE and Station Data to Drive Drought and Flood Models. Artan, G., Husak, G.J. and Verdin, J. Mekong River Commission, 4<sup>th</sup> Annual Mekong Flood Forum. May 18-19, 2006.

Identifying the Impact of Natural Hazards on Food Security in Africa: Crop Monitoring Using MODIS NDVI Time-Series. Freund, J.T., Husak, G., Funk, C., Brown, M.E., Galu, G. American Geophysical Union Fall Meeting: San Francisco, CA. December 5-9, 2005.

Monitoring and Forecasting Drought in Southern Africa During the 2002-2003 Season. Verdin, J., Funk, C.C., Magadzire, T., Michaelsen, J., Husak, G. 16<sup>th</sup> Conference on Climate Variability and Change: San Diego, CA. January 2005.

## **FELLOWSHIPS, GRANTS AND AWARDS**

Monitoring and Forecasting Climate, Water and Land Use for Food Production in the Developing World, United States Geologic Survey. PI. \$4,084,833.

Developing an Improved Drought Early Warning Data Portal, Science Systems and Applications, Inc. PI. 10/1/2008-9/30/2009, \$72,000.

2007 Zimbabwe Cropped Area Assessment, United States Department of Agriculture. Co-PI. 5/6/2007-9/30/2007, \$38,074.

Precipitation Products for USAID Disaster management Requirements, Science Systems and Applications, Inc. PI. 5/1/2007-10/31/2007, \$18,560.

Estimating Cropped Area in Niger with Remotely Sensed Imagery, United States Department of Agriculture. Co-PI. 10/1/06-4/30/07, \$60,000.

Empirical and Diagnostic Analysis of the Influence of the Madden Julian Oscillation in Central America. National Science Foundation/University of Massachusetts. Co-Investigator. 10/1/05-11/30/07, \$40,000.

UCSB Graduate Council's Travel Grant. For travel to participate in a professional meeting. December, 2002.

## **TEACHING**

### *Courses*

Geography 115B: Introduction to digital image processing. University of California, Santa Barbara. Winter, 2003. (with Martin Herold)

### *Training*

GeoFuse: Rainfall Analysis and Enhancement Tool for Southeast Asia. International Center for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal. July 2006.

FEWSNET AgroClimatology Toolkit. Southern African Development Community, Regional Remote Sensing Unit, Harare, Zimbabwe. September 2002.

## **DEVELOPMENT**

### *Software*

GeoFUSE – A Rainfall Monitoring Toolkit for Southeast Asia. Funk, C., Husak, G., Pedreros, D., Michaelsen, J. Distributed by USAID Office of Disaster Assistance, October 2005.

The FEWSNET AgroClimatology Toolkit. Funk, C., Husak, G., Magadzire, T. Distributed by the USGS International Program, April 2002.

## **SERVICE**

### *Publication Review*

Environmental Geology (2008), Atmospheric Research (2008), Sensors (2008), Remote Sensing of Environment (2009), Meteorological Applications (2010), Journal of Hydroinformatics (2010), Environmental Earth Sciences (2010, 2011)

### *Proposal Review*

Group on Earth Observations in Decision Support Projects: Agriculture (2010)