Nicki Button

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Louisiana State University
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Education

Ph.D. Geology and Geophysics, Louisiana State University at Baton Rouge — Expected Graduation 2018
Advisor: Dr. Suniti Karunatillake, Planetary Science Laboratory (www.lsupsl.org)
Dissertation Topic: Remote Sensing Across the Terrestrial Planets, with an Emphasis on Mars

Programming Skills: Matlab, IDL, ArcGIS

Awards and Travel Grants: Department of Geology & Geophysics Scholarship, AGU 2013 Fall Meeting through Lunar Graduate Conference, 11th Meeting of the Venus Exploration Analysis Group (VEXAG), Analog Sites for Mars Missions II: Past, Present and Future Missions to Mars

B.S. Science of Earth Systems (oceanography concentration), Cornell University — May 2012
Minor in Marine Biology

Field Semester Programs:
SEA Semester: Oceans and Climate — Fall 2011
Cornell University Earth and Environmental Systems Field Program in Hawaii — Spring 2010

Awards: Dean's List, NASA/New York Space Grant Consortium's Undergraduate Early Science & Engineering Research Competition, Segal Americorps Education Award

Publications

Button, N., Karunatillake, S., Husch, J., Birch, S., Bentley, R. (2016), Distinguishing Between Terrestrial Bombsags and Dropstones Settings with Implications for Gusev and Gale Craters, Mars, *submitted to ICARUS*

Karunatillake, S., Wray, J., Gasnault, O., McLennan, S., Rogers, A., Squyres, S., Boynton, W., Skok, J.R., **Button, N.,** Ojha, L. (2016), The association of hydrogen with sulfur on Mars across latitudes, longitudes, and compositional extremes, *J. Geophys. Res. Planets, 121,* doi: 10.1002/2016JE005016

Heldmann, J., Colaprete, A., Elphic, R., Lim, D., Deans, M., Cook, A., Roush, T., Skok, J.R., **Button, N.,** Karunatillake, S., Stoker, C., Marquez, J., Shirley, M., Kobayashi, L., Lees, D., Bresina, J., Hunt, R. (2016), Lunar polar rover science operations: Lessons learned and mission architecture implications derived from the Mojave Volatiles Prospector (MVP) terrestrial field campaign, *Advances in Space Research Journal, 58(4),* 545-559, doi: 10.1016/j.asr.2016.05.011

Pritchard, M., Henderson, S., Jay, J., Soler, V., Krzesni, D., **Button, N.,** Welch, M., Semple, A., Glass, B., Sunagua, M., Minaya, E., Amigo, A., Clavero, J. (2014), Reconnaissance earthquake studies at nine volcanic areas of the central Andes with coincident satellite thermal and InSAR observations, *J. Volcanol. Geotherm. Res., 280,* 90-103, doi: 10.1016/j.volgeores.2014.05.004

Karunatillake, S., Zhao, Y., McLennan, S., Skok, J.R., **Button, N.** (2013), Does Martian soil release reactive halogens to the atmosphere?, *Icarus, 226(2),* 1438-1446, doi: 10.1016/j.icarus.2013.07.018

Project Team Experience

Member of the FINESSE (Field Investigations to Enable Solar System Science and Exploration) Team — August 2015 – Present

- Participated in the Summer 2015 field season at Craters of the Moon (COTM) National Monument, ID and assisted in using LiDAR (Light Detection and Ranging), hyperspectral imager, DGPS, and collecting samples
- Investigating the block distribution at King's Bowl, COTM as an analog to explosive volcanic environments on Mars

Member of the MVP (Mojave Volatile Prospector) Rover Mission Science Team, NASA Ames — August 2014 – Present

- Participated in the week-long mission simulation at NASA Ames for the MVP Rover by assisting as Camera Lead
- Utilizing TextureCam program to automatically identify each surface terrain type observed by the GroundCam instrument

Advisor for the MIDDAS (Mars Ice Deposit Detection by Application of Seismology) Project Team — August – December 2014
Planetary Science Laboratory, Louisiana State University

- Submitted a proposal to the Mars One 2018 Lander University Competition and placed in the Top 10
- https://community.mars-one.com/projects/middas-mars-ice-deposit-detection-by-application-of-seismology

Member of the Violet Satellite Project Science Team, Cornell University November 2008 – May 2011

- Developed the science plan for the investigation of polar mesospheric clouds using the spectrometer onboard the student designed and built Violet Satellite that will be launched in the coming years

Research Experience

Research Assistant for Dr. Subrahmanyam Bulusu, University of South Carolina at Columbia Academic Year 2012 – 2013

- Validated salinity data from Aquarius/SAC-D and Soil Moisture and Ocean Salinity (SMOS) satellites in the Agulhas Current
- Selected for the South Carolina Space Grant Consortium: Graduate Research Assistantship

Undergraduate Research Experience at Cornell University:

Research Assistant for Dr. Matthew Pritchard July 2010 – August 2012

- Located local earthquakes of three volcanoes in the central Andes to compare to local earthquakes of a supervolcano

Research Assistant for Dr. Donald Banfield December 2007 – September 2011

- Catalogued clouds on Mars in order to calculate the probability a cloud will be present at the locations of the Mars Exploration Rovers at a given time of the year

Research Assistant for Dr. Peter Thomas June 2009 – December 2009

- Mapped seasonal changes of the southern polar cap on Mars using the Context Camera on Mars Reconnaissance Orbiter

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Conference Proceedings

1. **Button, N.,** Skok, J. R., Heldmann, J., Thompson, D., Ortega, K., Francis, R., Karunatillake, S. (2015), Results of Texturecam Processing from the Mojave Volatiles Prospector (MVP) Rover Mission, LPSC, *Abstract #2239* (*poster*)
2. Heldmann, J. L., Colaprete, A., Cook, A., Roush, T., Deans, M., Elphic, R., Lim, D., Skok, J. R., **Button, N. E.**, Karunatillake, S., Garcia, G. (2015), Mojave Volatiles Prospector (MVP): Science and Operations Results from a Lunar Polar Rover Analog Field Campaign, LPSC, *Abstract #2165*
3. Karunatillake, S., Wray, J., Gasnault, O., McLennan, S. M., Rogers, A. D., Squyres, S., Boynton, W. V., Skok, J. R., **Button, N. E.,** Ojha. L. (2015), Latitudinal Variation in the Association of H2O with Sulfur in Martian Soil, LPSC, *Abstract #1175*.
4. Karunatillake, S., Wray, J., Gasnault, O., McLennan, S. M., Rogers, A. D., Boynton, W. V., Skok, J. R., **Button, N. E.,** Ojha. L. (2014), Variations in the association of H_2O with sulfur on Mars, AGU, *Abstract #P41A-3890*
5. **Button, N.** (2014), Validation of SMOS and Aquarius/SAC-D Salinity Data in the Agulhas Current System, AMS, (*oral*)
6. **Button, N.,** Husch, J., Karunatillake, S., Skok, J.R. (2013), Distinguishing Between Bombsags and Dropstones on Mars with Implications for Gusev and Gale Crater, AGU, *Abstract #P23B-1781* (*poster*)
7. **Button, N.** and Subrahmanyam, B. (2013), Validation of SMOS and Aquarius Salinity Data in the Agulhas Region, SMOS & Aquarius Science Workshop, IFREMER, Brest, France, (*oral*)
8. Pritchard, M., Krzesni, D., **Button, N.,** Jay, J., Henderson, H., Glass, B., Soler, V., Amigo, A., Sunagua, M., Minaya, E., Clavero, J., Barrientos, S. (2012), Reconnaissance seismology at nine volcanoes of the central Andes, AGU, *Abstract #V53B-2817* (*presenter, poster*)
9. Russo, S., **Button, N.,** Wilhelm, M.B., Warnke, N. (2011), An Overview of the Science Mission for the Violet Satellite Project, National Conference on Undergraduate Research (NCUR), Ithaca College, (*presenter, poster*)
10. Pritchard, M., Welch, M., Jay, J., **Button, N.** (2011), A remote sensing assessment of the impact of the 2010 Maule, Chile earthquake (Mw 8.8) on the volcanoes of the southern Andes, AGU, *Abstract #S14A-05*

Additional Presentations

- "A New View of the Agulhas Current" (October 2015), Coastal Communications Clips Competition through Louisiana Sea Grant (*oral,* https://www.youtube.com/watch?v=Wm9Eku2dkSI)
- "Mars Rocks!" (December 2013), FameLab: Exploring Earth and Beyond (*oral,* http://youtu.be/iMcvJ6vM7ec)
- "Volcanic Earthquakes in Bolivia" (September 2011), Planetary Lunch Series, Department of Astronomy, Cornell University (*oral*)
- **Button, N.** and Pritchard, M. (September 2011), "Volcanic Earthquakes in Bolivia," Undergraduate Research Symposium, Department of Earth and Atmospheric Sciences, Cornell University (*poster*)
- "Interannual Variability at the South Polar Cap of Mars" (October 2009) Undergraduate Research Fair, Department of Astronomy, Cornell University (*poster*)
- "Mars Down Under" (October 2009), Cornell Astronomical Society Lecture Series, Fuertes Observatory, Cornell University (*oral*)
- "An Opportunity with Mars" (November 2007), Conversations with a Scientist, Dryden Central School (*oral*)
- "What mystery lies behind the Surface Type 2 material located in the lowlands of Mars?" (September 2007), Planetary Lunch Series, Department of Astronomy, Cornell University (*oral*)

Teaching Experience

- Teaching Assistant for GEOL 4068: Reflection Seismology, Louisiana State University — Fall 2016
- Teaching Assistant for GEOL 1001: General Geology Physical — Fall 2016
- Station Supervisor for the Dryden High School 9th Grade Earth Science Field Trip at Taughannock State Park — May 2015
- Guest Lecturer in the Astronomy Class and 9th Grade Earth Science Field Trip, Dryden High School — May 2014
- Teaching Assistant Training (GRAD 701), University of South Carolina at Columbia — Fall 2012
- Station Supervisor for the Dryden High School 9th Grade Earth Science Field Trip at Taughannock State Park — May 2011
- Guest Lecturer in the 9th Grade Earth Science Classes, Dryden High School — December 2010
- Teaching Assistant for EAS 7500: Satellite Remote Sensing in Biological Oceanography, Cornell University — June 2009

Leadership and Volunteering

- Match Secretary of the Louisiana Lagniappe Women's Rugby Football Club — May 2016 – Present
- Referee for USA Rugby — July 2015 – Present
- President of the Baton Rouge Women's Rugby Football Club — June 2015 – Present
- Vice President of the Louisiana Lagniappe Women's Rugby Football Club — June 2015 – May 2016
- Vice President of the LSU AAPG Student Chapter — Academic Year (AY) 2015 – 2016
- Mentor for EnvironMentors, Louisiana State University — AY 2013 – 2014, 2014 – 2015, 2015 – 2016
- Captain of the LSU Women's Rugby Football Club — AY 2014 – 2015
- Vice President of the LSU Women's Rugby Football Club — AY 2014 – 2015
- Volunteer for Cornell Alumni Admissions Ambassador Network (CAAAN) — AY 2013 – 2014, 2014 – 2015
- Vice President for Marine Science Graduate Society, University of South Carolina at Columbia — AY 2012 – 2013
- Graduate Student Representative, Marine Science Program, University of South Carolina at Columbia — AY 2012 – 2013
- Mentor for Women's Student Services, University of South Carolina at Columbia — AY 2012 – 2013
- Volunteer for AWANA, First Baptist Church, Columbia, SC — Fall 2012
- Committee and Founding Member of the Science of Earth Systems Student Association — AY 2011 – 2012
- Lab Assistant, Dr. Drew Harvell Marine Invertebrate Lab, Cornell University — December 2009 – May 2012
- Attendee, Power Shift, Washington D.C. — April 2011
- President of Coral Club, Cornell University — AY 2010 – 2011
- Intern for the Koke'e Resource Conservation Program (KRCP), Kaua'i — May 2010 – June 2010
- Intern for Na Kalai Wa'a, Kawaihae Harbor, Hawai'i — May 2010
- Volunteer for Cornell University Becker in Service (CUBS) — Fall 2009
- Sun Staff Writer, Cornell Daily Sun Newspaper — Fall 2009
- Lab Assistant and Web Designer for Dr. Gordon Stacey, Cornell University — Summer and Fall 2009
- Volunteer for the 40th Meeting of the Division of Planetary Sciences (DPS) of American Astronomical Society — October 2008

Certifications:

USA Rugby Level 1 Referee • SCUBA Certified with PADI: Open Water Diver • B3 Combination Helicopter/Airplane Safety