

THE 2009-2010 VERMONT SPACE GRANT UNDERGRADUATE SCHOLARSHIP RECIPIENTS

KATIE ACCOMANDO - A first year recipient, and a resident of Burlington, Vermont. Katie is a fourth year biomedical/premedical engineering student at University of Vermont. After her undergraduate schooling, she would like to pursue a masters and doctorate program in a highly research-oriented environment. She would like to start her own business that would build medical instruments for aeronautics, the armed forces, hospitals, and developing nations. She says that having her own group of researchers working in collaboration with NASA would spark a competitive drive much like the influx of innovative research that was done when the Human Genome Project was initiated. By licensing technologies to private companies and awarding funding to creative, innovative researchers, a new "Space Race" could commence in advancement of long-term space travel and exploration. Katie has worked as a work-study student with Jason H.T. Bates, Ph.D., DSc. in his laboratory at the Vermont Lung Center at University of Vermont since June 2008 and will work there again this coming summer. She is also a tutor in physics, mathematics, and statistics and as a research assistant in the CEMS Spine Bioengineering project. Her honors and awards are AP Scholar with Distinction, Dean's List, UVM Presidential Scholar, and recipient of the 62 South Union Scholarship for Student-Athletes. She has also been involved with Engineers Without Borders (EWB), Society for Women Engineers (SWE) and is a member of the Alternative Energy Racing Organization (AERO). Katie has also volunteered at the Catholic Center and UVM Food Pantry and served as a UVM Student Ambassador.

BRITTANY BAKER - A first year recipient, and a resident of Hinesburg, Vermont. Brittany is a third year mathematics student at St. Michael's College. She has participated in the pre-REU program at Texas A&M University in the summer of 2008. While in Texas, she was able to learn about some applied math she had never seen before doing a group research project on signature analysis using wavelet decomposition. She has accepted a position in a REU (Research Experience for Undergraduates) program on paper folding at the University of Georgia. She hopes to go to graduate school to get her Masters or Ph.D. in Mathematics. She has chosen to minor in computer science. She says that she could become an engineer working on a new robot vehicle to be placed on the moon or mars and the possibilities are endless. In the spring of 2010, she hopes to study abroad in Budapest, Hungary where she will further expand her knowledge of both mathematics and culture. She has served as a peer tutor for Calculus and Algebra and has volunteered in the Little Brother/Little Sister program. Brittany says being able to understand different cultures is very important in many careers, including those at NASA where American scientists must communicate with and compete against other countries to expand the horizon of the human race by exploring the universe.

KAITLYN BEGINS - A first year recipient, and a resident of Jericho, Vermont. Kaitlyn is a third year biology student at St. Michael's College. One particular field of medicine that she is very interested in is neurology. She says her passion for studying this comes from her experience working in a neurologist's office before going to college. She is curious to see if in space people experience similar neurological difficulties, such as migraines and back pain. She would like to be a doctor and study the body's reactions to extreme conditions, such as those found in space. Kaitlyn says one particular known side effect of traveling into space is termed a "fluid shift," in which the bodily fluids move around differently since gravity isn't forcing them downwards. These known effects of space on the human body are very intriguing and exciting to her. Kaitlyn would like to explore her options and become interested in a variety of possible career options, some of which may benefit NASA and says she cannot wait to further embark on her journey into the field of science. In addition to her academic work she works as a technical assistant in the Biology Department at St. Michael's College.

KANITA CHAUDHRY - A first year recipient, and a resident of Williston, Vermont. Kanita is a first year chemistry student at University of Vermont. Before coming to University of Vermont, as a junior in high school Kanita was engaged in a summer research experience building mass spectrometers and shadowing graduate students. She also took a part-time job at a neurology clinic with her chemistry research experiences. In addition, she shadowed a nephrologist at the Fletcher Allen Hospital, where she was given the opportunity to examine physician-to-patient interaction. She has also become involved in the HELIX/EPSCoR Streams Project at University of Vermont, which is a National Science Foundation funded research project to investigate pollution in the Lake Champlain Basin. She was selected to research the Munroe Brook in Shelburne, collecting water samples which were sent to UVM for chemical testing, as well as one benthic macroinvertebrate sample. She has written a scientific research paper regarding this work, which she plans to publish in a scientific journal. The culmination of these research experiences has inspired her to pursue a career in research, earning either an M.D./Ph.D. or Ph.D. in chemistry, and perhaps working for NASA one day. She has always been interested in NASA because of its emphasis on space exploration and scientific discovery. She says space is one of the mysteries of our universe having so much potential and questions to answer. Kanita has strong research interests in science that are directly correlated with NASA.

EDWARD GRIFFIN - A first year recipient, and a resident of Vergennes, Vermont. Edward is a fourth year biochemistry student at St. Michael's College. Edward applied for a Vermont Genetics Network summer fellowship and received funding. He has earned co-authorship for his contribution on a manuscript to be submitted to Functional Plant Biology with Mark Lubkowitz, Associate Professor in the Department of Biology. He also works at Green Mountain Antibodies. He is currently searching for graduate schools to study cellular and molecular biology. He says that with a cellular and molecular biology degree there are many ways in which he could contribute within this field. He also states that with an understanding of molecular and cellular biology it is quite possible to modify organisms that can naturally produce such structures on massive scales. Edward says to imagine a world in which the walls of our homes could be fitted with molecular turbines to produce energy for everyday use. Some vehicles are now being fitted with ethanol-powered engines. Consider a bacterium that can produce rocket fuel from something simple. Edward hopes that his plans to become a Cellular and Molecular Biologist provide him the opportunity to participate in the creation of the next turbine or rocket fuel of the future. By earning his Ph.D. in graduate school he hopes to contribute to society through discovery.

GRAHAM HAGEN-PETER - A second year recipient, and a resident of Underhill, Vermont. Graham is a fourth year geology student at University of Vermont. This summer he will be doing research. This project which is an investigation into the age and geologic structure of a portion of the Tibetan Plateau, will take Graham into the field in Mongolia. He has undertaken a project in a stable isotope geochemistry class at UVM. He and a classmate are conducting stable carbon isotope analyses on annual rings from tree cores. By analyzing annual tree rings, they have developed a temporal picture of the isotope composition of atmospheric CO₂, which yields significant implications of anthropogenic influence on climate. Through his education and professional career in geology he strongly intends to help continue a significant contribution to NASA. He says he has developed an affinity for, and intends to pursue an education and professional career in either geochemistry or microbial geochemistry, both of which have important applications in the achievement of NASA's goals. He also says the contributions of not only engineers, mathematicians, and astrophysicists, but also of geoscientists are vitally important to the realization of these goals.

DANIEL LAMOTHE - A first year recipient, and a resident of Colchester, Vermont. Daniel is a first year computer engineering student at Vermont Technical College. Daniel says after having had the opportunity to attend the Governor's Institute for Information Technology he knew what he wanted to do. He says that it has come to his attention that NASA is working on an MMO to simulate exploration/colonization of planets in our solar system. This game, Astronauts: Moon, Mars, and Beyond, is based on several ideas: from more working on the same problems, to keeping space exploration interesting and to being as realistic as possible. Daniel says with a degree from Vermont Technical College he would be qualified to work on modifying the platform used to play the game or write the code for another version of the game. He also says that this is a career where he can be part of a team creating something that could benefit people. Daniel has received the Eagle Scout Award from the Boy Scouts of America. In addition, he was awarded the *Ad Altare Dei* medal. He has participated in numerous community projects, outings and has held many leadership positions with his troop. In addition he has also worked at the local Boy Scout Summer Camp in Eden, Vermont.

MEGHANN PALERMO - A first year recipient, and a resident of Milton, Vermont. Meghann is a third year biology student at St. Michael's College. Her interest is in cellular biology, in addition to information she has learned from her biology classes, have contributed to her decision for future career plans. She has decided she would like to pursue a career as a lab analyst in a research lab. After graduation from St. Michael's College with a bachelor's degree in biology, she hopes to become a part of a research team at Fletcher Allen Hospital in Burlington, Vermont. She would most specifically like to work with diseases such as cancer. She says studying the types of mutations that occur and where in the chromosome they occur will help better understand what diseases are associated with specific mutations. In addition, she would like to explore the effects that certain elements have on cells. This summer she will be working with Professor Malcolm Lippert of St. Michael's College. Meghann was one of two students to receive the Biology Department's Hartnett Summer Research Fellowship Award. She says she believes that studying the human body, its functions on a cellular level, and its relation to disease could be very important to the work of NASA. She also says studying the stress caused by space exploration and its affect on the astronauts after they return could put a new perspective on the development of disease and that disease research is an essential field in today's world and NASA would give researchers the opportunity of conducting it in a completely different, but new, environment.

EMILY PRATT - A first year recipient, and a resident of Essex Junction, Vermont. Emily is a second year mathematics student at St. Michael's College. She was the finance manager in her business class this past semester. She recently was accepted to a pre-REU math program in Texas this summer. She will spend five weeks on the Texas A&M campus learning not only new mathematical skills but also career opportunities for math majors. Emily has been involved in raising money for the Howard Center, the Relay for Life, peer leadership, Green Mountain Teen Institute, Vermont City Marathon, and many more. She says her love of math and interest in fields such as engineering and science make the behind the scenes work at NASA very appealing to her. She also says the four mission directorates (aeronautics, exploration systems, science, and space operations) are very appealing to her as they are very hands on and would be extremely interesting to learn more about. Emily says that working for NASA would be extremely fulfilling and fun. At the pre-REU program in Texas that she is attending this summer they will be looking into a lot of things people can do with math majors. She says that after this summer and as she gets further into her college career she will have more of an understanding as to what career was meant for her.

JANET SOLTAU - A second year recipient, and a resident of South Burlington, Vermont. Janet is a fourth year math, Physics and education student at University of Vermont. She says she wants to be a math and physics teacher. NASA is working towards uncovering some of the secrets of the universe, but without math and physics, the whole operation would be lost. By teaching students the basics of math and physics, she hopes to inspire them to follow these paths as they decide on their careers. She says that she doesn't see a better way to make students interested in math than through the use of space and the research of NASA. Astronomy provides real life applications of the laws of math and physics and that is very appealing to her. Last year, Janet was offered a spot at NASA's Langley Research Center, but she had already accepted a position with the Center for Ultra-Cold Atoms through MIT and Harvard. There she taught physics to middle and high school students in a program called Teaching Opportunities in Physical Science (TOPS). She appreciated this program because it allowed her to work with students on a curriculum that she designed with a group of her peers. This summer she plans to do research at the Argonne National Laboratory in Illinois. She will work with a team to research the structure of the metal organic framework, and will have the guidance of a master teacher to help her learn how to apply her research to the classroom. After graduation she plans to get a job in the Burlington area teaching high school and earn a Masters in education. She was also accepted as the Student Ambassador for Vermont for NASA's IYA, and has begun giving astronomy presentations at local schools.

NATIVE AMERICAN AWARD RECIPIENTS

NYOKA BERTRAND - A second year recipient, and a resident of Swanton, Vermont. She is a second year social work student at University of Vermont. She has participated in the UVM/Abenaki Summer Happening Program, and also have been involved in the UVM/Abenaki Outreach Program. She has participated in community service and held a part-time job at University of Vermont in Residential Life. She says she will be studying social work. She says that as a social worker, she could help to prepare astronauts for their long journey into space. Her knowledge within the social work field could help her to help in the development of the full potential of individuals working in space. She believes that she could improve the lives of many people who could be affected by an astronaut leaving for space. She could help prepare the astronauts emotionally for their journey, which would be very helpful to them.

ASHLEY ERNO - A first year recipient, and a resident of Highgate Center, Vermont. She is a first year student majoring in social work at Champlain College. She has been involved in the UVM/Abenaki Outreach program for the past four years. She has also participated in multiple community service activities, including green-up day, the MVU Annual Blood Drive, the Toy Drive, and American Cancer Society Daffodil Days. She says her job as a social worker would be a great help to NASA especially in preparing the astronauts for their journey. She will help astronauts better their human condition both mentally and emotionally. Ashley believes that social workers make a positive impact in the world, and would be a great help to astronauts as well as their family and friends. She says in order for the trip of the astronaut to be successful they need to be prepared and they need to know their family and friends are capable of living successful lives while they are gone and her job would allow just this.

SHAYE ST. FRANCIS - A first year recipient, and a resident of Swanton, Vermont. She is a first year elementary education student at Johnson State College. She plans to pursue a teaching career in northern Vermont. She has maintained a part-time job throughout high school years and holds a full-time job during the summer. Shaye is a member of FCCLA, a career and technical student organization. She has raised money for National Arthritis Foundation. She has also worked on a project called "Operation Happiness". Shaye feels that teaching skills and innovative teaching techniques are key elements that are essential to all industries. She says without learning from teachers, astronauts, test pilots, scientists, physicists and all of the other professionals utilized by NASA we would not be able to contribute to the program and perform their duties. She believes that teaching is the foundation upon which all other careers are formed, including those hosted by NASA.

VSGC AVIATION TECHNOLOGY SCHOLARSHIP AWARD BURLINGTON TECHNICAL CENTER

NATHAN HARLOW - A first year recipient of VSGC Aviation Technology Scholarship Award and a resident of Burlington, Vermont. Nathan is currently enrolled in the BTC Aviation Post Secondary Program pursuing an Airframe and Powerplant Certification.

LUKE MOULTROUP - A first year recipient of VSGC Aviation Technology Scholarship Award and a resident of Richmond, Vermont. Luke is currently enrolled in the BTC Aviation Post Secondary Program pursuing an Airframe and Powerplant Certification.

MATTHEW YANDOW - A first year recipient of VSGC Aviation Technology Scholarship Award and a resident of Essex Junction, Vermont. Matthew is currently enrolled in the BTC Aviation Program pursuing an Airframe and Powerplant Certification.

VSGC URECA! AWARD RECIPIENTS

EVAN MALINA - Mechanical Engineering, University of Vermont. Evans's Research Topic is "**Determination of Mechanical Properties by Indentation in Nanoscale Metallic Wires Using Atomic Force Microscopy**".

KELLY TODD - Biochemistry, University of Vermont. Kelly's Research Topic is "**Reactivity of Organic Peroxides and their contribution to Secondary Organic Aerosols**".

SIMONE WILLETT - Computer Science and Mathematics, University of Vermont. Simone's Research Topic is "**Program Specialization for Wireless Sensor Networks**".

**NASA STUDENT INTERNSHIP PROGRAM
NASA GODDARD SPACE FLIGHT CENTER**

BENJAMIN SCARALIA - Applied Physics, Rennselaer Polytechnic Institute and a resident of West Rutland, Vermont. Benjamin is working at NASA Goddard Space Flight Center, for the period of June 1, 2009 through August 7, 2009 with Dr. Igor Eberstein and the NASA Advanced Supercomputer Division, Greenbelt, MD on the research of Photo Dissociation of Hydrogen and Deuterium.

**EXPLORATION SYSTEMS MISSION DIRECTORATE (ESMD)
UNDERGRADUATE STUDENT RESEARCH PROGRAM (USRP)
NASA STUDENT INTERNSHIP PROGRAM
NASA MARSHALL SPACE FLIGHT CENTER**

CAMERON MERCER - Geosciences and Physics, Middlebury College and a resident of Mondrose, Colorado. Cameron is working at NASA Marshall Space Flight Center, for the period of June 1, 2009 through August 7, 2009 that involves support operations and data analysis for the Mars Exploration Rovers Project, including geologic analysis of rocks, Martian atmospheric monitoring, and tactical planning within the Science Operations Working Group.