8:00 – 8:25 a.m. WELCOME AND INTRODUCTION, GRAND BALLROOM
Thomas Sharp, Associate Director, ASU/NASA Space Grant, Arizona State University

TIME	Session A Earth and Environmental Science/Engineering Moderator: Chandra Holifield-Collins, USDA SWRC Room: Canyon	Session B Exploration Systems Engineering: Biological, Materials, Optical and Electrical Moderator: Paul Scowen, ASU Room: Valley	Session C Planetary Science Moderator: Thomas Sharp, ASU Room: Desert	Session D ASCEND Moderator: William Stein, Glendale CC Room: University
8:25 – 8:40	**ROOM SETUP**			
8:40 – 8:50	[A1] A Decade Of Increased Temperature Affects Soil Fungal Communities *Matt Belus*	[B1] Ground-Based Vicarious Calibration Of Landsat Sensors *Oscar Hernandez*	[C1] Support Vector Machine-Based Detection Of Volcanic Rootless Cones In Mars Satellite Imagery *Alexander Alvarez*	[D1] GCC ASCEND 1: Team Research And Growth Goals *Oscar Arzate* *Nate Freeman* *Marissa Jimenez* *Brett Laine* *Chet Martinez-Droeg*
8:50 – 9:00	[A2] The Effect Of A Stand Replacing Fire On Ectomycorrhizal Fungi Inoculum Potential *Larrea Cottingham*	[B2] Secondary Control Interface For Underwater Remotely Operated Vehicle (ROV) *Brittany Nez*	[C2] Mineral Abundance Estimates And Distribution Derived From Mars Dune Field *Heather Charles*	
9:00 – 9:10	[A3] Ecological Consequences Of A Warming Arctic: What Happens As Permafrost Thaws, And How Can We Tell? *Anthony John Garnello*	[B3] ASU/NASA Space Grant Robotics Leadership *Joseph Mattern*	[C3] Search For Central Pit Craters On Saturn's Icy Moons *Sierra Ferguson*	[D2] GCC ASCEND 2: Wireless Mesh Networking In A-Minor *Stephanie Booth* *Zakkery Diaz* *Gjergji Joco* *John Stephenson* *Achilles Tsantarliotis*
9:10 – 9:20	[A4] An Analysis Of Clay-Formation Processes In Marshall Gulch, Mount Lemmon, Arizona *Joshua Hoskinson*	[B4] Chaotic Robotics: A Study Of Analog Robots And Their Nonlinear Behavior *Callie Branyan*	[C4] Modeling Heat Transfer From Enceladus' Tiger Stripes *Daniel Raggio*	
9:20 – 9:30	[A5] Investigation Into The Effects Of Lithologic Heterogeneity On Landscape Evolution In The Canyons Of The Colorado Plateau *Courtney Starling*	[B5] Using Model-Based Systems Engineering At OSIRIS-REx *Stephania Vasilieva*	[C5] Uncertainties In Titan's Haze And Their Effects On Derived Surface Albedos *Tymon Khamsi*	[D3] ERAU 1: Implementing An Attitude Control System On A Balloonsat *Benjamin Anderson*

9:30 – 9:40	[A6] Experimental Study Of Sediment Transport In Vegetated And Meandering Channels *Jonathan Schmidt*	[B6] Focal Plane Actuation To Achieve Ultra-High Resolution On Suborbital Balloon Payloads *Raquel Camarena*	[C6] Mass And Radius Relations For Exoplanets *Alejandro Lorenzo*	[D4] ERAU 2: Implementing An Attitude Control System On A Balloonsat *Brigette Cochran*
9:40 – 9:50	[A7] Investigation Of Vertical Crustal Motion Using GPS *Alexandria Will-Cole*	[B7] Real-Time Surface Profiling Of Industrial Materials Using Digital Holography *Tressa Mackin*	[C7] Age Estimation of the Cerberus Fossae 2 Unit on Mars Using Digital Surveying Of Impact Craters *Selena Valencia*	[D5] ERAU 3: Implementing An Attitude Control System On A Balloonsat *Patrick Deskin*
9:50 – 10:00	[A8] Arizona Crustaceans In Extreme Environments: Effects Of Elevated CO2 And Arsenic In Montezuma Well *Darienne Nez*	[B8] Radar System Analysis And Design *Ja'Lon Sisson*	[C8] Estimating The Age Of Cerberus Fossae 2 Unit On Mars Through Analysis Of Impact Craters *Mark Buxton*	[D6] UA ASCEND! Project *Ryan Stelzer* *Carmen Austin* *Andrew Siemens* *Marcos De Rose* *Ruoyu Li* *Xinyi Xu*
10:00 – 10:10	[A9] The Importance Of Biogeography In Determining Species Response To Climate Change *Caitlin Chapman*	[B9] Repeat-Accumulate Codes With Modified Iterative Decoding Algorithms *Leonard Peshlakai*	[C9] Avoiding Planetary Rover Damage *Michael Flammia*	
10:10 – 10:20	[A10] Micrometerological Data For Analysis Of Timing Of Tree Growth *Mathilde Westermann*	[B10] A Testbed Simulation Of Solar Irradiation For The Analysis Of Temperature-Dependent Conductivity Within Conventional Solar Panels *Cory Luke*	[C10] Acfer 040 Maskelynite With Disseminated Chromite *Balie Walker*	[D7] PCC 1: 3D Printer Use In Fabrication Of Payloads *Nicholas Patzke* *Gustavo Guerrero* *Andrew Okonya* *Joel Thibault*
10:20 – 10:40	**MORNING BREAK: PRICKLY PEAR**			

TIME	Session A Earth and Environmental Science/Engineering (cont.) Moderator: Hilairy Hartnett, ASU Room: Canyon	Session B Exploration Systems Engineering: Biological, Materials, Optical and Electrical (continued) Moderator: Jekan Thanga, ASU Room: Valley	Session C Planetary Science (continued) ------ Session G Astronomy & Space Physics Moderator: Timothy Swindle, UA Room: Desert	Session D ASCEND (continued) ------ Session H Education and Public Outreach Moderator: Iacopo Gentilini, ERAU Room: University
10:40 – 10:50	[A11] Analysis Of Amazon Rainfall Data Sets And The Importance Of Paleoclimate Records *Anson Cheung*	[B11] Imaging Under Low Light Conditions From A Moving Robotic Vehicle *Eric Chang*	[C11] Aggregate Analysis In A CubeSat Centrifuge: A Study Of Primary Accretion *Sarah Smallwood*	[D8] PCC Low Altitude Particle Detection Part 1 (LAPD): A Method For Capturing Airbone Particles During the Ascent of a Payload *Andrew Okonya* *Hasti Khamsehzadeh* *Paria Khamsehzadeh* *Joel Thibault*
10:50 – 11:00	[A12] The Search For Atmospheric Oxygenation Prior To The Great Oxidation Event *Chadlin Ostrander*	[B12] Power and Structure Design of the ARNE Sublunarean Explorer Lander *Victor Hernandez*	[C12] The Mystery Of Transverse Aeolian Ridges On Mars *Justin Wilgus*	[D9] PCC Low Altitude Particle Detection Part 2 (LAPD): A Method For Capturing Airbone Particles During the Ascent of a Payload *Andrew Okonya* *Joel Thibault* *Alexandrea Provine* *Amorette Dudgeon* --- PCC: 3D Printers and a Continuation in UAV Research *Nicholas Patzke* *Gustavo Guerrero*
11:00 – 11:10	[A13] (U-Th)/He and U-Pb Thermochronometry and U-Pb Geochronometry of Exposed Bedrock Outcrops in the Windmill Islands, Antarctica *Patrick Boyd*	[B13] The Emergence Of Homochirality In Early Life *Patricia Esch*	[G1] Breaks In Radial Stellar Surface Brightness In Spiral Galaxies *Brian Barandi*	[D10] ASU ASCEND 1: Sensors And Visuals *Mason Denney*
11:10 – 11:20	[A14] Remote Sensing Analysis Of An Invasive Plant In The Glen Canyon *Rene Horne*	[B14] Agar-derived Carbon Aerogels For Electrode Enhancement In Structural Supercapacitors *Benjamin Luginbuhl*	[G2] Star Formation In Interacting Galaxies *Ian Beagles*	[D11] ASU ASCEND 2: Utilizing High Altitude Balloon Platforms For Super Resolution Imaging *Jack Lightholder*

11:20 – 11:30	[A15] Vegetation Classification Using NDVI From UAVs *Amanda Urquiza*	[B15] Indoor Air Quality In CAVC: Concentration Of Airborne Bacteria *April Cobos*	[G3] Star Formation In Tadpole Disrupted Galaxy *Nuria Wright-Garba*	[D12] SMCC ASCEND GPS Project 1: GPS Tracking and Data Transmission *Francisco Armenta* *Amelia Guice* *Cesar Marin* *Francisco Ruiz*
11:30 – 11:40	[A16] Utilizing A Quadcopter For Collecting Aerial Imagery Of Environmental Field Sites *Gina Rivera*	[B16] High-Throughput Protein Production In Insect Cells *Sarah McBryan*	[G4] Simulating The Fermi Bubbles *Charles Shugert*	
11:40 – 11:50	[A17] Structure And Reactivity Of Dissolved Organic Matter In The Critical Zone *Vicki Chu*	[B17] The Effect Of Cryogenic Freezing On Chymotrypsin *Sheamus Carbone*	[G5] Globular Cluster Populations in Late-Type Galaxies *Kelsey McCabe*	[D13] SMCC ASCEND Bacteria Trap Project 2: Sensor Applications *Lucas Jarman* Payload Construction *Natnael Neguse* Microbes Capture System *Rahim Muhammad*
11:50 – 12:00	[A18] Tempe Town Lake Water Chemistry *Giovanni Pieve*	[B18] FPGA Digital Transceiver Validation For Underwater Communication *Pradyumna Kadambi*	[G6] Data Sonification Of Red-Shifted Galaxies *Emily Neel*	
12:00 – 12:10	[A19] Characterization Of DOC In Accidental Urban Wetlands *Stephanie Bone*	[B19] Mesh Ad-Hoc Networking Algorithms For Underwater Optical Sensor Networks *Peter Tueller*	[G7] Modeling Quasar Light Curves In The Near Infrared *Kathleen Perry*	[H1] Simplifying Your Work: A Journalist's Experience In Communicating Science *Dan Desrochers*
12:10 – 12:20	[A20] The Effect Of Polymer Film Roughness On Polyamide Reverse Osmosis Membranes *Cailen McCloskey*	[B20] Low Noise Optical Receiver Circuit And Layout Design *Max Ruiz*	[G8] Archival Lyman Contiuum And Theoretical Reionization Analysis Vs Z *Isaac Meisenheimer*	[H2] Communicating The Impact Of Science Through UANews *Raymond Sanchez*
12:20 – 12:30	[A21] Biomass And Carbon Residency Estimation By Remote Sensing And Direct Measurements At The Santa Rita Research Station *Theodore Jones*	[B21] Myoelectric Control Of A Small Quadcopter *Alison Gibson*	[G9] Measuring The UV Luminosity Function Of High Redshift Galaxies *David Setton*	
12:30-1:30	**LUNCH: ARIZONA AND PRICKLY PEAR**			

TIME	Session A Earth and Environmental Science/Engineering (continued) ------ Session E ERAU EagleSat Moderator: Gary Yale, ERAU Room: Canyon	Session F Aerospace Technology ------ Session I Aeronautics Moderator: Shigeo Hayashibara, ERAU Room: Valley	Session G Astronomy & Space Physics (continued) ------ Session J Topics in Math, Physics and Chemistry Moderator: Anna Zaniewski, ASU Room: Desert	Session H Education and Public Outreach (continued) Moderator: Nadine Barlow, NAU Room: University
1:30 – 1:40	[A22] Water-Soluble Airborne Particulate Matter Collected In Southern Arizona *Victoria Raught*	[F1] ERAU Hi-Ball: Packaging Improvements And Maintenance Of Hi-Ball Automated Position Reporting Beacons *Ryan Sallee*	[G10] An Investigation Of Densities Of Transit Detected Exoplanets *Mason Waaler*	[H3] Science Writing And Public Outreach *Kailey Roberts*
1:40 – 1:50	[A23] Analysis Of Aerosols For Mining Sites In Southern Arizona *Mary Jones*	[F2] ERAU Hi-Ball: Improving The Reliability Of GPS Tracking Beacons For Embry-Riddle's High Altitude Balloon Program *Clayton Jacobs*	[G11] Development Of A Spectrophotometric Data Reduction Pipeline *Ryan Buckingham*	[H4] Sparking An Interest In STEM *Erin Bailey*
1:50 – 2:00	[A24] Analysis Of Carbonaceous Airborne Particulate Matter At Mining Sites In Southern Arizona *Solianna Herrera*	[F3] Energy-Optimal Path Planning For Multi-Goal, Six-Rotor Missions *Kevin Vicencio*	[G12] ECHO: External Calibrator For Hydrogen Observatories *Michael Busch*	[H5] Does Exposure To Scratch And Tynker Affect The Attitudes Of Teachers Toward Computing? *Alexandria Wauneka*
2:00 – 2:10	[A25] Developing A Model Organism To Investigate The Evolution Of Cellular Differentiation *Baltazar Chavez-Diaz*	[F4] Low-Range Wind Tunnel Force Balance *James McClure*	[J1] Simulation Of Material Characteristics And Laser Performance Of Q-Switched Quantum Well Semiconductor Lasers *Linda Allee*	[H6] OSIRIS-REx Asteroid Sample Return Mission: The Ambassador Outreach Program *Andrea Parber*
2:10 – 2:20	[A26] Natural Antibacterial Clay Mineralogy ~ Medical Geology *Clelia Tommi*	[I1] The Effects Different Finite Difference Schemes Have On The Accuracy Of CFD Code *Brian Cowley*	[J2] Mesoporous Silica Nanoparticles For Targeted Drug Delivery *Kate Li*	[H7] Science Communication *Alexander Hartz*
2:20 – 2:30	[A27] Mesoscale Simulation Of A Convective Frontal Passage *Travis Swaggerty*	[I2] Analysis Of Winglets For Low Reynolds UAV Flight Regimes *Aaron Pigott*	[J3] Plasma Enhanced Atomic Layer Deposition Of Ultrathin Oxides On Graphene *Christie Trimble*	[H8] Development And Documentation Of The Lunar Greenhouse: Outreach And Teaching Module (LGH-OTM) *Erica Hernandez*

2:30 – 2:40	[A28] Department Of Energy MURI HOT Fluids Project: Spectrometry Of Variable-Thickness Participating Media *Megan McHugh*	[I3] Characterization Of Laser Energy Deposition For Aerodynamic Flow Control *Tierra Roller*	[J4] Photo-Induced Au Versus Ag Deposition On Periodically Poled Lithium Niobate: Concentration Dependence *Veronica Meeks*	[H9] Appreciating Hubble At Hyperspeed (AHAH) 3D *Amanda Aubry* *Isaac Meisenheimer*
2:40 – 2:50	[E1] ERAU EagleSat 2: Designing A CubeSAT Vibration Test Stand Assembly Alongside A High-fidelity CAD Model *Robert Auchincloss*	[I4] Laser Energy Deposition For Control Of Turbulent Mixing Layers *Liliana Saldana*	[J5] Two-Dimensional Patterning Of Nanoparticle Thin Films From In Situ Microreactors *Jonathan Dwyer*	[H10] Public Education On The South Pole Telescope And Sagittarius A* *Rita Ezeugwu*
2:50 – 3:00	[E2] ERAU EagleSat 3: Designing An Antenna For Use With The EagleSat CubeSat Communications System *Lisa Ferguson*	[I5] Design Of A Rocket Engine Thrust Augmentation Ejector Nozzle *Sepideh Jafarzadeh*	[J6] Layer-by-Layer Assembly Of Gold Nanoparticles Into Monolayers *Daniel Witter*	[H11] Energy Education *Colton Bennett*
3:00 – 3:10	[E3] ERAU EagleSat 4: Examining Solar Panels Charging Super Capacitors As A Surrogate For Batteries *David Riddle*	[I6] Aerodynamics Of Inlet Of Turbine Cooling Air Feed System: Iris *Nicholas Wright*	[J7] Pulse Box Engineering For Microwave Spectroscopy *Nikitha Ramohalli*	[H12] Sharing The Power Of Spatial Data For Research *Laura Kurtzberg*
3:10 – 3:20	[E4] ERAU EagleSat 5: Memory Testing Software System For Nano-Satellite *Matthew Vis*	[I7] Comparison Of Swept And Unswept Oblique Shock Wave/Boundary Layer Interactions *Clark Pederson*	[J8] The Unimodular Determinant Spectrum Problem *Wilson Lough*	
3:20 – 3:30	[E5] ERAU EagleSat 6: Integrating A Novatel OEM 615 GPS Unit Into The Existing EagleSat Platform *Tanner Hilken*	[I8] 3-D Printing Fuel Grains *Carolyn Taconi*		
3:30-3:40	**JOIN US FOR REFRESHMENTS: PRICKLY PEAR**			