Kelsey Ann Frazier **

Ph.D. Engineering

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of Alaska Anchorage, 2020.

Thesis: Icy Insights: Decrypting the Depths with Novel Stochastic Techniques to Model and Mitigate Arctic Under-Ice Oil Spills

This research analyzed Arctic sea ice's subsurface to create models simulating oil
p:$õ7 BN" B Eyp €Eû l y $õ ™ p€:yp l " Ø: û p$ EyS±NÕE Ey p€
$E ±lpy*› Øl $õ €Eû lpõNl$E y E û Nl hl õ$p pyØEûØlû$
This research enhances oil-ice interaction models and emphasizes the critical role of international cooperation in Arctic response strategies.

Major professor: Dr. Rorik Peterson

Fayzul Kabir

Ph.D. Engineering

B.S., Shahjalal University of Science and Technology, 2011; M.S., King Fahd University of Petroleum and Minerals, 2018.

Thesis: Implications of Detachment Promoting Agents, Disinfectants and D:N• N›ûlØ€:$õp NE FlN•y ØEû '$ph lp$NE N Øõy l$Ø Drinking Water Distribution Systems

$N±:Bp lN€y$E :› NlB NE ûl$E7$E •Øy l h$h p • l y › õØE
hØy N Ep ØEû $BhØ$l ûN•Epyl ØB •Øy l k€Ø:$y› §$$Np±lBp Ølõ
NlBØy$NE ØEû û yØõ B Ey õNEp$û l$E ØõyNlp p€l$EØp •Øy
levels and temperature. The results inform policymakers and water operators to
ò yy l BØEØ ò$N±:Bp ØEû hlNy õy h€ò:$õ Ø:y

Major professor: Dr. Srijan Aggarwal

Matthew James Smukall **

Ph.D. Fisheries

B.S., University of Florida, 2009.

Thesis: Relative Abundance and Movement Ecology of Tiger Sharks (Galeocerdo cuvier) in the Waters Surrounding Bimini, The Bahamas

This study investigated the relative abundance and movement ecology for tiger sharks, Galeocerdo cuvier, in the waters around Bimini, The Bahamas. The local relative abundance remained stable from 1984 to 2019, but sharks readily moved ØõlNpp 4€l$pû$õy$NEØ: òN€EûØl$ p eNõØ:$¤ û õNEp l”Øy$NE protection but regional management plans are important.

Major professor: Dr. Andrew Seitz

Jared David Weems

Ph.D. Fisheries

B.S., Iowa State University, 2008; M.S., University of Alaska Fairbanks, 2011.

Thesis: Early Life Biology and Ecology of King and Tanner Crabs in the Bering and Chukchi Seas

• ” lØ: qNly •Øõ$±õ õlØò pyNõ7p Øl $E û õ:$E ØEû”€:E lØò could be a bottleneck in recruitment. Low abundances of settling Pribilof Islands blue king crabs appear to be limiting stock recruitment, while ubiquitous Bering and Chukchi seas larval snow crabs are typically associated with regional environmental conditions.

Major professors: Dr. Ginny Eckert and Dr. Franz Mueter

* Summer degree recipient

** Fall degree recipient

Alec Bennet
Ph.D.

Derek Arnold **

Ph.D. Biological Sciences

B.S., University of Montana, 2012; M.S., University of Alaska Fairbanks, 2023.

Thesis: Movement Ecology, Survival, and Territorial Dynamics in Canada Lynx (Lynx canadensis) Over a Cyclic Population Decline

Population dynamics of lynx cycles are not clearly understood. This research indicated that although physical connectivity is high, population declines are driven by reduced survival in dispersing lynx, which manifests in a population

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òN€EûØl$ p û ±E û òØp û NE :ØEûpõØh õ ØlØõy lpyõp

Major professor: Dr. Knut Kielland

Nathan Arrow Graham

Ph.D. Geoscience

B.S., Humboldt State University, 2015.

Thesis: Mechanisms of Magmatic Degassing and Eruption Triggering at Alaska Volcanoes: Experimental Controls and Natural System Analogues

Understanding the magmatic processes that drive volcanic eruptions is integral to monitoring volcanic unrest and mitigating hazards. The main goals of this û$pp lyØy$NE • l yN $E” py$ Øy hØlØB y lp y Øy $Œ²€ Eõ l€ triggering. The results can be used to aid in modeling of volcanic systems and assist in monitoring volcanoes worldwide.

Major professor: Dr. Jessica Larsen

Rajan Itani **

Ph.D. Physics

B.S., Tribhuvan University, 2006; M.S., Tribhuvan University, 2013.

Thesis: Dynamics of the Earth’s Thermosphere Across a Range of Spatial and Temporal Scales

Aspects of the dynamics of Earth’s thermosphere that do not harmonize with y õ€ll Ey €Eû lpyØEû$E • l $E” py$ Øy û ™ p€:yp p€ py p shortcomings in our current paradigm for understanding the behavior of the thermosphere. These discoveries have implications for spacecraft orbit predictions and mitigation of the risk of collision between orbiting satellites.

Major professor: Dr. Mark Conde

* Summer degree recipient

** Fall degree recipient

Joshua Knicely *

Ph.D. Geophysics

B.A. Texas A&M University, 2011; M.S. Texas A&M University, 2015.

Thesis: Examination of Volcanism and Impact Cratering on Terrestrial Bodies

The planet Venus holds clues to the Earth's habitability. Remote sensing allows us to use volcanism and impact cratering to peer into the depths of planets and understand their history. We can use this information to better understand our sister planet and thereby better understand the myriad other worlds.

Major professor: Dr. Robert Herrick

David Skye Kushner **

Ph.D. Geoscience

B.S., University of Manitoba, 2016; M.S., University of Manitoba, 2019.

§ p$p ÂN:õØE$õ FØp ˜€ØEy$±õØy$NE ®Eû l •€òNhy$BØ: !N

Quantifying volcanic gas can be challenging due to logistical barriers and atmospheric conditions. Two methods were developed to better characterize volcanic mercury and sulfur dioxide emissions, and a model was used to €Eû lpyØEû p€: €l û$Nš$û B Øp€l B Eyp $E õ:N€û› • Øy l !NE emission rate estimates under these conditions has been improved.

Major professor: Dr. Taryn Lopez

Scott S. Leorna *

Ph.D. Biological Sciences

B.S. University of Alaska Fairbanks, 2016; M.S. University of Alaska Fairbanks, 2019.

Thesis: Using Camera Traps to Advance Wildlife Monitoring in the Arctic

The utility of camera traps (i.e., remotely triggered cameras) for monitoring wildlife in the Arctic was advanced through a landscape-level study focused NE $E NlB$E E • y õ E$k€ p ph õ$±õØ::› yØ$:Nl û yN Nh E :ØE by evaluating their capacity to assess seasonal caribou (Rangifer tarandus) distribution and habitat use in Arctic Alaska.

Major professor: Dr. Todd Brinkman

Xi Lu

Ph.D. Space Physics

B.S., Shandong University, 2018.

Thesis: Foreshock Density Holes and Their Connection with Other Foreshock Transients

Characteristics and occurrence preferences of foreshock density holes on the upstream of the Earth's bow shock are investigated. The role of the :N•*û Ep$y› pyl€õy€l p $E y NlBØy$NE N Ny ²N• ØENBØ:$ p magnetohydrodynamics process are unveiled by the comparison between the two-dimensional simulations and the spacecraft observations.

Major professor: Dr. Peter Delamere

* Summer degree recipient

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Dr. Amy Vinlove, Dean

Karen Martin

Ph.D. Teacher Agency in Teacher Research: Interdisciplinary Studies

B.S., Eastern Washington University, 1998; M.S., Oregon State University, 2004; M.A.T., University of Alaska Southeast, 2005.

§ p$p q€ly€l$E § Øõ l Eõ› yN RE²€ Eõ § Øõ l •lN pp$

Through Teacher Action Research

This research investigated teacher agency as a component of teacher professionalism. Studying the lived experience of rural Alaska teachers, it explored how engaging teachers in action research-based professional

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engagement, capacity to know their impact on learning, feeling empowered by trust, and critical consciousness.

Major professor: Dr. Ute Kaden