2021 Boulder Summer Student Research Virtual Poster Symposium

with presentations from

SOARS, SIParCS, ATOC, RECCS, NCAR|UCAR, and NOAA Internship Programs

Thursday, July 29, 2021

Closed Poster Evaluation Session
2:00 - 3:00 PM MDT
Poster Evaluators and Student Presenters ONLY

Open Viewing Session
3:00 - 4:00 PM MDT
All are Welcome!

Please join using the virtual platform Topia
Use password **Research** to enter.

Sponsored by:

We are delighted to welcome you to the 2021 Boulder Summer Student Research Virtual Poster Symposium

The shared in-person poster session has been a collaboration between many of the geoscience-focused summer research internship programs based in Boulder, CO, for many years. This year we are excited to welcome you to our first virtual poster symposium, featuring research from SOARS, SIParCS, ATOC, RECCS, and NCAR|UCAR, including many working at NOAA. The persistence, dedication and talent of these students and their committed mentors in overcoming a pandemic to conduct research partially or fully remotely is inspiring. We are so grateful for the commitment of the scientists and science institutions here in Boulder who volunteer as mentors and provide support to these programs, as well as to the funding agencies who make undergraduate research possible. We hope you will enjoy our virtual poster session and join us in congratulating this next generation of Earth Scientists.

Topia Instructions

The 2021 Boulder Summer Student Research Virtual Poster Symposium will be held in [Topia](#), an interactive virtual world. In this world, you will have an avatar that can navigate the virtual poster hall by using your mouse or arrow keys. As you get close to another person's avatar, their video and microphone will be activated, just as if you were engaging with them in a real poster session. In turn, when you move away, that person's video and audio will fade out.

To Connect

To connect, plug your headphones in then click on this link from your web browser (**Chrome works best**, Edge and Brave are also supported – note that **Safari is not**): https://topia.io/boulder-reu-2021. You will need a password to enter: **Research**
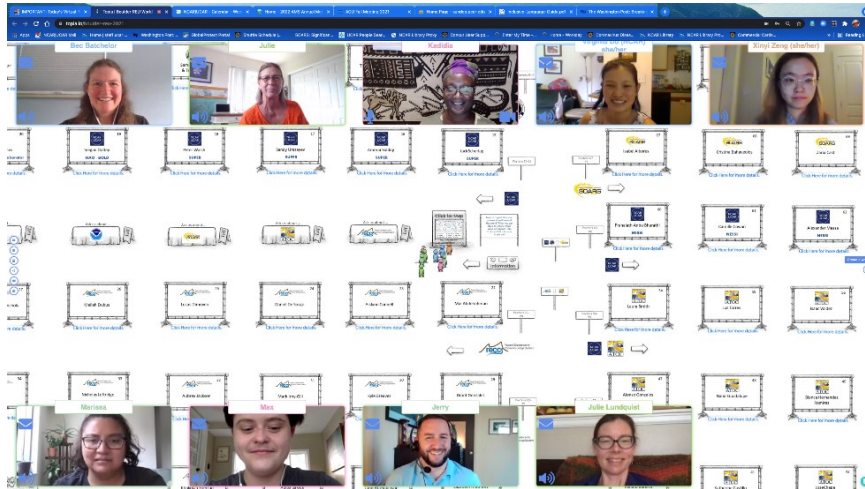
Enter your name and allow your computer to use your camera and audio, and you will arrive in the center of the event as a small avatar.

If you would like to check your connection and explore in advance of the poster session, you are welcome to do so – the world will be open starting at noon on Wednesday, July 28th

To Move, Explore and Interact

Use your arrow keys or point with your mouse to move your avatar around. As you move into range of another avatar, that person's video and audio will appear, and will fade as you move away. If you'd like a faster way to move around the world, use {CTL –} (or {CMD –} on a Mac) to zoom out, then click with your mouse where you want to go. Zoom back in {CTL+} (or {CMD +} on a Mac) to avoid cross talk.

The poster world looks like this (Please click **here** for a PDF):
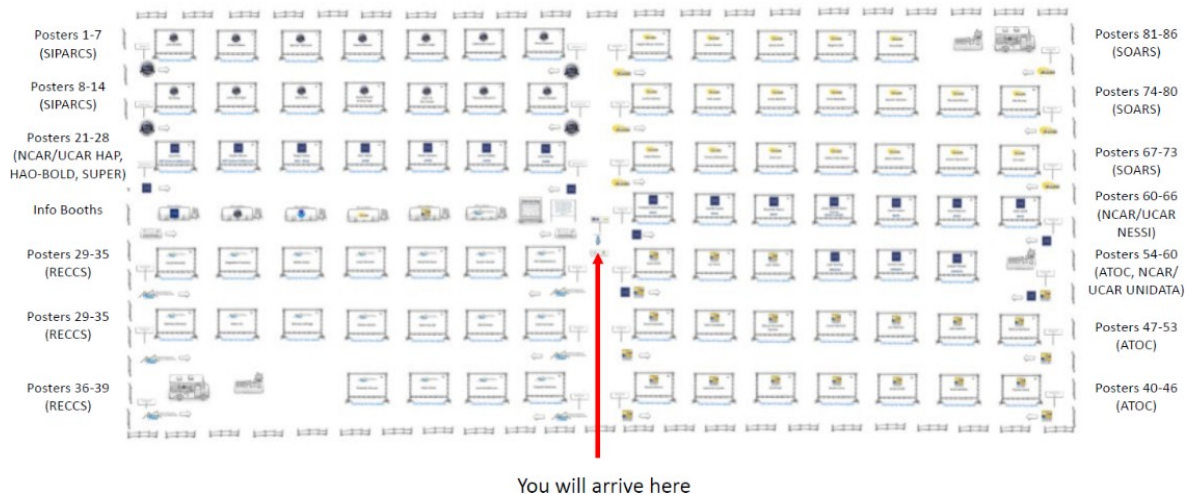
To experience a poster, please walk **directly in front of it**, then click on the poster board to have the poster open. You may need to hover over it with your mouse until your cursor changes to a pointing finger. If you stand between posters you may see/hear people at both posters.

Troubleshooting

Having problems connecting? Make sure you are logging in with Google Chrome. If you find yourself disappearing, try closing your window and logging in again. If it still doesn't work, check instructions here or email CIRES IT ciresithelp@colorado.edu and we'll do our best to help you.

We hope you enjoy this world, and are able to connect with many of our talented summer interns. To learn more about any of the internship programs at this poster session, please stop by our booths in Topia!

Symposium Agenda

Thursday, July 29, 2021

Closed Poster Evaluation Session
2:00 - 3:00 PM MDT
Poster evaluators and student presenters ONLY!

Open Viewing Session
3:00 - 4:00 PM MDT

Poster Number (* designates co-presenters)	First Name	Last Name	Program	Mentor(s)	Title of Poster
1	Omar	Chaarawi	SIParCS	David John Gagne, John Schreck	Machine Learning Data Commons Web Portal
2	Zephaniah	Connell	SIParCS	Supreeth Suresh, Cena Miller, Jian Sun, John Dennis	Performance Portability of Shallow Water Model with Kokkos
3	Heather R.	Craker	SIParCS	Alea Kootz, Orhan Eroglu	Climatology Means Support in the GeoCAT Ecosystem
4	Dianne	Deauna	SIParCS	Anderson Banihirwe, Julius Busecke (Columbia University) , Deepak A. Cherian	The xgcm Python package makes ocean model processing easier, better, faster, and shorter
5	Spencer	Diamond	SIParCS	David Hart, Rory Kelly, Ben Matthews	Exploration of Energy Consumption Compared to Clock Speed for Various Application Profiles
6	Jordan	DuBeau	SIParCS	Riley Conroy, Brian Vanderwende	Designing Machine Learning Models to Conserve the RDA's Computing Resources
7	Leila	Ghaffari	SIParCS	Supreeth Suresh, Cena Miller, Jian Sun, John Dennis	Performance Portability of Shallow Water Model with DPC++

8	Fairuz	Ishraque	SIParCS	Jeff Anderson, Helen Kershaw	Please stop and smell the tracers: Predicting tracer concentration behaviors in low-order models with data assimilation
9	Thomas	Johnson III	SIParCS	Sheri Mickelson, Brian Dobbins, John Dennis	Employing Machine Learning Models for CESM Timing Data
10*	Jiaqi	Li	SIParCS	Julia Kent, Orhan Eroglu, Michaela Sizemore, Anissa Zacharias	Expanding and strengthening the transition from NCL to Python visualizations
10*	Erin	Lincoln	SIParCS	Julia Kent, Orhan Eroglu, Michaela Sizemore, Anissa Zacharias	Expanding and strengthening the transition from NCL to Python visualizations
11*	Sama	Manalai	SIParCS	Nathan Hook, Christy Grant, Saquib Kahn, Eric Nienhouse	Harvester Automation for Metadata Search Web Application
12	Reid	Olson	SIParCS	Agbeli Ameko, Keith Maull	Pi-WRF 3.0; Incorporating Jupyter Notebook
13	Lucas	Sterzinger	SIParCS	Julia Kent, Kevin Paul, Chelle Gentemann (Farallon Institute)	Fake It Till You Make It - Zarr-like Access of Existing NetCDF4 Datasets
11*	Terry	Yuan	SIParCS	Nathan Hook, Christy Grant, Saquib Kahn, Eric Nienhouse	Harvester Automation for Metadata Search Web Application
14	Bo	Zhang	SIParCS	Cena Miller, Supreeth Suresh	Evaluation of DataSpaces in Heterogeneous In-situ workflow for GPU-MURaM at Exascale
15	Jack	Scherlag	SUPER	Chris Roden	Utilizing a High Performance Analog-to-Digital Converter for Improved Environmental Measurements and Faster Setup
16	Ammar	Siddiqi	SUPER	Brenda Javornik	PySolo: A Python Package to Run Soloii, a Radar Editing Software
17	Sandy	Urazayev	SUPER	Matt Hayman	Finding Meaning in the Void: Finding LiDAR Characteristics to Noisy Observations
18	Peter	Walsh	SUPER	Janine Aquino	Facilitating Remote Realtime Research through Enhancements to Python Monitoring Software for the NCAR Microwave Temperature Profiler
19	Teegan	Oatley	HAO-BOLD	Scott Sewall (HAO), Damon Burke (HAO)	Development of the High Altitude Observatory Satellite Ground Station

20	Kaylee	Heimes	HAP student collaborator	Sarah Tessendorf, Robert M. Rauber	The Impact of Fine Scale Updrafts and Downdrafts on the Trajectories of Ice Particles Created by Seeding Orographic Clouds in Observed and Modeled Flow
21	Divya	Rea	HAP student collaborator	Sarah Tessendorf, Robert M. Rauber, Huancui Hu	Impact of Atmospheric Rivers on Wintertime Orographic Precipitation in Idaho
22	Mai	Abdelrahman	RECCS	Erik Larson	Emission of Aerosol During Covid-19 and Global Impact.
23	Aislynn	Connell	RECCS	Kristy Tiampo, Toby Minear, Michael John Willis	Accumulation of Sediment in Paonia Reservoir and its Effect on Storage Capacity
24	Daniel	De Souza	RECCS	Noah Fierer, Claire Winfrey	The Effect of Past and Present Land Cover on Soil pH and Moisture
25	Lucas	Dimoveo	RECCS	Stefan Tulich	Spectral Analysis of ENSO in the Niño 3.4 region
26	Meliah	Dubus	RECCS	Sarah Leventhal	Florrisant Formicids: Eocene to Modern Comparison
27	Magdalena	Franchois	RECCS	Eve-Lyn Hinckley	Exploring the Use of Silver Film to Detect the Presence of Sulfide in Wetland Soils: Adding a Silver Lining to Working with Challenging Terrain
28	Crystal	Gonzalez	RECCS	Chris Ray, Airy Peralta	Are 'downscaled' climate models good enough for pikas? A test with data from American pika habitats on Niwot Ridge
29	Grant	Gonzalez	RECCS	Rebecca Safran, Heather Kenny, Zach Laubach	Through the Eyes of a Swallow: A Holistic Analysis of Humans' Connection to the Natural World
30	Kyle	Greaves	RECCS	Samuel Yevak	Mega-cosms: A climate manipulation experiment in Green Lakes Valley, CO
31	Mark	Irby-Gill	RECCS	Vanessa Gabel, Greg Tucker	Rolling, Rolling, Rolling Down the River: Will Harder Rocks Cause Your Waterfront Property to Roll into the River Faster?
32	Aubrey	Jackson	RECCS	Eve-Lyn Hinckley	Assessing Biogeochemical Heterogeneity in Subalpine Wetlands: Niwot Ridge, CO
33	Nicholas	Leftridge	RECCS	Robert Steenburgh	Planetary K-index Forecast Verification
34	Marie	Lim	RECCS	Toby Minear, Michael Willis	Examining Low Flow and High Flow Discharge on a Reach of the Colorado

					River and the Impact on Native Trout Species
35	Matthew	Martinez	RECCS	Thomas Merchant	Drought Stressors and Cattle Grazing Effects on Prairie Grasses and Forbs Reproduction and Growth
36	Elizabeth	Mathews	RECCS	Rebecca Safran, Heather Kenny, Zach Laubach	A Study of Barn Swallow Micro-Behaviors and Geomagnetism in Colorado
37	Jannetta	Robinson	RECCS	Rick Saltus, Anna Liao	Can a Smartphone Magnetometer Capture Space Weather?
38	Adjoa	Sakwa	RECCS	Nina Vance	Indoor Air Quality- Characterizing Emissions of Particulate Matter from Cooking Oils
39	Khokolah	Sherzad	RECCS	Joost de Gouw	Detection of Methane Emissions from Natural Gas Power Plants in the United States.
40	Renato	Barerra	CU-ATOC	Jennifer Kay, Jonah Shaw	How have Arctic top-of-atmosphere energy fluxes changed over the last two decades (2000-2021)?
41	Katherine	Castillo	CU-ATOC	Weiqing Han, Lei Zhang, Mikell Warms	Short lived-marine heatwaves in Nigaloo Niño and Nigaloo Niña
42	Jose	Chapa	CU-ATOC	Aneesh Subramanian, Danni Du	El Nino modulation of Tropical Instability Wave Activity in the Tropical Eastern Pacific
43	Nicolle	Cirino	CU-ATOC	Peter Pilewskie, Lynn Harvey, Andrew Buggee	How does the polar vortex influence gravity waves?
44	Jacob	Condill	CU-ATOC	Kris Karnauskas, Tessa Gorte	Analyzing Modeled Upper Ocean Evolution Over the 21st Century For Use in a Downscaled, Tropical Cyclone Centered Model
45	Oscar	Gandara	CU-ATOC	Pedro DiNezio, Cole Persch	ENSO in a aqua planet simulation
46	Victoria	Garza	CU-ATOC	Jeffrey Weiss, Cheryl Harrison	Loop Current Transport and Dispersal Dynamics in the Gulf of Mexico
47	Alonso	Gonzales	CU-ATOC	Sebastian Schmidt, Lynn Harvey, Matt Watwood	Comparing model simulations and observations of Polar Vortex wind conditions near the mesopause
48	Nahir	Guadalupe	CU-ATOC	Nikki Lovenduski, Sam Mogen	Small-scale variations in marine phytoplankton abundance in the California Current System
49	Blanca	Hernandez Ramirez	CU-ATOC	Julie Lundquist, Dave Rosencrans	Using lidar measurements to understand turbulence dissipation rate in Colorado's complex terrain

50	Ivonne	Martinez	CU-ATOC	Julia Moriarty, Alexandra Jahn, Hannah Zanowski, Patricia DeRepentigny	How does the North Water Polynya change over time?
51	Eric	Martinez	CU-ATOC	Jan Lenaerts, Tri Datta, Michelle Maclennan	Atmospheric Rivers and Surface Melt: A Deep Dive
52	Sofia	Martino	CU-ATOC	Brian Toon, Yunqian Zhu, Margot Clyne	Chemical and Aerosol Compositions During the Asian Summer Monsoon Season In the Upper Troposphere and Lower Stratosphere
53	Marissa	Sandoval	CU-ATOC	Donata Giglio, Jacopo Sala, Giovanni Seijo	How do Weather Events Change the Upper Ocean?
54	Laura	Smith	CU-ATOC	Andrew Winters, Katja Friedrich, Becca Baiman	Thunderstorm Gust Fronts and the 2018 Badger Creek Wildfire
55	Luz	Torres	CU-ATOC	Zhien Wang, Kang Yang	Examining tropical low-clouds variation during El Niño-Southern Oscillation using MODIS observations
56	Isaac	Valdez	CU-ATOC	Weiqing Han, Lei Zhang, Brianna Undzis	How the El Niño southern oscillation interacts with the Indian Ocean Dipole
57	Lydia	Bunting	Unidata	Ryan May, Drew Camron	Metpy 1.1.0 Milestones: Code Fixes and Verification
58	Connor	Cozad	Unidata	Ryan May, Drew Camron	Enhancements to Plotting Capabilities in MetPy
59	Isabelle	Pfander	Unidata	Hailey Johnson, Sean Arms	Maintaining netCDF: Updating Java Tutorial Code and Performance Testing in Python
60	Prahalath Anbu	Bharathi	NESSI	John Schreck	Explainable AI for Short-term Lightning Prediction
61	Camille	Cowan	NESSI	Dan Marsh	Comparing the Climates of Mars and Earth
62	Alexander	Massa	NESSI	Christine Shields	Understanding Atmospheric Rivers in a Future, Warmer Climate.
63*	Joana	Olsen	NESSI	Andrew Conley, Mary Barth	Development of the MusicBox Chemistry Model and Applications as a Tool for Education
64	Damir	Pulatov	NESSI	Supreeth Suresh, Cena Miller	Porting IDL programs into Python for GPU-Accelerated In-situ Analysis
65	Kiara	Roberson	NESSI	Maria Molina	Characterizing Large-Scale Weather Regimes with Unsupervised Learning
66	Milan	Wolff	NESSI	Alice Lecinski, Daniela Lacatus	Improvements to HiWind Ground Control and Visualization Codes

63*	Simon	Thomas	ACOM	Andrew Conley	Development of the MusicBox Chemistry Model and Applications as a Tool for Education
67	Isabel	Albores	SOARS®	Rebecca Bucholz (ACOM), Jonathan Martinez (ASP), Garth D'Attilo (ACOM), Vanessa Vincente (COMET)	West Coast Wildfires and Transported Pollution: How did the 2020 Wildfires Affect Air Quality in Regions of the United States?
68	Cristina	Bahaveolos	SOARS®	Irina Petropavlovskikh (NOAA), Peter Effertz (CIRES/NOAA), Jeffrey Duda (CIRES/NOAA), Sheri Mickelson (CISL), Matt Paulus (EOL)	Influence of transported anthropogenic pollution on regional tropospheric ozone using NOAA aircraft measurements
69	Zaria	Cast	SOARS®	Leslie Hartten (NOAA), Nan Rosenbloom (CGD), Dereka Caroll (ASP-MMM)	Correlating 20CR estimates to Barrow Tower observations for Utqiagvik, Alaska
70	Delián	Colón Burgos	SOARS®	Imtiaz Rangwala (CIRES/NOAA), Mike Hobbins (NOAA PSL), Gabriel Senay (NC CASC, USGS), Ernesto Muñoz (Inter American University of Puerto Rico - Aguadilla), Christina Holt (CIRES/NOAA), Garymar Rivera (COR3)	Decadal-scale changes in drought-related climate parameters: Assessing the consistency of Global Climate Models in projecting changes in the Northern Great Plains
71	Allysa	Dallmann	SOARS®	Nikki Lovenduski (CU), Andrea Smith (COMET),	Searching For the Blob: Physical and biogeochemical characteristics of the

				Holly Olivarez (CU), Dakota Smith (CIRA/MMM)	North Pacific Marine heat wave in ocean models
72	Ayman	Elyoussoufi	SOARS®	Curtis Walker (RAL), Clara Chew (COSMIC), Anthony Wilson (UC San Diego-Scripps)	Relationship Between Adverse Weather And Traffic Conditions
73	Erin	Evans	SOARS®	James Done (MMM), Erin Dougherty (RAL), Maria Molina (CGD)	Wait forever, and then all at once: Exploring atmospheric connections related to temporally clustered extreme precipitation events
74	Justine	Graham	SOARS®	Jordan Schnell (CIRES/NOAA), Lisa Kaser (CU/CIRES), Jesse Nusbaumer (CGD)	Evaluating RAP-Chem Air Quality Forecasts
75	Ariel	Jacobs	SOARS®	Chris Rozoff (RAL), Patrick Hawbecker (RAL), Shuyi Chen (University of Washington), Chris Davis (NCAR E&O, MMM), Cecile Hannay (CGD), Ebone Smith	The Observed Influence of the Oceanic Cold Wake on Hurricane Maria's Atmospheric Boundary Layer
76	Emily	Martinez	SOARS®	Aneesh Subramanian (CU), Fangfang Yao (CU/NOAA), Christopher Cox (NOAA), Angelie Nieves-Jiménez	Changes in Atmospheric River Activity over the Northeast Pacific: A Study with Large Climate Model Ensembles and Machine Learning
77	Anne	Maytubby	SOARS®	Robert Nystrom (MMM), Matthew Coggon (NOAA), Andrea Ray (NOAA),	Response of an Idealized Tropical Cyclone to a Sudden Decrease in Sea Surface Temperature

78	Katurah	McCants	SOARS®	Scott Landolt (RAL/AAP), Laura Slivinski (CIRES/NOAA), Agbeli "Ag" Ameko (CISL)	Comparing In Situ Flight Observations and GOES-16 Satellite-Derived Icing Products During The In-Cloud ICing and Large-drop Experiment (ICICLE)
79	Miranda	Miranda	SOARS®	Amy Butler (NOAA), Antara "Tara" Banerjee (CIRES/NOAA), Lesley Smith (NOAA), Vanessa Almanza (NOAA)	Identifying Global-Wind Patterns Driving Sub-Seasonal Surface-Ozone Variability
80	Mia	Murray	SOARS®	Jeremiah Sjoberg (COSMIC), Ginger Alington (George Washington University), Nicole Shrake (UCAR Operations)	Identifying Land Cover Change Trajectories in Xilinhot, Inner Mongolia using the LandTrendr Segmentation Algorithm
81	Angelie	Nieves-Jiménez	SOARS®	Joshua Alland (MMM), George Bryan (MMM), Rosimar Rios Berrios (MMM), Jamie Wolff (RAL)	Effects of Dry Air Layers on Idealized Tropical Cyclones with Vertical Wind Shear
82	Carlos	Romero	SOARS®	Kris Karnauskas (CU/CIRES), Sara Sanchez (CU), Alice DuVivier (CGD), Jeff Weber (UNIDATA), Tariq Walker	Changing Precipitation Patterns in Sub-Saharan Africa: Climate Change and its Impacts on Ecosystems and Economies
83	Avaionia	Smith	SOARS®	Nick Pedetella (HAO), Abigail "Abby" Smith (RAL), Tim Barnes (SciEd)	Comparing the High- and Low-Resolution Version of the Waccamx Model: How Do Small Scale Gravity Waves Impact the Ionosphere?
84	Ebone	Smith	SOARS®	Stephanie Zick (Virginia Tech), Amanda Seims Anderson (RAL),	Using a Bayesian Model to Generate Maps of Rainfall Forecast Uncertainty for 2018 and 2019 Landfalling Tropical Cyclones

				Andrea Schumacher (MMM/CU), Renee McPherson (University of Oklahoma), Melissa Moulton (CGD), Stephen Walsh (VT)	
85	Meghan	Stell	SOARS®	Sarah Tessendorf (RAL), Christine Shields (CGD), Courtney Weeks (RAL), Holger Vömel (EOL). Erik Larson (NOAA/CSL), Tiffany Fourment (SciEd), Mia Murray	Bringing water to the west: Microphysics and dynamics of orographic clouds influenced by atmospheric rivers
86	Tariq	Walker	SOARS®	Scott Sewell (HAO), Damon Burke (HAO), Katie Dagon (CGD)	Building a Precision Current Source for the Design of a Thermistor Measurement System