

# ISARRA 2018 Conference Schedule

## **Monday (9 July)**

**14:00-17:00: Registration Open (Kittredge Lobby)**

**17:00-18:30: Icebreaker Reception (Kittredge Lobby)**

## **Tuesday (10 July)**

**08:00-08:40: Registration (Kittredge Lobby)**

**08:40-10:00: Plenary Session 1: Welcome and Keynotes (Kittredge)**

*08:40-09:10: Opening remarks, logistics*

*09:10-09:35: G. Roberts: Aerosol flux measurements above the ocean surface using unmanned aerial systems*

*09:35-10:00: J. Reuder: The two ISOBAR stable boundary layer field campaigns at Hailuoto, Finland 2017 and 2018: Experimental setup and first results*

**10:00-10:20: Break**

**10:20-12:00: Plenary Session 2: Turbulence (Kittredge)**

*10:20-10:40: D. Lawrence: Atmospheric Turbulence Measurements Using Small Unmanned Aircraft Systems*

*10:40-11:00: J. Zhang: Coherent structure and turbulent mixing in the hurricane boundary layer observed by unmanned aircraft*

*11:00-11:20: C. Canter: Unmanned Aerial Vehicle Measurements of the Evolution Atmospheric Surface Layer Turbulence during Total Solar Eclipse*

*11:20-11:40: A. Segales: Advances in the Estimation of the Structure Function Parameter for Temperature using a Small Unmanned Aircraft System*

*11:40-12:00: R. Yamaguchi: Optical turbulence and mean meteorological measurement capabilities for small UAS Penguin*

**12:00-13:30: Lunch (Center for Community)**

**13:30-15:00: Exhibit Session (Fleming Building) -- Note that exhibits will be accessible all day**

**15:00-15:20: Break**

**15:20-17:00: Plenary Session 3: Clouds, Aerosols and Trace Gases (Kittredge)**

*15:20-15:40: J. Elston: Toward Large Area 3D Trace Gas Concentration Mapping at Low Altitude Above Rugged Terrain*

*15:40-16:00: C. Keleshis: Vertical profiles of dust aerosols using Unmanned Aerial Systems operated from a mobile Marine Vessel*

*16:00-16:20: R. Calmer: Aerosol-Cloud Closure Study using Remotely Piloted Aircraft Measurements during the BACCHUS field campaign in Cyprus*

*16:20-16:40: D. Brus: Combining airborne and ground based measurements of aerosol and cloud properties - Pallas Cloud Experiment (PaCE 2017)*

16:40-17:00: D. Schmale: Coordinated Sampling of Biological Aerosols Over Freshwater and Saltwater Environments Using an Unmanned Surface Vehicle (USV) and a Small Unmanned Aircraft System (sUAS)

**17:00-18:30: Colorado UAV Showcase and Additional Exhibit Time (Fleming Building)**

## **Wednesday (11 July)**

**08:00-08:40: Registration (Kittredge Lobby)**

**08:40-10:00: Plenary Session 4: UAS and NWP (Kittredge)**

08:40-09:00: J. Keeler: Impact of sUAS Data on Model-Based Supercell Forecasts

09:00-09:20: G. Limpert: Impacts of UAS Data on Thunderstorm Forecasts for the 28 June 2016 PRECIP Event

09:20-09:40: B. Baker: NOAA UAS Research and Technology Program moving research UAS platforms into Operations

09:40-10:00: J. Pinto: Hindcasts and realtime predictions with WRF LES in support of the 2018 ISARRA Flight Week

**10:00-10:20: Break**

**10:20-12:00: Plenary Session 5: Boundary Layer Structure (Kittredge)**

10:20-10:40: M. Kunz: Nocturnal boundary layer budgets of carbon dioxide enabled by unmanned aircraft

10:40-11:00: B. Greene: Techniques for Sampling Morning Boundary Layer Transitions Using Rotary-Wing Unmanned Aircraft Systems

11:00-11:20: P. Flatau: A sUAS Study to Measure Simultaneous Oceanic and Atmospheric Profiles during the 2017 CASPER-WEST Field Experiment

11:20-11:40: A. Finn: 3D Spatio-Temporal Observations of Atmospheric Temperature and Wind Profiles from UAV-Based Acoustic Tomography

11:40-12:00: L. Båserud: Test and validation of no-flow sensor wind retrievals from RPAS against mast, lidar and sodar observations

**12:00-13:30: Lunch (Center for Community)**

**13:30-15:00: Poster Session (Fleming Building) -- Note that posters will be accessible all day**

1) M. Bronz: The Use of Hybrid UAVs in Atmospheric Research with Paparazzi System

2) H. Vömel: Outcomes of the NCAR / EOL Workshop Unmanned Aircraft Systems for Atmospheric Research

3) C. Sweeney: AirCore: the answer to making high-precision trace gas measurements on remotely operated vehicles

4) A. Houston: NWS data needs for short-term forecasts and the role of unmanned aircraft in filling the gap

5) M. Benoit: Evolution of InterMet UAV sensors

6) J. Creamean: HOVERCAT: A novel aerial system for evaluation of aerosol-cloud interactions

7) E. Frew: Targeted observation and seeding using autonomous unmanned aircraft systems

8) S. Kimball: Developing and validating atmospheric sensors for UAVs

9) G. Cayez: Active teaching and learning of the use of RPA in meteorology

10) M. Klein: Profiling Airborne Microwave Radiometer - a powerful tool for atmospheric research and observations

- 11) E. Asher: A first look at the Unmanned Whole Air Sampler (UWAS)
- 12) A. Islam: Temperature/Humidity Sensor Housing for Multirotor UAS
- 13) A. Bernabeo: The dynamics of atmospheric aerosols: Traditional and innovative methodologies UAV-based
- 14) L. Barbieri: Integration of sUAS-captured Atmospheric Data and Imagery for Improved Agricultural Greenhouse Gas Emissions Monitoring
- 15) O. Kemppinen: Development and Field-Testing of Two Unmanned Aerial Vehicle Aerosol Particle Instruments
- 16) P. Burrala: Profiling of Lower Atmosphere for Aerosol Properties and Meteorological Parameters using Unmanned Aerial System
- 17) M. Guzman: Quantification of Trace Gases with Small Unmanned Aerial Systems (sUAS) during the 2017 CLOUDMAP Campaigns
- 18) R.-S. Gao: A brief introduction to The Nighttime Fire Observations eXperiment (NightFOX) - UAS wildfire measurements in support of FIREX-AQ and fire weather forecasting
- 19) R. Thomas: Deployment of a UAV based spectrometer for canopy measurements of Sun Induced Fluorescence above a CO<sub>2</sub> enriched woodland
- 20) C.-C. Chang: Multicopter-based aerial sampling and observation platforms for air quality studies
- 21) K. Nelson: A novel combustion emissions sampling payload for use with small Unmanned Aircraft Systems (sUAS)
- 22) A. Hirsikko: Pilot study investigates applicability of an autonomous drone for operational profiling in weather service
- 23) L. Pillar-Little: Development of a Robust CO<sub>2</sub> Sensing Platform for Fixed or Rotary Wing UAS
- 24) W. Shanti: Change in Wind Patterns Associated with a Total Solar Eclipse
- 25) G. Kok: Ozone Measurement Capability for Light UAV
- 26) K. Neitola: Vertical profiles of sub-arctic aerosol number size distributions obtained with a modified AlphaSense N-2 Optical Particle Counter
- 27) N. Seoane: Atmospheric Instrumentation Integration in a RPAS Investigation Aerial Platform in the CIAR (Rozas Research Center)
- 28) G. de Boer: Lower Atmospheric Profiling Studies at Elevation - A Remotely-piloted Aircraft Team Experiment (LAPSE-RATE): An overview of ISARRA flight week 2018
- 29) B. Hemingway: Vertical Sampling Scales for Capturing Atmospheric Measurements via Small Unmanned Aircraft Systems in the Boundary Layer
- 30) K. Young: Engineering a Phantom III with Atmospheric Sensing Instrumentation for Education and Outreach
- 31) R. Russell: UAVs and Sensors in K-12 Science and Engineering Education
- 32) A. Ahlawat: Application of T-matrix retrieval algorithm in the indigenously developed Optical Particle Sizer (OPS) for airborne observations over IGP region
- 33) Z. Bottyan: Wind Profile Measurements on Small Quadrotor UAS Platform
- 34) A. Avery: Ice Accretion on Small Unmanned Aircraft
- 35) W. Schreiner: Profiling the lower troposphere with GPS radio occultation
- 36) A. Corrales: Test Techniques of the Control and Navigation System in a UAS
- 37) D. McAdams: Development of a Holographic Cloud Particle Imager for UAVs
- 38) A. Clark: Comparison of field test data with numerical weather modeling for characterization of atmospheric refractive-index structure coefficient ( $C_n^2$ ), under 100 meter altitude

**15:00-15:20: Break**

**15:20-17:00: Plenary Session 6: Capability Development (Kittredge)**

- 15:20-15:40: J. Jacob: Results from the 2016-2018 CLOUD-MAP Coordinated Flight Campaigns
- 15:40-16:00: S. Swenson: Development and Deployment of Lagrangian Drifters from a sUAS

- 16:00-16:20: F. Mei: Development of a scientific payload for atmospheric science aboard a Group 3 UAS
- 16:20-16:40: B. Wrenger: Wind Measurement by Multicopter RPAS
- 16:40-17:00: S. Smith: On UAS Sensor Flight Pattern Determination for Studies in Atmospheric Science

**17:30-18:00: Bus transportation to NCAR Mesa Lab**

**18:00-20:00: Conference Dinner (NCAR Mesa Lab)**

**20:00-20:30: Bus transportation back to campus**

## **Thursday (12 July)**

**08:00-08:40: Registration (Kittredge Lobby)**

**08:40-10:00: Plenary Session 7: High Latitudes (Kittredge)**

08:40-09:00: G. de Boer: Inaugural Campaigns for ARM Research using Unmanned Systems (ICARUS): An update on ongoing flight activities in Alaska

09:40-09:20: P. Chilson: Overview of the University of Oklahoma's Contribution to ISOBAR: Science Questions and Findings

09:20--09:40: S. Kral: RPAS observation on the structure and evolution of the Atmospheric Boundary Layer during the two ISOBAR field campaigns on Hailuoto, 2017 and 2018

09:40-10:00 R.P. Lawson: Investigations of mixed-phase clouds at Ny-Ålesund, Svalbard

**10:00-10:20: Break**

**10:20-12:30: Plenary Session 8: Severe Weather and Community Discussion (Kittredge)**

10:20-10:40 J. Cione: Coyote UAS observations in Hurricane Maria (2017)

10:40-11:00: A. Houston: Using Unmanned Aircraft Systems for Severe Local Storm Research

11:00-11:20: R. Laurence: Deployment of TTwistor UAS During Project RiVorS

11:20-12:30: Discussion on ISARRA structure, Presentations for hosting next meeting

**12:30-14:00: Lunch (Center for Community), ISARRA steering committee meeting**

**14:00-15:00: Closing Session**