



The Explorers Club Northern California Chapter

OCTOBER 2021

Also available at our web site: <http://www.explorersnorca.org>

MONTHLY MEETING
FRIDAY 15 OCTOBER 2021
GATHER BY ZOOM INVITATION

ADVANCES IN OBSERVING THE WILDFIRE ENVIRONMENT

Understanding the role of fire-atmosphere interactions on fire spread

Craig B. Clements PhD

Extreme fire behavior has been observed frequently during recent wildfires in the Western US, yet there is still limited understanding of the role of plume dynamics on fire spread. The Rapid Deployments to Wildfires Experiment (RaDFIRE) was the first coordinated meteorological field campaign dedicated to observing fire-atmosphere interactions during large active wildfires to better understand extreme fire behavior.



Using a rapidly deployable scanning Doppler lidar, airborne Doppler radar, and a suite of other instruments, the field campaign sampled 26 wildfires from 2013-2018 in California and Idaho. Access to wildfires was accomplished via team members training as wildland firefighters and through integration with wildland fire management agencies. Observations during RaDFIRE include convective plume entrainment processes and aircraft in-situ observations of a developing pyrocumulus with extreme updraft cores of 58 m s⁻¹. A new mobile Ka-Band cloud radar has been deployed to four major wildland fires in 2019-20. These observations provide the highest resolution dual-pol measurements to date and will provide insight into the ash and debris associated with high-reflectivity cores within the plumes.

While observations of active wildfires have shed light on processes associated with fire-atmosphere interactions, data collected from a small-scale and comprehensive field experiment (FireFlux2) provide context on the local processes responsible for fire spread that are difficult to observe when sampling large wildfires. These processes include the development of a region of surface low pressure that increases the fire-induced wind into the rear of the fire front causing acceleration of fire spread. Collectively, the RaDFIRE field campaign and FireFlux2 observations highlight the range of phenomena associated with fire-atmosphere interactions, especially plume dynamics, and will provide a valuable data set for the fire behavior modeling communities.

Dr. Craig Clements is a Professor of Meteorology at San José State University and Director of the Wildfire Interdisciplinary Research Center. He leads research on fire weather, extreme fire behavior, fire-atmosphere interactions, and conducting wildland fire field experiments. Dr. Clements has over 20 years of experience in meteorological field observations and teaches courses in Fire Weather, Wildfire Science, Mountain Meteorology, Climate Change,

and Meteorological Instrumentation. He received his PhD in Geophysics from the University of Houston, his MS in Meteorology from the University of Utah, and a BS degree in Geography from the University of Nevada, Reno. In 2012, Dr. Clements received the National Science Foundation's CAREER Award for his research on wildfire dynamics and fire weather.



His current research focuses on obtaining meteorological measurements using state-of-the-art mobile atmospheric profiling systems such as Doppler Lidar and Radar at active wildfires in the western US and his research has been featured in PBS NOVA, Rolling Stone, The New York Times, Time, CNN, and Scientific American.

**HONOR ROLL
Paid up Dues 2021**

MEMBERS

Alexander, James
Alexander, Linda
Allan, James
Amaral, Julia
Austin, Jenifer
Ballou, Philip
Berg, Barbara
Bolt, Kendra
Boothe, Joan
Bruffet, Leonard
Chambers, Kimberley
Chang, Joyce
Chase, H. Keith
Chirurg, James Thomas
"Thom"
Cohn, Francesca
Cook, Sandra
Cooper, Alan
Dana, Don
Dietz, Thomas
Diggles, Michael
Dolan, Thomas
Durbin, Thomas
Dvorak, Don
Dvorak, Elaine
Estey, Sue
Eustace, (Robert) Alan
Ewing, Lesley
Ford, Art
Fox, Susan
Freitas, Anna
Freitas, Paul
Friedman, James
Friedman, Lincoln
Hemming, Peter
Hermalun, Brendan
Heydon, William
Higgins, Robert J.
Horne, William
Hutchison, Alan
Jepsen, Anders
Kelley, James
Klein, Ronald
Kvenvolden, Keith
Lapham, Ellen
Lavery, Laurence
Lee (Akey), Katherine
Miller, Gregory
Nishimine, Kendall
O'Kane, Teresa
Prigoff, Jim
Ross, Sandra Miller
Saber, Rick
Schmieder, Bob
Smith, Steve
Straka, Bill
Tarter, Jill
Weil, James
Winter, Mordechai
Worden, Simon
Wren, Sherry

SIRDARS

Baye, Karin
Boothe, Barry
Brandt, James
Clever, Karoli
Cohn, Lawrence
Crowder, Wendy
Dolan, Kathy
Durighello, Joy
Elkus, Nancy
Friedman, Christen
George, Marianne (Mimi)
Grubbs, Melodie
Hirzel, David
Hutchison, Ann
Isaac, Nancy
Jepsen, Kathy
Johnson, Fred
Judd, Kathy
Longo-Cohn, Mary
Mani, Cassandra (Cassie)
Nikas, A. James III
Oesterle, Matt
O'Keefe, Bonny
Patterson, Tom
Pennathur, Sudha
Phillips, William
McKinley III
Rolandson, Matthew
Reddy, Shridhar
Saber, Aldeana
Schmieder, Kay
(Kathleen)
Stewart, Zach
Straka, Barbara
Van Austen, Bob
Van Austen, Judy
Weiman, Mark
Yoder, Karl

Words From the Vice Chair:

On behalf of our Chair, Tom Dolan, I'd like to thank everyone for your continued enthusiasm and participation in the Chapter meetings in these unsettled times. We have lined up several excellent speakers for the months ahead covering a wide variety of topics. We are hopeful of returning to in-person meetings next year, but we will have to watch the trends closely. Our speaker this month introduces us to cutting edge research of a highly relevant nature to Northern California—climate change and fires.

Marco Meniketti FN'10

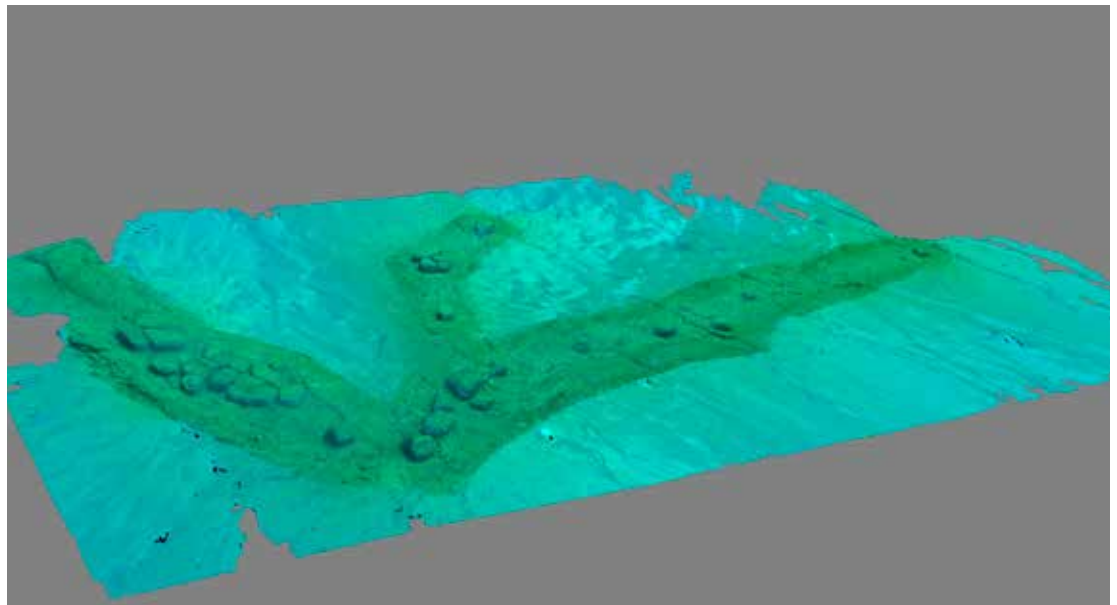


ARCHAEOLOGY BELOW THE SURFACE

Underwater Archaeological of a 9,000 year-old Landscape beneath Lake Huron

Ashley Lemke PhD, Friday Zoom Meeting, 24 September, 2021

Doctor Lemke presented an interesting archaeological report on work performed at an underwater site in the middle of Lake Huron, the second largest of the Great Lakes. Her study was focused on a strip of land which thousands of years ago was above lake level dividing Lake Huron. Since it is now covered by many feet of water, the archaeological work has been done by scuba divers who have identified a special area that had been created by moving large boulders into a pattern by the local inhabitants to funnel a reindeer herd into a narrow pass between large boulders in order to effectively hunt them. Other artifacts such as arrow heads were also found as part of the investigation. Video of the talk is at the Chapter website.



I took pleasure in learning a bit about the behavior of inhabitants of Canada when much of the area now covered by Lake Huron was above water. As a lad, I had a favorite book that was set in Lapland called White Reindeer which featured a boy's pet named "Urpu". Many years later, during a family expedition to Lapland we saw quite a few reindeer. As an exploration geologist in northern Canada, I saw many

caribou, a close relative of the reindeer, and loved every minute of it. Most of those were during my time using a helicopter for my gold exploration work in the tundra; unfortunately, all of my pictures showed the west end of a caribou heading east. **AJ**



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Northern California Chapter
Established 1973



CHAPTER OFFICERS & TEAM

Chair: Tom Dolan MN'14
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Vice Chair: Marco Meniketti FN'10
Secretary: Joyce Chang MN'17
Treasurer: Anna Freitas MN'17
Treasurer@explorersnorca.org
Webmaster: Mike Diggles FN'92
Newsletter: Anders Jepsen FN'03
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2021

October 15Dr. Craig Clements
Wildfire in the WestZoom
November 19Dr Roberto Junco
Caribbean ArchaeologyZoom
December Holiday CelebrationsTBD

2019

October 25.Michelle Westmorland
Headhunters Revisited.Dolan
November 22Dr. Barbara Bekins
Windows into SubductionDolan
December 15Holiday Party
.Home of Rick and Aldeana Saber

2020

January 24Dr. Jo Anne Van Tilburg
Easter IslandDolan
February 28Dr. Robert Griffith
Endangered RhinosDolan
March 27.Cheryl Leonard
Found Objects and MusicRESCHEDULED
April 24Dr. Paul Auerbach
EnviromedicsRESCHEDULED
May 24Dr. Sandra Cook
Foreign Devils on Silk RdRESCHEDULED
May 22, 9:30 AM:Roz Savage
The Gift of SolitudeZOOM Presentation
May 29, 7:30 PMZOOM ANNUAL MEETING
June 5, 8 PM.Eliot Jessup
24 hr Grand Canyon Rim-to-Rim.Zoom
September 20Explorers Club Chapter VP
Intro to Northern California ChapterZoom
September 25Liz Taylor and Sylvia Earle
Mission Blue- Hope Spots.Zoom
October 30Mimi George
Vaka Taumako ProjectZoom
November 20Cheryl Leonard
Found Objects and Music.Zoom
December 13.Holiday Party

2021

.Zoom
January 22Diana Pickworth & John Wilken
Explorations (2)Zoom
February 26Kent Lightfoot
Fires & indigenous land use practicesZoom
March 26Deana Weibel
Motivations for robotic space explorationZoom
April 23Brandi DiCarli & Scott Thompson
Farms from a boxZoom
May 21ANNUAL MEETING
May 21Alison Fundis
Deep Sea Exploration.Zoom
September 24.Ashley Lemke
Archaeology Below the Surface.Zoom

CHAPTER DIRECTORS

Directors (Past Chairs)

Joan Boothe MN'07
Lesley Ewing FN'93
Lee Langan FN'99
Anders Jepsen FN'03

Alan Nichols FN'84
Bob Schmieder FE'86
Rick Saber MN'01
Stephen Smith FN'96

Elected Directors

Paul Freitas MN'10
Jimmy Friedman MN'19
Kimberly Chambers MN'16

Chapter Email Addresses and Chapter Phone Number

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vicechair@explorersnorca.org

treasurer@explorersnorca.org
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MEETING VIDEOS

Our Chapter tries to record all of our dinner meetings. Videos of recent speakers' presentations are available on the Chapter Website.

DO YOU WANT TO GET INVOLVED IN THE INNER WORKINGS OF THE CHAPTER?

There are lots of tasks that come up during the course of a year: speakers, meetings, field trips, membership, newsletter, etc. A good place to get started is by volunteering to serve on a committee. Talk to any of the Chapter Officers or Directors for more information.

NORTHERN CALIFORNIA CHAPTER DUES

The Northern California Chapter dues are paid for the calendar year. Most of you have already paid your chapter dues for 2021. If you are unsure whether you have paid the 2021 dues, please check the Honor Roll listing on page 2.

In January, we will start collecting the 2022 chapter dues. The January newsletter will remind you that the 2022 dues will then be payable.

Please note that Northern California Chapter dues can be tax-deductible depending on your individual tax situation.

MORE PLANS FOR THE FALL

Save these dates for future meetings:

November 19th: Dr. Roberto Junco, by Zoom from Jamaica.

December: Holiday celebration, location TBD

POSSIBLE CHAPTER FIELD TRIPS

- * **Survival Field Medicine** with Dr. Paul Freitas:
Date and Time to be Announced (fall or later).
- * **Pinnacles National Park:** Early 2022, possible 2-day expedition.

For more information or suggestions, contact:
Jimmy Friedman MN' 19 - sfaikido@gmail.com.