



The Appleknocker

Sebastopol Rotary Club's Weekly Bulletin

Dr. Craig Clements – Fire Weather



Date: June 4, 2021
Volume: 2020/21—Issue E19-44
Scribe: Patrick Dirden
Photog. D Schreibman, R Maybury, J Dunlap, HH
Editors: P Dirden, D Still, J Blasco, J Dunlap, J Holst, T Boag, HH
President 2020/2021: Dan Rasmus



"All the News that Fits We Print"



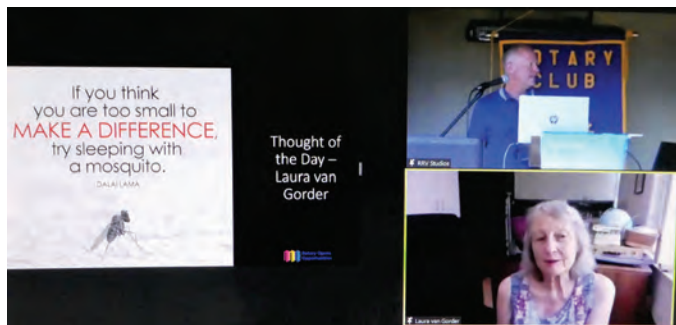
BEFORE THE BELL



Your humble scribe Zoomed into the June 4th 2021 virtual meeting of the Rotary Club of Sebastopol at 11:58AM. There was a corresponding group meeting at the Russian River Vineyards. What a pleasure meeting with fellow Rotarians on such a beautiful day.



AT THE BELL



Fearless leader (AKA **Prez Dan Rasmus**) must have had a memory laps and brought the hammer down on the roto bell a tad late at 12:18 pm!

Former tooth doc **Paul Thielen** started things off by praising Old Glory, this was followed by **Laura Victor van Gorder** providing us with the thoughts for the day.



Sonoma County YWCA Domestic Violence Hotline 707-546-1234

Future Programs

June 11

**James Alexander
From Prison to Homeless to
Zimbabwe**

June 18

**Diana Rich
The Three Basic Issues Facing
Sebastopol**

June 25

DARK – No Meeting

June 25

**Debunking
5:30 PM
Russian River Vineyards**

Miscellany

MAKEUP NOTIFICATIONS—scottbriggs50@yahoo.com

On-line Make-Ups:

www.RotaryEClubOne.org

Domestic Violence Hotline:

707-546-1234

sebastopolrotary.com

VISITING ROTARIANS & GUESTS



There was one visiting Rotarian, David Mark Raymond from the Sebastopol Sunrise Club. **Scott Briggs'** better half, **Sally**, joined us.

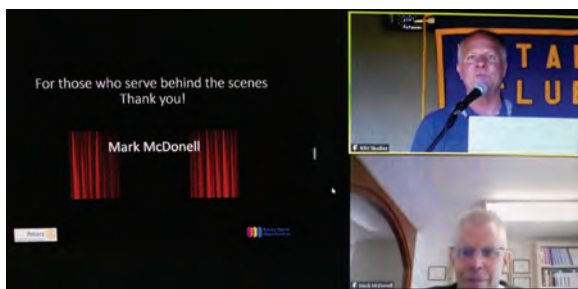
ROTARY REFLECTION

ROTARY REFLECTION: **Sue Engle** got up and asked the question, why would anyone want to join Rotary? She said that Rotary embodies cultural awareness and openness. There are no secret meetings or fat cats. We embody integrity and honesty. She then spoke about the difference we make locally and internationally. She finished by sharing a couple of fun anecdotes. During the adopt a road clean-up, a guy on Mill Station asked if the flock was paying up their tickets. No, just a bunch of Rotarians doing good and having fun. She talked about the many great experiences she has had coming into contact with fellow Rotarians on different occasions. Many of the situations were accidental and they were all enjoyable.



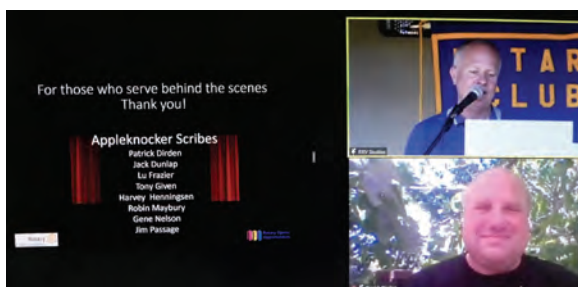
ANNOUNCEMENTS

Recognizing that it takes a lot of effort to have a club as great as this, **Prez Dan** arose to give thanks to the many people that were involved in this effort.



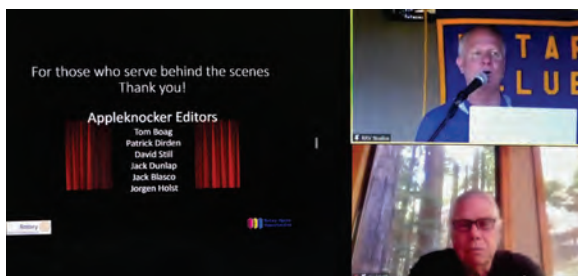
Mark McDonell: Mark prepares and files both Federal and State taxes for our Club, our Clubs Foundation and SREF—our club's education foundation.

Tom Boag: Tom does so much for this club each and every year. During COVID-19 he organized and hosted Zoom meetings not only on Fridays but for committees, boards and others. He works with speakers each week to make sure they are comfortable on Zoom. He archives our club's treasures and ensures they are backed up properly, he'll help anyone who asks a technological question.



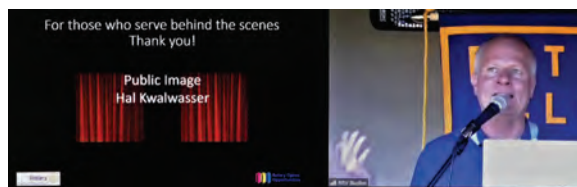
The Scribes: They pay attention during the meetings, and capture everything that happens. The AppleKnocker is our club's primary communication tool so it is important work. The Scribes are: **Patrick Dirden, David Still, Jack Dunlap, Gene Nelson, Jim Passage, Lu Frazier**, and your humble scribe this week, **Tony Given**.

Photographers: The Photographers capture everything during the club meetings (Zoom or not) as well as our club activities. These photos become an important part of history, archived for the future. The photographers are: **Harvey Henningsen, Jack Dunlap, Robin Maybury, David Schreiberman**, and **Patrick Dirden**.



Editors: These are the people that take the scribe notes, the photographers pictures and, with a dose of their personality, assemble them together into the AppleKnocker we receive each week. The editors are: **David Still, Tom Boag, Patrick Dirden, Jack Dunlap, Jack Blasco**, and **Jorgen Holst**.

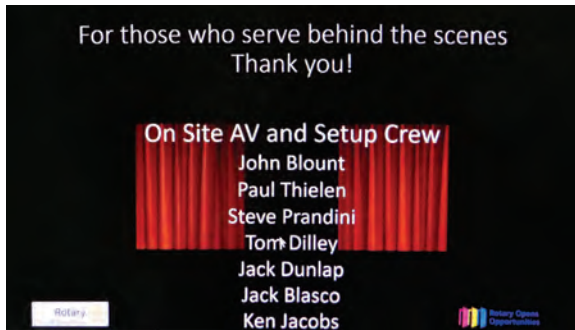
Hal Kwalwasser: Hal writes and distributes press releases throughout the year to ensure that the public knows about all the good works that our club is doing—this is important so that our club gets noticed. It gives our club credibility, helps with many things like fund raising and attracting new members.



Robin Maybury: Robin is the one that makes our web site so good. Another critical piece in making our club shine in the eyes of the community. This year he spent a lot of time on online payment systems – so we could pay our dues our fines, make charitable contributions. **Robin** created the page and answered requests whenever changes were needed.

David Schreiberman and Michele Kimble: David and Michele created our Clubs Facebook page and they keep it fresh. Connecting and following other community-based Facebook pages. These days having a social media is critical in the relevance of the club.

Nao Noguchi: **Nao** is chairperson of the Sgt of Arms, but also he is responsible getting people to give the thought for the day.



On site AV and Set-up Crew: Their dedication truly made a difference and allowed us to be the only Rotary Club in the District to have a hybrid meeting and the option for the members to meet outside and together. The members of the crew were: **John Blount, Paul Thielen, Steve Prandini, Tom Dilley, Jack Dunlap, Jack Blasco, Ken Jacobs, and Edwin Wilson.**

Our **Fearless leader** reminded us that the Virtual Meeting of Rotary International is being held from June 12 thru June 16 and will be better than ever, opening more innovative opportunities to learn and engage with our Rotary. For more details, visit: <https://convention.rotary.org/en>

Ken Jacobs informed us that debunking is set for June 25 starting at 5:30, and the roasting of **Prez Dan** will be a show that you will not want to miss-- See you there!



RECOGNITIONS



Scott Briggs celebrated the growth of a few more gray hairs on June 1st.

ANNIVERSARIES: **Jack Blasco** (May 30), **Kelly Back** (May 31) and **Tom Lambert** (June 2) celebrated another year of marital bliss. **Tom** and his wife **Sally** flew down to Palm Springs where they rented one of **Tom's** favorite cars, a brand-new Ford Mustang convertible.

ROTARY SERVICE ANNIVERSARIES: **Bob Hirsch** (38 years), **Dan Rasmus** (15 years), **Bob Rogers** (14 years), and **Lu Frazier** (5 years) were recognized with the years of service they have given Rotary.

Prez Dan announced that **Tim Moore** and son-in-law **Bill Bertacco** were voted best dressed at our May 15th fund raiser. Two good looking guys— How `bout those gams! Hubba hubba!





PROGRAM



Dan turned the mic over to **Patrick Dirden** who introduced us to our guest speaker, Dr. Craig Clements, from the [Fire Weather Research Laboratory](#) at San Jose State University. Dr. Clements first discussed how the Laboratory is turning into the Wildfire Interdisciplinary Research Center. The new center brings in talent and resources to explore all aspects of wildfires, including engineering, ecology, and public policy. The new center is awaiting news about a grant from the National Science Foundation. If the Center receives a grant, they will begin working with private and public partners to drive research into fire science. The center's research arm looks closely at fire weather forecasting and modeling. They work closely with

PG&E to help with planned power outages during active fire weather. They work on predicting and monitoring fire behavior. The center also works on wildfire management and policy through helping communities become adaptive and resilient towards wildfires.

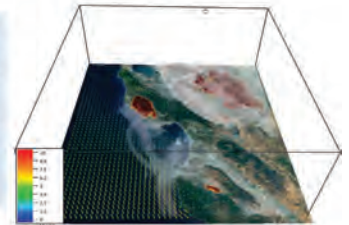
Dr. Clements then shared the wildfire modeling and forecasting system the center uses, the WRF-SFIRE. The model looks at potential fire spread and air quality. He then talked about some of the aspects of extreme fire behavior. The first aspect Dr. Clements spoke of was the dry, offshore winds that develop during the Summer and Fall months, and how the winds can cause rapid changes in temperature and humidity. He explained how during such wind events, the upper elevations will experience gusty offshore winds, higher temperatures, and low humidity, while the coastal valleys will be cool and moist. These wind events eventually mix through the atmosphere and impact the coastal valleys as the day progresses, causing the weather to change in an instant. He showed us how this happens using the center's mobile Doppler Radar.

Operational Coupled Fire-Atmosphere Modeling and Forecasting System (WRF-SFIRE)

SJSU

WILDFIRE INTERDISCIPLINARY RESEARCH CENTER

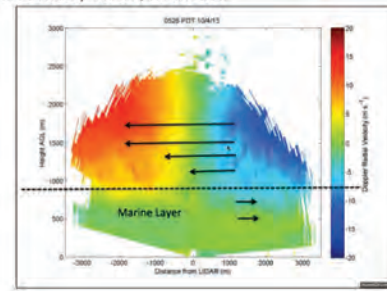
- We run state-of-the-art forecasting and data assimilation systems to provide operational support for current wildfires and lay ground for future weather, fire spread and air quality models
- We analyze long term changes in climate and fuel conditions to assess future fire activity, and its impact on air quality



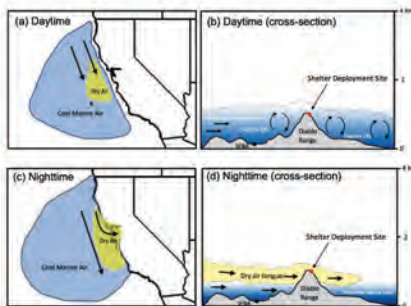
An example of the coupled fire-atmosphere forecast run for 2020 Bay Area fires - fire domain at 555m resolution

Lidar RHI Scans: Santa Ana winds mixing down to surface

Radial Velocity- Oxnard, CA Oct 2013



Blue shading = winds towards lidar
Red shading = winds away from lidar



NDE Summary

- This dry air forms above a marine inversion and advects inland overnight with the marine layer and immerses higher elevation terrain with warm and dry air
- An average of 15-20 nocturnal drying events per year occur in elevations greater than 700 m in the San Francisco Bay Area.
- Characteristics are highly variable, making them a challenge to forecast.

hours when the fire instantly erupted. Using data from nearby weather stations, he discovered that during this fire, the driest air occurred during the overnight hours. He then looked at historical climate information from other weather stations across the Bay Area and discovered the same occurrence. They occurred in the higher elevations of the East Bay, The Peninsula, South Bay, the Central Coast and Southern California. They are not as common in the North Bay and the Sierra Nevada. It happens in areas where the most ocean air interacts with steep terrain. These events typically occur during August and September. Using data from weather balloons launched in Oakland, Bagley discovered that the air above the marine layer is very dry. The air off the coast of the Bay Area and Central California during the summer months is some of the driest air in North America. The theory developed by Bagley is that the dry air stays offshore during the day. When the cool marine air moves inland at night, the dry air aloft also moves in, causing dry, windy conditions to occur at night in the higher elevations. Dr. Clements stated that 15 to 20 of these events occur annually, and that they are a challenge to predict.

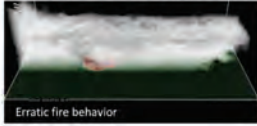
Dr. Clements then spoke about an occurrence called Nocturnal Drying Events. Typically, the air becomes moister during the night, causing fire activity to calm down. In a nocturnal drying event, the air remains dry in the higher terrain, and can cause erratic fire behavior to occur. A graduate of the center, Richard Bagley, became interested in this after the 2003 Devil Fire near Livermore, where over 53 fire fighters had to deploy fire shelters in the overnight

Idealized framework for extreme fire behavior

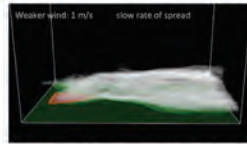
WRF-SFIRE simulations courtesy of Adam Kochanski

- Idealized grass fire experiments
- More narrow head fire front with stronger wind speed
- Erratic fire behavior with strong directional shear.

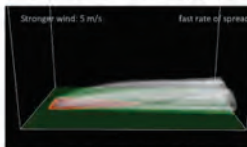
surface wind decoupled from the opposite upper flow



Erratic fire behavior



Weaker wind: 2 m/s slow rate of spread

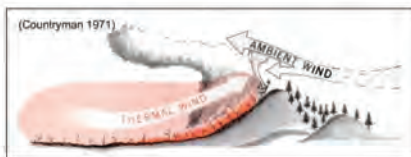


Stronger wind: 5 m/s fast rate of spread

More vertical smoke column slower fire progression

Fire Behavior on Leeward Slopes

- The terrain acts as an obstruction to airflow, causing mechanically induced eddies on the lee side.
- Buoyancy generated by the fire acts to converge nearby ambient eddies and vorticity => triggering the fire whirl formation.



Dr. Clements then showed us a model of how winds drive fire and smoke. When winds are calm, the smoke will drift higher into the air, and the rate of fire spread will be low. When winds are high, the smoke remains closer to the surface, and the rate of spread is faster. He then showed what happens with fires and smoke when surface winds blow in one direction, and winds aloft blow in another direction, which often occurs in the Bay Area. When smoke starts to drift in an opposite direction, the fire will begin to generate its own winds, and will cause the fire to move in erratic directions. In steep terrain, fire spreads faster when the flames travel up slope. Dr. Clements then spoke about how winds blowing over leeward slopes (eg: fire moving over Mount St Helena into Calistoga) can cause a clash of air flows. When the two air masses meet, you can get turbulence and updrafts, which can cause fire whirls to develop. He then showed an experiment with an upslope fire. They placed weather sensors in the perceived path of the fire. During the experiment, winds were blowing in different directions. The experiment showed that as the fire radiated out, there were short and rapid changes in fire activity, due to the clash of the winds. When these changes occur, the danger increases for fire fighters. With the impacts of climate changes now here (drier fuels, hotter temperatures), the danger from erratic wind shifts will dramatically increase.

Dr. Clements took a couple of questions from the audience. **Greg Jacobs** asked if we closed fire stations too soon and if the surveillance cameras are a good tool. Dr. Clements said that satellite data and 911 calls are the best tools for reporting and monitoring wildfires. The cameras have been useful with wildfire surveillance. He's concerned that cities and utility companies are placing too much weight on cameras. He did not comment on the closure of fire stations. **Bob Rogers** asked if the loss of the 747 super tanker will hurt wildfire suppression efforts. Dr. Clements said that the very large air tankers are not as effective for wildfires. He cited a study from the US Forest Service. The tankers don't stop spotting, and the fire retardant typically hits the forest canopy, and not the forest floor. The new helicopters purchased by CalFire are much more effective. **David Schreiber** asked what new technology is being developed. Dr. Clements mentioned that the fire forecasting model developed by San Jose State will allow fire commanders to know where the fire is forecasted to move, and where to assign firefighting assets. The data will be available to fire fighters via mobile apps.



THE FINAL BELL



Prez Dan thanked **Dr. Clements** for an interesting and eye-opening presentation. With that, **Dan** struck the Roto-bell at 1:15 pm sharp!

FUTURE PROGRAMS

June 11, 2021 – From Prison to Homeless to Zimbabwe - James Alexander



James Alexander served in the United States Marine Corp and was meritoriously promoted to the rank of noncommissioned officer. Unfortunately, while serving as a successful Marine, James participated in an accidental murder. After two trials, the first being a mistrial, he was sentenced to prison. While in prison, he achieved an electronic technician certification, an X-ray technician certification, and an alcohol and drug abuse counselor certification. James also earned an Associate of Arts degree and co-founded inmate self-help programs. He was released from prison in April of 2011 after 28 years in the California prison system.

After his release, James received his Bachelor's and Master's Degrees in psychology. He sat on the board of the California Association of Alcohol and Drug Abuse Counselors. He currently sits on the board of the Friends Committee on Legislation in California. James is still very active in advocating for Criminal Justice Reform.

In 2014, His Holiness, the Dalai Lama, honored James Alexander as an Unsung Hero of Compassion. James currently works for the Sonoma County Department of Health Services as a Case Manager connecting the homeless to county services. IBM, highlighting his work with the homeless population, featured James in a nationally televised commercial.

James is an inspirational speaker, has collaborated in the authoring of a book, and has written his own book *Courage in the Face of Cruelty: My Twenty-Eight Year Journey Through The California Prison System*. James is also very involved in the charitable nonprofit, The Courage of H.O.P.E. Foundation, EIN: 84-4363859, PO Box 9624, Santa Rosa, CA 95405. The Foundation seeks to bring clean water and sanitation to the Bhika/Chidembo village in Zimbabwe, Africa.

June 18, 2021 – The Three Biggest Issues Facing Sebastopol – Diana Rich



Sebastopol Rotarian and Sebastopol City Council member Diana Rich will share her insights on the three biggest issues facing Sebastopol today. Don't miss this chance to get an insider's view of our home town.

The background of the top half of the image features a dark, starry space scene with purple and blue nebulae. In the center, a large, golden-yellow gear-like logo is visible. The logo has the word "ROTARY" in a dark arc at the top and "INTERNATIONAL" in a dark arc at the bottom. Overlaid on this logo is the word "JEOPARDY!" in large, bold, light blue 3D block letters.

JEOPARDY!

The Debunking of Dan Rasmus
June 25, 2021 • Russian River Vineyards