



Volume 39: Issue 4  
April 2024

A Publication of the Pine  
Mountain Lake Aviation  
Association, Inc.

*Pine Mountain Lake Aviation Association*

*Next Meeting: **Potluck Dinner***

*Saturday May 4, 2024*

*Time: 6:00 pm*

*Tristan Duplaan Hangar*

*20919 Woodside Way*

***Speaker: Paul Dye***

***Space Shuttle Mission Controller***

## President's Message

By Bob Mackey

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### April PMLAA Membership Meeting

Last night, Jeff Heoflich from Yosemite National Park Search and Rescue shared stories from his 20+ years in Yosemite. The turnout was small due to the weather, but everyone present could learn from some of the examples he illustrated. Thanks, Jeff!

### May PMLAA Membership Meeting

May 4, 2024, 6-9pm

Our next guest speaker will be Paul Dye, Space Shuttle mission controller, and multiple time aircraft home builder. Just one the airplanes that he has built is this beautiful SubSonex: <https://www.youtube.com/watch?v=9RxSkpoGMYY>

(see next page)

Beautiful and it's a Jet!



Paul will be presenting "**Shuttle Houston: My life in the center seat of Mission Control**". We will meet at Tristan Duplan's hangar near the end of Runway 27. Dinner will be potluck. Please bring a main dish or dessert to share. There will be cards and pens available to label each dish so that people can express their appreciation to the chefs, and know which ingredients are present.

### **Airport Affairs**

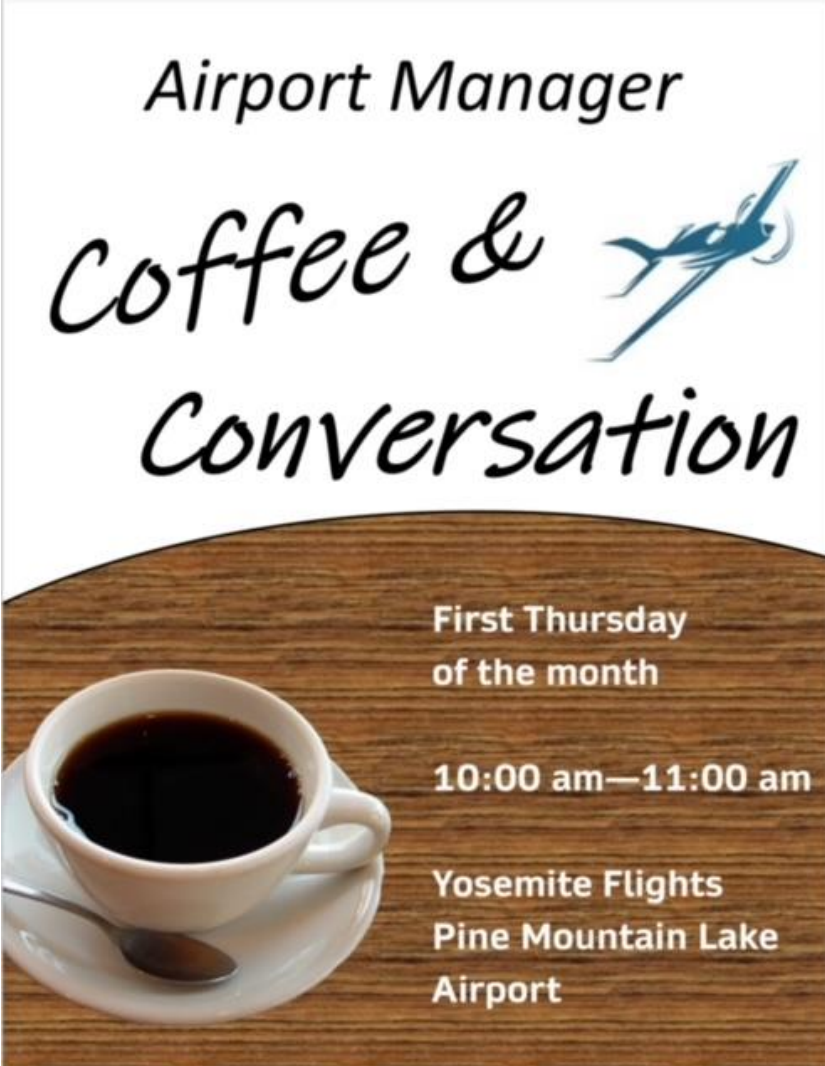
Our new Tuolumne County Airports Manager, Tonya Sheftner, is off to a great start. In the last two months, she has taken a great interest in trees and pavement. Action has started on the trees on County lands that can interfere with airport operations. You may have seen some trees being removed or trimmed near the departure end of Runway 27. Tonya is at the E45 Airport Office the first Thursday of every month at 10am.


## Scholarships

PMLAA's scholarship program is seeking graduating high school seniors going on to local or distant education opportunities. They could be aiming for a college degree, or a license to fly or work on aircraft. If you know a possible candidate, please let any PMLAA board member know. Helping Hands, ROOFBB, and Rotary are also offering scholarships this year for local students.

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-bob mackey



*Airport Manager*  
*Coffee &*   
*Conversation*

First Thursday  
of the month

10:00 am—11:00 am

Yosemite Flights  
Pine Mountain Lake  
Airport

## Safety Corner

### Density Altitude Vs. Relative Humidity Mike Gustafson

Before you write this column off as a tired old topic, note the additional factor, relative humidity. True, we have all been at a high altitude field on a hot day and experienced the effects of density altitude on aircraft performance, but what about the effects of humidity? Out here in the western states we rarely have high relative humidity so we could ignore the extra performance factor but what about when we fly back east? Each summer Mick Hopson and I wing off to Oshkosh and run smack dab into high relative humidity and high temperatures. The plane suffers and we suffer.

A quick density altitude explanation: Aircraft performance, both the wing and the engine are based on standard altitude and temperature. Anything higher or hotter reduces total aircraft performance. The reason for the performance loss is that as we move to a higher altitude there are less air molecules and as the temperature rises there even less air molecules. So the engine is developing less horsepower and the wing needs more volume over its surface to create the required lift. Adding moist air to the equation only makes things worse. Now the air is even less dense as the moisture takes up valuable volume.

For practicable purposes high relative humidity is considered as a factor when it exceeds 50% and since typical midwestern summer relative humidity is in the 80 to 90%, it is a factor you need to consider when calculating aircraft performance. To get your attention, the effect of relative humidity can increase the normal density calculation by +38% for 90% relative humidity! The actual calculation is a bit rigorous and beyond the printed space I have here so I reduced the math down to a chart that can be used assuming high relative humidity as a function of temperature.

Air temperature(F)	Altitude Correction(Feet)
60	500
70	700
80	900
90	1300
100	1500

You can use this “rule of Thumb” numbers by doing your normal density altitude calculation then adding the humidity correction. In one calculation I did the normal density altitude compute to 4500 feet at 90 degrees F., I then added 1300 feet for humidity for a result of 5800 feet density altitude. I did a quick look-up for a Cessna 182 take-off distance for the difference between 4500



feet and 5800 feet and found that it added 400 feet to the take-off distance required to clear a 50 foot obstacle. This difference may not seem like much on paper, but if you are running down a short field at gross weight on a hot afternoon in Iowa, it could make the difference between barbed wire or no barbed wire in the landing gear!

I must admit that I never really accounted for relative humidity in my density altitude calculations and I have never taught same to my students but after doing a bit of reading on the subject it is now part of my kit bag of performance calculations.

So, who is going to Oshkosh this year?

Fly safe.

With credit to Roger Clark, FAA Aviation New



Stock photo



## Pine Mountain Lake Aviation Association

### Membership Application, Renewal and Update



(  ) New Member Date: \_\_\_\_\_  
 (  ) Renewal – no changes  
 (  ) Renewal – with changes

	<u>Order Badge</u>	<u>Publish on Member List</u>
Name 1: _____	<input type="checkbox"/> Yes \$15 ea. <input checked="" type="checkbox"/> Yes	
Name 2: _____	<input type="checkbox"/> Yes \$15 ea. <input checked="" type="checkbox"/> Yes	
Child Name: _____	<input type="checkbox"/> Yes \$15 ea. <input type="checkbox"/> Yes <input type="checkbox"/> No	
Child Name: _____	<input type="checkbox"/> Yes \$15 ea. <input type="checkbox"/> Yes <input type="checkbox"/> No	
Mailing Address: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
City: _____ State: _____ Zip: _____		
Phone 1: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
Phone 2: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
Email 1: _____ (Required)		<input type="checkbox"/> Yes <input type="checkbox"/> No
Email 2: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No

**PMLAA Mission:** To promote aviation interests and ensure the welfare and safety of its members, Pine Mountain Lake Airport, and the general community, through aviation-oriented recreational and educational activities.

**Monthly Meetings:** Held the first Saturday of each month (no meeting in January or July), usually at 6:00, check the PMLAA Newsletter or website [www.pmlaa.org](http://www.pmlaa.org) for details.

- Annual membership dues are \$25.00 per household.
- Please make check payable to: **PMLAA**.
- Bring to monthly meeting or remit to: **PMLAA, PO Box 131, Groveland, CA 95321**
- Membership includes:
  - Monthly electronic newsletter.
  - Access to member directory (available *only* to members).
  - Invitation events to monthly meetings and airport events.

Annual dues \$25.00 per year	\$ _____
Badges @ \$15.00 each	\$ _____
Donation (\$25-\$100 suggested)	\$ _____
Scholarship Fund Donation	\$ _____
<b>TOTAL enclosed</b>	<b>\$ _____</b>

## 2024 Meeting Calendar

<i>Date</i>	<i>Program</i>	<i>Time &amp; Location</i>

## 202 Hangar4 Aviation Calendar

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### BOARD OF OFFICERS & COMMITTEE CHAIRS – 2023

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**VP, Airport Affairs**, Rob Compton 962-6503

**VP, Social Affairs**, Gabe Coelho 209-617-4384

**Secretary**, Phil Boortz 805-944-0148

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**Email:** [president@pmlaa.org](mailto:president@pmlaa.org)  
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Phone prefix is 209 unless otherwise indicated

#### **COMMITTEE CHAIRS**

**Property**, Ed Peters 962-6267

**Multimedia**, Phil Hickerson 962-6714

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**Display Day Coordinator**  
Rob Compton 962-6503

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**Webmaster**, Jeremy Zawodny