

JETSTREAMS

AHART AVIATION SERVICES

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September 2006

As summer is coming to an end we are moving into the most beautiful time of year. The Bay Area's version of Fall tends to be full of clear and warm days with excellent visibility especially for those of us fortunate enough to be in the air.

Fall is not only perfect for flying though, we are excited to be offering many ground schools and safety seminars in the coming months. Fred Abrams of Abrams Aviation has been instrumental in putting most of these together and we thank him for all of his efforts. Terry Lankford has written up an informative article on the Aviation Weather Seminar he will be hosting in October. Most of these presentations will fill to capacity so please be sure to register early to hold your spot!

Adam Jessup has been offered a ground school position with SkyWest Airlines, while we will miss him we are happy that he is moving on to the next step in his career as a pilot!

Safe flying

Lysa Wollard

August Achievements

Adrian Woolley

Solo

David Sawczyn

Steve Gerace

Solo

Derek Sellers

Chris Davenport

Solo

Brian Dreger

Matt Horstman

Solo

Brian Dreger

Ryan Conversano

Private Multi Engine

Keith Breton

Mike Huang

Instrument

Brian Dreger

Todd Wallis

Private

David Gregory

Will Chou

Commercial Multi Engine

Brian Dreger

Casey Topalian

Instrument

Neal Beuerman

CFI OF THE MONTH

Brian Dreger

Upcoming Events

Private Pilot Ground School

Starting September 12

11 week course

Tuesdays and Thursdays

6:30pm-9:30pm

\$300.00 plus books and materials

Cessna Open House

September 9th

Cessna Aircraft will be at Ahart to display their newest line of single engine aircraft. Please stop by and take a look at the next generation of general aviation.

Cessna representatives will be available to answer any questions.

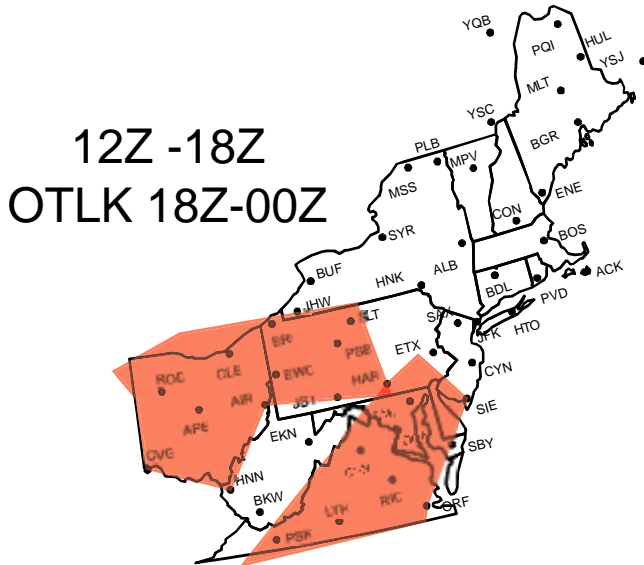
Please contact the front desk for more event information or to schedule.

Summer Weather Hazards

By Terry Lankford

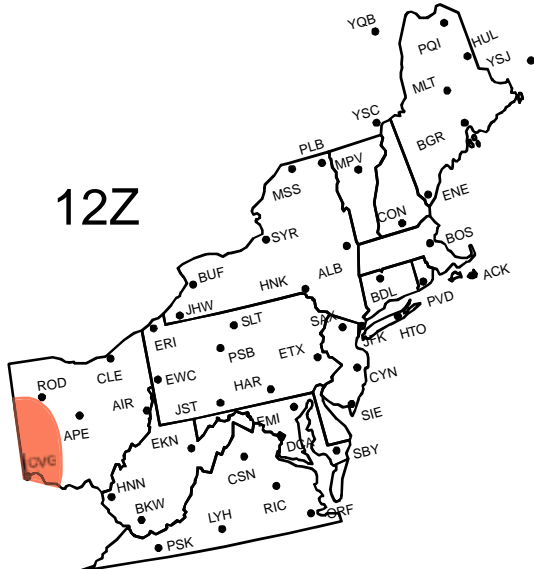
For years pilots have been asking for "user friendly" graphical products. The graphical AIRMET, or G-AIRMET, is intended to help satisfy this need. G-AIRMETS provide coverage in time and space based on a "snapshot" of expected weather. They depict forecast conditions more precisely and at shorter intervals than is possible with traditional text AIRMETS. (Text AIRMETS will still be available, derived from G-AIRMET information.)

Below is an example of a "text AIRMET" covering six hours with an additional six hour OUTLOOK.



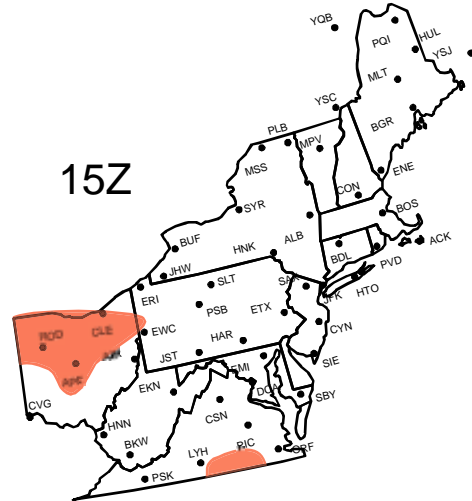
Aerial coverage must include the entire 12 hours of the forecast period, even though phenomena may only affect a portion of the area at any one time—the disadvantage of the text product.

The G-AIRMETS provides a graphical representation of coverage at three hour intervals. Below is an example of the G-AIRMET at the beginning of the forecast period—12Z.

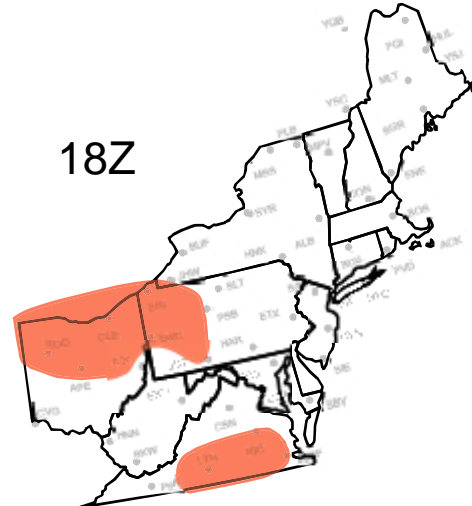


Note the considerable difference in coverage from the text AIR-

Next is the G-AIRMET for 15Z.



Finally, aerial coverage for 18Z.



G-AIRMETS provide coverage at 3 hour intervals through the OUTLOOK period (12 hours). The advantages are apparent. At this time the G-AIRMET should become available early in 2007. For additional information about this product visit aviationweather.gov/testbed/g-airmet/ and the AWC web page at aviationweather.gov for updates

The Flying Gourmet

By Jim Jellison

We are so blessed here in California with great flying weather an abundance of interesting places to visit. Even though I have lived in California for most of my life there are still many of these places that I haven't visited and I bet it's the same for you. For instance, I had never been to the place where James Marshall first discovered gold and started the Gold Rush of 1849. In fact I wasn't really sure where that famous location actually was. Recently an old Navy buddy of mine was visiting from southern California and asked if I would consider flying he and his daughter to an airport close to Coloma, CA so that they could visit Sutter's Mill. I had to do some investigation but discovered that Placerville airport was about as close as I could get them by air.

My friend's daughter is about to start the 4th grade (that's when kids are taught California history) so my buddy was taking her to visit some of the historical sites that she will be studying this school year. We were really lucky that the weather had cooled off and that I hadn't scheduled the flight earlier than 9 AM, since that's when the fog dissipated. The air was smooth and cool at our cruising altitude of 5,500 and about 40 minutes later we were touching down on runway 23 at (PVF). There was a little wait for the taxi but we arrived in Coloma well before noon.

Coloma is really a step back in time, in fact one might say a leap back and the locals do their best to keep it that way. Around the corner from the old General Store you can try your hand at gold panning tutored by a character right out of 1849, Mr. Rodney Earl Bland. Bland's slender frame covered in raggedy clothes, bushy gray beard, oversized leather hat and demeanor will make you believe that he had been there with James Marshall when that first nugget was found. Bland's character is a big hit with young and old alike as he teaches the children to successfully pan for gold and garnets. Other residents also lend realism to history like the two gentlemen in period costume who were squaring logs into timbers by hand. Sutter's Mill has been reconstructed and is next to the river for visitors to see as well as a small museum.

You are bound to work up an appetite after panning for gold, touring the Mill, and walking down to the river to cool your feet. Right down the street The Argonaut is a little oasis that you must visit for a great home made sandwich, fresh squeezed lemonade and a piece of pie. Just what you need to get you back on your feet and you can enjoy your meal at a table on the shady porch. The proprietress Syd, short for Sydney, is a delightful lady with a quick smile and laugh, and that's saying something since Coloma is visited by thousands of school children every year. The Argonaut is located in the original Schulze house, which was built in 1916. Luckily electricity has been added so that you will get ice in the lemonade. But don't ask to use the phone when you can't get cell phone service, she doesn't have one!

Placerville (PVF) is located 81 nautical miles northeast of Livermore and the Hangtown VOR is located on the field.

Aviation Weather Seminar

By Terry Lankford

Ahart Aviation and Abrams Aviation Seminars are pleased to present an *Aviation Weather* program on Saturday, October 28th. The seminar will be presented by Terry Lankford. See "Upcoming Events" on Ahart's WEB site for fees, details, and registration.



Weather related accidents continue at relatively the same levels. Pilot training, including Aeronautical Decision Making (ADM) and improved weather education, are the solution.

Much has been written about ADM and decision making. Stage Checks and Practical Test Standards address the issue, although almost always in a *subjective* way; for the most part pilots have little in the way of *objective* criteria for this critical flight determination.

Seminar participants will develop personal minimums based on their individual training and experience, and the capability of their airplane and its equipment.

Instruction will include a brief review of basic weather products, and address the operational use of *Weather Radar* and *Satellite* interpretation. The curriculum covers the purpose, scope, and limitations of aviation forecasts; and, how to operationally apply these products to flight operations. Included will be an examination of forecast variance, updating and verifying weather enroute, determining operational changes, and applying sound ADM to resolve discrepancies.

Participants will analyze various "CASE STUDIES" and decision making, including methods to "Break the CHAIN" of events, that often lead to an incident or accident.

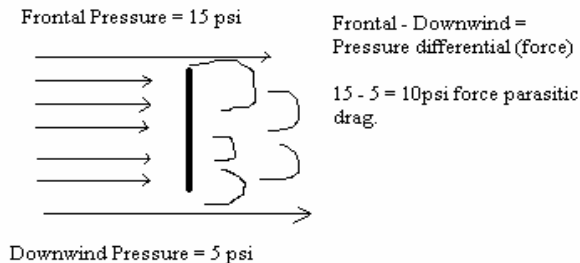
A course "Workbook" and "CDs" will be provided with reference and course review materials.

Instructor's Corner: Induced Drag

By Jordan Miller

We have all experienced drag; a force opposite of the direction of motion, whether riding a bike or driving a car. While riding a bike, we feel the wind resistance that keeps us from going faster. The faster one rides, the more force is required to keep from slowing down. This same phenomenon is experienced in a car, where it takes more pressure on the gas pedal to maintain highway speeds than 30 mph. An airplane experiences a similar type of drag called parasitic drag.

Parasitic drag is the combination of pressure drag, skin friction drag, interference drag and cooling drag. Pressure drag accounts for a large portion of parasitic drag. Pressure drag is also called form drag because it is affected by the form of the object. As an object moves through the air, a pressure builds on the front side of the object and a lower pressure is created on the downwind side. This concept is most easily understood by looking at a flat panel in a wind stream.



The air hits the panel and tries to move it in the same direction as the wind stream, which in turn slows the airflow.

According to Newton; force equals mass times acceleration. Since the air is slowed, or de-accelerated, and the air has mass, there is a force in the direction of the airflow. This pressure (pressure is force per area) would not cause drag as long as there was an equal force on the opposite side of the panel. But, the pressure on the downwind side of the panel is less. On the downwind side, only the ambient pressure of the atmosphere pushes air into the wake of the panel. The result is that higher pressure on the windward side and lower pressure on the downwind side creates a force opposite the direction of motion (this is shown mathematically in the diagram). As airspeed increases, the differences in

pressures lead to more pressure drag. Pressure drag can be lowered by designing more streamlined surfaces that lower the difference in pressure between the leading and trailing surface.

Pressure drag has the greatest effects on blunt objects, such as fuselages and engine nacelles. On sections of the aircraft that have a smaller frontal area, for example the wings, the majority of parasitic drag is due to skin friction drag. Air has viscosity just like motor oil, honey, or any fluid. As air flows over the surface of the airplane it has to be accelerated to the speed of the airplane. The force required to accelerate the air is skin friction drag. This can be experienced in a car if one puts his hand close to the surface of a car while driving. There is little wind close to the car because the air is moving close to the speed of the car. As the hand is positioned away the car, the wind increases quickly. The faster the speed, the more skin friction drag is created because a larger force is required to accelerate the air to the higher speed.

The majority of parasitic drag is caused by pressure and skin friction drag. The remaining contributions to parasitic drag are interference drag and cooling drag. Interference drag is caused by the airflow around different sections of the airplane interfering with each other. Interference drag is the greatest where the wings attach to the fuselage.

Most engines in GA airplanes are cooled by air. As the air enters the engine nacelle, it decelerates creating a higher pressure near the intake and a lower pressure downstream of the engine. This phenomenon is the same as described by pressure drag. The increase of drag due to change in pressure is partially offset by the heat added to the air stream by the engine. The higher temperature increases the pressure, which partially offsets the pressure differential.

Parasitic drag is a combination of pressure drag, skin friction drag, interference drag, and cooling drag. Pressure and skin friction drag make up the majority of parasitic drag. Pressure drag is due to differences in pressure between the windward and downwind air. Skin friction drag is caused by the viscosity of air. The faster an airplane flies the more parasitic drag it will produce. Next month the instructor's corner will put the whole drag picture together and demonstrate how this information can be used to fly smarter!

Airport Open House 2006

The annual Livermore Airport open house is fast approaching!

10am-4pm on Saturday September 16

Spend the day having fun at the airport.

MUSIC, FOOD & AIRPLANES including...ANTIQUES,
CUSTOMS and HOMEBUILT Aircraft