



CHAPTER
613
June 2004

www.eaa-chapter613.org



Young Eagles at Knapp State Airport June 8, 2004

Upcoming Events

June 25,26,27 (Fri,Sat,Sun) – 9:00 to 5:00 – Ultra light Fly In, Fly Young Eagles, Pancake Breakfast (Sat) – Franklin County Airport (FSO) Highgate, VT

July 3-4 (Sat-Sun) Fabulous 150s, Sensational 160s & Antique Aeroplane Show. - Knox County Airport (RKD), Owls Head, ME

July 8 (Thr) – 9:00 to done
Young Eagles Rally – Hartness State Airport (VSF) Springfield VT

July 17 (Sat) 7:30 to 11:00am
Old Airplane Fly In and Breakfast
EAA Chapter 1070 – Cooperstown / Westville Airport (K23) – Cooperstown, NY

July 17 (Sat) 9:00-13:00
Pancake Breakfast – Middlebury State Airport (6B0) – Middlebury, VT

August 21-22 (Sat-Sun) 9:00 – 16:00
Air Show & Young Eagles Rally – Adirondak Regional Airport (SLK) Saranack Lacke NY

August 21 (Sat) 7:30 to 11:00am
Old Airplane Fly In and Breakfast
EAA Chapter 1070 – Cooperstown / Westville Airport (K23) – Cooperstown, NY

September 25 (Sat) 9:00 – 16:00
Young Eagles Rally – Shelburne Airport, Shelburne VT.

Views and News By Bill Morelli

Scheduled Events: To locate additional scheduled events other than those listed above, check out the Atlantic Flyer on-line at aflyer.com or in a hardcopy available at most airports.

On the Cover: Pictured on the cover are the six Young Eagles I flew at the Young Eagles rally at Knapp State Airport on June 8, 2004. It was a pleasure to fly these youngsters and they really appreciated the flights. See article by Mike Pecue on page 4.

Hobie Tomlinson continues his series in the "Flight Advisor Corner" starting on page 5. This month it's **Wind Shear – Part 2**



YOUNG EAGLES

by
Donald Taylor

The Young eagles Rallies For 2004 Have Started

We have the following pilots reporting Young Eagle flights for 2004

| | | |
|------------------|---|----|
| John Butterfield | - | 36 |
| Bill Hanf | - | 12 |
| Mike Pecue | - | 24 |
| Donald Taylor | - | 45 |
| Bill Yendzeski | - | 26 |
| Steve Couzelis | - | 7 |
| Don Nowakowski | - | 2 |
| Bill Morelli | - | 6 |

We have flown 158 so far, 242 more to go for our goal of 400.

Dean Memorial Airport (B59) Haverhill, NH was rained out both days – May 22-23

Edward Knapp Airport (MPV) Montpelier Vt., was a great success. Thanks to Mike Pecue and every one that helped. We flew 103 Young Eagles.

| | | |
|------------------|---|----|
| John Butterfield | - | 25 |
| Bill Hanf | - | 12 |
| Mike Pecue | - | 15 |
| Donald Taylor | - | 24 |
| Bill Morelli | - | 6 |
| Bill Yendrzeski | - | 21 |

Franklin County Airport (FSO) Highgate, VT.
International Young eagles Day

We had plenty of pilots, could have used more ground crew. It was a beautiful day for flying. I don't know where all the kids went, but we did fly 48 Young eagles. The largest group was from Canada (8).

| | | |
|------------------|---|----|
| Bill Yendrzeski | - | 5 |
| John Butterfield | - | 11 |
| Steve Couzelis | - | 7 |
| Mike Pecue | - | 4 |
| Don Nowakowski | - | 2 |
| Donald Taylor | - | 19 |

Young Eagle Rallies 2004 are taking shape

We need pilots and ground crews. Please let Donald Taylor or Marge Butterfield know if you can help!!

Below is a list of the Young Eagle Rallies scheduled.

- ◆ Friday – Sat – Sun – June 25,26,27 – Ultra light Fly In, Fly Young Eagles and pancake breakfast on Sat June 26. Franklin County Airport (FSO) Highgate, VT. 9:00 – 5:00
- ◆ Thursday, July 8 - Hartness State Airport (VSF) Springfield, VT 9:00 to done
- ◆ Saturday – Sunday, August 21-22 Adirondack Regional Airport (SLK) Saranac Lake, NY 9:00 – 4:00
- ◆ Saturday, September 25, Shelburne Airport (25VT), Shelburne VT 9:00 – 4:00

Young Eagle Rally Franklin County Airport

By Marge Butterfield

We couldn't have asked for better weather for International Young Eagles Day. Our Young Eagles Coordinator, **Donald Taylor**, had of course arrived at the airport early that morning and had all the tables set up, signs up, paperwork ready and the two Young Eagle flags were waving in the light breeze. We were fortunate to have six pilots to give rides: **John Butterfield, Steve Couzelis, Don Nowakowski, Mike Pecue** and **Bill Yendrzeski**. **Frank Gibney** arrived in the afternoon to give rides; however, by then, it had started to slow down. Thanks anyway Frank! The ground crew who volunteered were: **Bob Paradis** who handled radio communications and **Bob Domingue** and **Marge Butterfield** who filled out all the paperwork and certificates. And let us not forget who prepared the fantastic lunch for guests, young eagles and EAA members...**Joe Gardner** grilled hotdogs and also baked some special red potatoes with butter on the grill for the pilots and ground crew. It was a fun day and especially rewarding when you saw the smiling faces of the kids once they came back from their Young Eagle ride. Many thanks to our members who made this a successful event!

Safety Tip

A majority of runway incursions result from pilots acknowledging ATC hold short instructions and then proceeding across the hold short line anyway.

Runway holding position markings on taxiways identify the locations where an aircraft is required to stop when it does not have authorization to proceed onto the runway.

When instructed by ATC to "Hold Short of Runway XX". You should read back and stop so no part of the aircraft extends over the first solid line of the holding position marking. An aircraft exiting a runway is not clear of the runway until all parts of the aircraft have crossed the applicable holding position marking.

Did You Know

There is a piece of land in the United States that doesn't touch the United States?

(Answer on page 7)

June 9, 2004

Barre Town School Science Class
 Young Eagles Rally June 8th
 105 kids flew with us.

By Mike Pecue



Me teach a science class? That was my response when my friends and teachers, Jack Carrier and Drew Lamb asked me to help them with the powered flight segment of their math & science classes. Very long story short, I went into Barre Town School and taught Aviation Science, and educated all of the 8th Graders, 128 Students (7 classes) about the Young Eagles Program and everything that must happen to make a Young Eagles Rally. We covered a lot of information when I was there on June 2nd. Jack and Drew had

covered all of the science stuff, Bernoulli's Principle, Newton, Airfoils, Trust-Drag, Lift-Gravity, etc. My Job was to bring in the actual flight experience. I covered everything I could think of, that was important.

Example: (We called the BTV briefers on speaker phone, 15 times in 2 days!!) Thanks guys, you did a great job!

We covered the Aviation Alphabet, each student now knew their initials call sign. We talked a lot about acronyms, sectionals, airways, isogonic lines, VFR / IFR, pattern procedures, radio communication. On the evening of June 2nd we had a open house

for the parents to come and see what the students had been working on in Science Class and to ask me a million questions about what we were going to do with their kids on the Young Eagles trip. A Gym full of parents and a podium, and off I went, assuring them that Chapter 613 is an awesome group of dedicated folk who love giving kids the experience of a lifetime. It was great, the kids had made hot air balloons, cardboard airplanes, rockets, kites, and had reports on gliders, ballistics, and powered flight.

June 7th Monday I returned to school to talk about the next days Young Eagle event and what we had to do, and what they would need to do to make our day successful. Again we studied the weather on-line, and called the BTV-FSS in every class. The weather was not going to be good... 90deg with winds out of the SW at 17G28... ouch... We all prayed that the weatherman would be wrong as usual, and sure enough he was.

We lucked out, Hot hazy and CALM winds, turning light out of the West.

Special thanks to all of the Pilots and Ground Crew.

Ground Crew

Amy Pecue- Thanks Honey...
 Marge Butterfield- You Rock Dude!!!
 Pat Forbes- Knapp Airport Assoc.. Thanks Pat!

Flight Crew

John Butterfield—He beat out Don by 1 passenger... hehehe
 Don Taylor—better luck next time.
 Bill Hanf- First Rally, Thanks Juliet Delta
 Bill Morelli- Cool plane, nice wheels.
 Mike Pecue- me
 Bill Yendzreski- Thanks a lot-ski 169'r (Polish joke)



Flight Advisor Corner



WIND SHEAR – Part 2

In last month's Flight Advisor article; we discussed the wind shear itself. This month let's look at the practical application of this information to the different types of wind shear. We will discuss:

- 1) Convective Shear
- 2) Frontal Boundary Shear
- 3) Inversion Shear
- 4) Mechanical Shear
- 5) Coriolis Effect/Ground Friction

CONVECTIVE SHEAR occurs in and around thunderstorms and is the most dangerous of all the shears. A microburst is created when cold air in the top of a thunderstorm becomes too heavy for the up rushing air to support. This "bubble" of cold air then flows down through the cell like water poured through a tube, striking the ground and flowing out in all directions. The best way to visualize this is to point a water hose directly down at a paved surface and turn on the water. The downward flowing water will duplicate the airflow in a microburst event. An aircraft unlucky enough to encounter this will first experience a large airspeed increase as it enters the out flowing air, resulting in a marked decrease in the descent rate. About the time power is reduced and the nose lowered to correct these changes, the aircraft encounters reducing headwinds and a violent downdraft, resulting in a disastrous sink: rate. Just as the nose is raised and power is applied to counter the sink: rate, strong tailwinds are experienced, resulting in a severe loss of airspeed. In its most violent form, a thunderstorm microburst can produce shears of over 100kts combined with down flows of over 6000 feet per minute! As these microburst easily exceed the performance

capability of any aircraft, avoidance is the key. Do not take off or land when thunderstorms are present in the immediate vicinity of the airport.

In the arid southwest, dry air microburst can exist in clear air under virga. This is especially a problem at western airports. If an inadvertent encounter is experienced, it is very important to initiate the escape maneuver at the earliest signature of a microburst (the strong airspeed increase during entry into the microburst). This is when the aircraft is at its highest energy state and has the best chance at survival. No aircraft can out climb the downdraft, so its total energy must be used to penetrate it, as a microburst is usually of relatively small diameter (two to six thousand feet).

Immediately apply maximum available power and use all energy available to maintain level flight until through the downdraft (fly a zero vertical speed until airspeed starts to increase again).

Although stall warning must be respected, it is very important to hold a pitch attitude that gives an intermittent stall warning until airspeed starts to increase again. This means increasing AOA to the maximum and letting airspeed bleed down to stall warning, then keeping it there until the aircraft arrests its descent and starts to climb. It is more important to use any initial gains to restore airspeed rather than to climb, as the escape maneuver depends on achieving maximum forward distance, rather than any altitude gain.

Be aware of two traps in the recovery maneuver. The downdraft will cause the relative wind to shift upward, reducing AOA. Restoring the correct AOA will cause an extreme nose up pitch attitude, as much as 25 to 30 degrees nose-up. While this is occurring, the low airspeed will put the aircraft "out of trim", requiring an unusually large backpressure on the controls to maintain the correct pitch attitude. This may well combine with a nose down thrust vector from high, tail

mounted engines found on many small jets. It is critically important that the nose not be allowed to drop! At the low airspeeds being encountered, the wing cannot produce enough lift to arrest the resulting high sink rate. Modern technology has produced wind shear computers, which will program the optimum escape maneuver for a given aircraft. These are among the great safety advances of modern technology, but are usually only found in "high end" cockpits.

Gust fronts are the other side of the two-edged convective shear sword. These are far more likely to be encountered by most of us and are a very real hazard when thunderstorms are approaching an airport. The very famous accident in Cheyenne Wyoming, when the young lady "Jessica" was trying to make the records by being the youngest pilot to fly across the U.S. in a light airplane, was a classic example of a gust front shear.

As a thunderstorm approaches an airport, warm moist air is flowing into the thunderstorm giving it its moisture supply. This seems ideal for pilots wishing to quickly depart the field before the storm arrives, as the runway into the wind is the one facing away from the approaching storm. However, at the storm cold air is being dragged downward by the high precipitation rate and spreading outward like water poured on pavement. This outspreading cold air can be at distances of up to 5 miles from the storm, depending on its severity. The boundary between the inflowing warm air, which is flowing over the outspreading cold air, is the "gust front". When it reaches the airport, the light (05-15kts) headwind will suddenly change to a strong (20-60kts) tailwind. The resultant 25 to 75kt airspeed loss is catastrophic for a low energy, low altitude aircraft. In the "Jessica" accident, the CE177RG was immediately stalled by the gust front shear and crashed. An airline friend of mine broke his back when the CE150 he was flying was stalled by a gust front shear and crashed, trying to "beat the storm", The moral

of the story, **DO NOT attempt to takeoff or land in the vicinity of a thunderstorm!**

FRONTAL BOUNDRY SHEAR occurs when penetrating the "rip tide" area between opposing wind fields of different air masses. These have no associated downdrafts and are not particularly dangerous except during approaches in low light or low visibility. Aircraft performance is usually adequate to overcome these shears, the main event being a destabilized approach. The dangerous aspect occurs when the airspeed loss produces an undetected high sink rate, especially in night or during a low visibility approach. These can also occur as the result of low-level sea/land breeze conditions at coastal airports. When combined with fog these have caused several undershoot accidents. The ones that come to mind were a 727 at LGA and a 707 at JFK.

INVERSION SHEAR occurs when cool air close to the ground lifts the overflowing warmer air, creating a sharp boundary between the calm air and windy conditions aloft. This usually happens in the colder latitudes during the winter. As in the frontal boundary shear, it has no vertical component and is easily within the performance parameters of most aircraft. It can present a problem when it happens at a very low altitude during takeoff or landing, especially when performance is marginal (short fields). It is also most dangerous at night or during a low visibility approach, when the resulting speed loss/sink rate may not be quickly recognized.

MECHANICAL SHEAR occurs when terrain features (such as buildings, trees, ridges, etc) affect the prevailing winds. This is a particular problem at airports located in hilly/mountainous terrain, or with trees/buildings located in close proximity to the runway, especially during crosswind conditions. Large terrain features produce unique local winds, as well as wind swirls and turbulent flows. These cause a multitude of wind changes in short distances. Trees and buildings close to the runway cause

wind "shadows" (absence of wind) as well as varying the local wind direction and causing turbulent flows.

All Vermont airports are affected. Rutland and Middlebury being very affected by strong southeast winds. Plattsburg, New York is particularly affected by strong northwest winds. Airports like Canandaigua, N.Y. - D38 (which has a "v" shaped tree line with the point near the center of the runway) has opposing winds at opposite ends of the runway during strong crosswind conditions.

The recent crash in the Champlain Islands was caused when a fully loaded CE 172 took off to the south in calm surface winds, only to encounter a 25kt tailwind at 50 feet agl. A contributing factor in this accident was the failure to control the aircraft's ground track, which was adversely affected by the crosswind component of the shear.

Be alert for shear at all airports during windy conditions, especially when gusty winds exist. Study the airport topography before making an approach and try to visualize the wind flows downwind from prominent terrain features, as well as around structures on the airport. If the airspeed is fluctuating on approach, adjust your airspeed such that the bottom of the airspeed fluctuation range is at the desired approach speed (the formula is to add 1/2 the gust value to the appropriate approach speed). Consider landing with less than full landing flaps. Do not try for a "grease job" landing, but allow the airplane to fly onto the runway in the appropriate landing attitude, and then quickly lower the nose to the runway (reducing the AOA and preventing a gust from lifting the aircraft back into the air). Once the nose wheel is down, firmly brake the airplane to a stop using a steady, but firm brake pressure. The object being to reduce the aircraft speed as quickly as possible and mitigate the winds affect on the aircraft. The reason to not keep flaring the airplane in an attempt for a smooth landing is that a gust "peak" can balloon the

aircraft or a gust "lull" can abruptly drop the airplane onto the runway with no time to react.

CORIOLIS EFFECT AND GROUND

FRICION are the last two items to discuss.

Coriolis effect is produced by the earth's rotation and its intensity is moderated by ground friction on the prevailing winds. Coriolis effect causes winds in the Northern Hemisphere to shift to the right and increase in velocity as you climb away from the ground level. Conversely, the winds will shift to the left and decrease in velocity as you descend for landing. Thus during takeoff, a right crosswind will increase in crosswind component and decrease in headwind component, lowering the takeoff performance. The same effect occurs during a left crosswind landing, an increasing crosswind component and decreasing headwind component. In the landing example, the also lowering wind velocity exacerbates the effect. In the takeoff example, the affect was mitigated by the increasing wind velocity Hence the left crosswind approach is the one most likely to result in a "firm" landing, due to the shearing effect produced by coriolis and ground friction.

That wraps up our discussion of Wind Shear. The thought for this month is "Always insure that your brain arrives everywhere before the airplane does! Especially when dealing with weather events, listen to your gut - when in doubt. Don't. So until next month, remember to, **Think Right to FliRite!**



Did You Know – Answer – Alburg, Vermont

Celebration of Flight

Free
Admission

August 21-22

Free
Parking

Adirondack Regional Airport



Collins Foundation B-17 & B-24

Bombers

World War I Biplanes and

Dogfights

Roy Hurd Concert Saturday

Iron Eagle Aerobatic Team

Drew Hurley Aerobatics

Malone Skydivers

Malone RC Modelers Demos

Static Display & Helicopter

Rides



Kiddie Carnival

NYS DEC Canine Demos

Dog Obedience Demos

Daily Breakfast Specials

Food, Craft Fair & Much

Air show activities scheduled 10AM – 4PM Daily.

Show schedules/performers subject to change. Call 891-0870 x 2 for additional information.

FRANKLIN COUNTY AIRPORT

ULTRA-LIGHT AIRSHOW

U.S. Army Blackhawk Helicopter display

Powered Parachutes

Trike Aircraft

Bomb drop competition

Spot landing competition

Civil Air Patrol Aircraft

Young Eagles Air rides

Hot Air Balloons



YAK-52 RIDE RAFFLE TICKETS

**Sponsored by Vermont Aviation
Advisory Commission**



Friday, June 27th
Afternoon arrival and
evening flight time

Saturday, June 26th Public
events all day

Sunday, June 27th
Morning flight and mid-day
departure

EAA CHAPTER 613

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FIRST CLASS MAIL



FLY SAFE

June 2004

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