



AMA Chapter #3798

Chino Valley Model Aviators

Official News



May 25, 2020

Volume 23 Issue 5

www.chinovalleymodelaviators.org

"To create an interest in, further the image of, and promote the hobby/sport of radio controlled aircraft"

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Quote of the Month:

"I hope I don't get air sick because I get car sick and if I get air sick, I couldn't be a pilot and then I would have to go to work"

Fifth Grade Student from Beaufort, SC

Support our Local Hobby Shop



Valley Hobby
Prescott Gateway Mall

New Profile Racers Replace T-28 for 2020 Pylon Races



Member Steve Zingali has a CNC cutter and made available several profile racers at the reasonable price of \$75 for our races scheduled for June 6. We have a number of members building these.

Chino Valley Model Aviators Chopper Day



All four of these helicopter troops flew several flights. From left to right, **Estee Burrows**, (Papa Burrows crew chief) **Ryan Burrows**, **John Stewart**, **Jeromy Beck**, and **Bill Gilbert**. They had a mix of glow powered and electric helicopters, flying off our helicopter pad adjacent to the runway.



Bill Gilbert: CVMA President's Message



I hope this issue of the newsletter finds you all in continued good health.

We are still experiencing stay at home and social distancing orders, with many non-essential businesses still shut down.

The latest order from Governor Ducey is stay at home until May 15. Though, some businesses will be allowed to start operations in a limited fashion, with distancing and other precautions.

We will resume general meetings cautiously, at the field outdoors with 6' separation. Once we get the all-clear from the Airport Administration, we can go back to that previous format, with any changes that

may be required.

In the meantime, make the best of the new normal. We have been busy maintaining and improving the safety of our field. Fire breaks have been mowed in, a fire cart is being pursued, and a secure partition in the shed is being planned out.

In addition, we are hosting an IMAC Competition event the last weekend of August, in participation with our friends at Sun Valley Fliers. This should be a big event with some very skilled competitors, lasting two days. There will be a benefit to the club, besides the good publicity the event will garner.

The field continues to be

open for flying and the weather is warmer, with calmer winds in the morning. We encourage you to come out and enjoy your airplanes and see your friends. Maintain the recommended health precautions and have fun! See you at the field!

Bill



CVMA Flight Instructors

- Steve Shephard- Chief Flight Instructor
- Al Marello-basic
- Lloyd Oliver-basic
- Riley Harley-basic
- Jack Potter-gliders

CVMA NEWSLETTER

AMA Chapter #3789
Published Monthly

President — *Bill Gilbert*



Vice President — *Doug McBride*



Treasurer — *Harold Ellis*



Secretary — *Bob Steffensen*



Safety Officer — *Rick Nichols*



At Large Member — *Dan Avilla*



At Large member—*Dennis O'Connor*



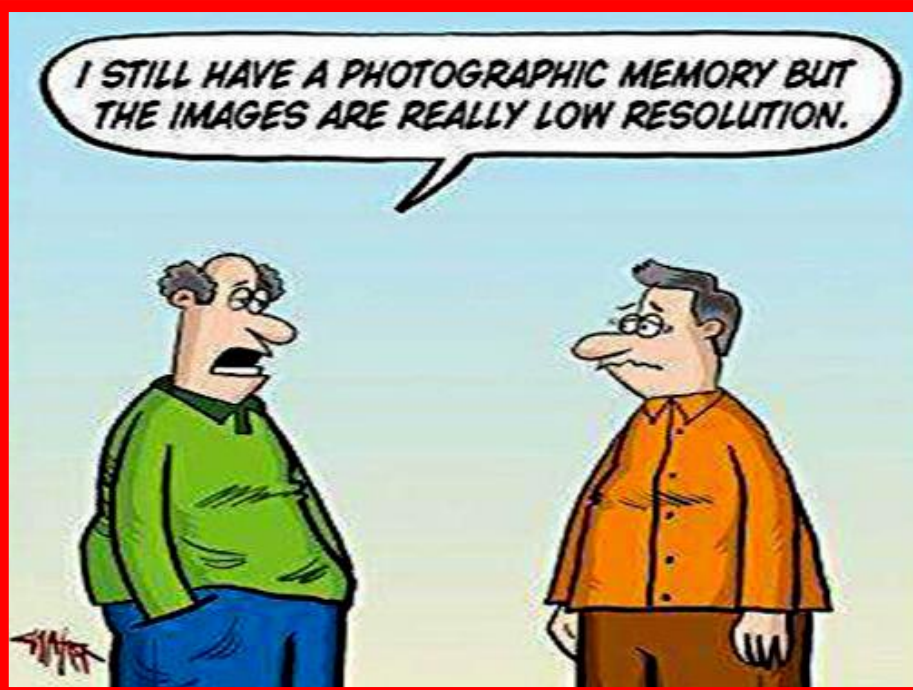
Newsletter Editor — *Bob Shanks*



Guess What Plane Has This Cockpit?



See Page Eight



2020 — MARK YOUR CALENDARS

- June 6 E-Warbird Races
- July 4 Pot Luck and Fun Fly
- Aug. 8 Combat Wing Pylon Races
- Aug. 28 - 30 Southwest Region IMAC Shootout at our Field
- Sept. 19 Annual Steve Crow Memorial Fun Fly
- Oct. 24 Annual Build & Fly Challenge
- Dec. 4 Christmas Banquet

Club Meetings:

Third Wednesday of Each Month—7 PM
Prescott Airport Executive Building



BORN IN A BARN?

IF YOU ARE THE LAST ONE TO LEAVE THE FIELD:
PLEASE REMEMBER TO LOCK THE GATE.



SAFETY: ALWAYS A MAJOR ISSUE

By Rick Nichols, Club Safety Officer

When I was 16 years old my Dad FIRMLY suggested that I attend a safety driving course that was put on by a Motorcycle Officer with the California Highway Patrol. At one point, Officer Plank presented to the class was....

"If you were standing next to a tall building and someone dropped a 2 ton safe from the top and you were assured that the safe would miss you by 10 feet, could you stand there comfortably?"

We all answered NO! He compared this to the fact that two cars traveling in the opposite direction at 60 mph each have a closing speed about the same as that safe falling at 120 mph. This is about the speed of our faster airplanes making high speed runs down our runway very close to us working or flying in the pit area.

Each of us are aware of just how fast things can go south in an

instant while flying, sometimes for no apparent reason. High speed runs down the center of the runway is just too close for the comfort of many of us flying. I am suggesting that all high speed runs be performed at or beyond the north edge of the runway for everyone's safety.

As Safety Officer I will be watchful of high-speed runs. If I observe un-safe flying, I will be mentioning it to you when you are done flying and it is safe to do so.

An example of a pilot suddenly losing control and instantaneously crashing happened mid April at our field far north from the pit area, fortunately, this did not occur near the pilot boxes or during a high-speed run, but it could have.

(again, never fly over the runway)

Editors Note:

Always take off at the edge of the flight boxes going either up hill or down hill so if a sudden radio or other failure happens a possible crash will be away from the pit area and flight boxes.

Since that crash mentioned in this article, a lot of discussion has taken place to insure those present can get out to a distant crash site as needed.

We have more and more folks flying electrics and turbine powered models with a variety of fuels and battery combinations. All of these combinations of fuels and batteries makes for fire dangers.

Having all the fire fighting equipment needed on either a golf cart or small quad in the shed with easy member access will be coming soon and makes a lot of sense since our club is growing. All of the particulars are being discussed and worked out. We all need to concentrate on safety.

Club Members Flying Machines



Dave Bates EDF F-16



John Riese's Pronto with his Muppet pilot Beaker.



Dennis O'Connor's gas powered Corsair.



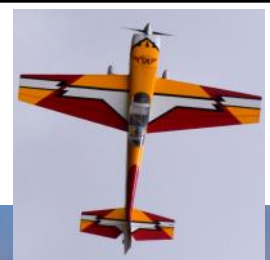
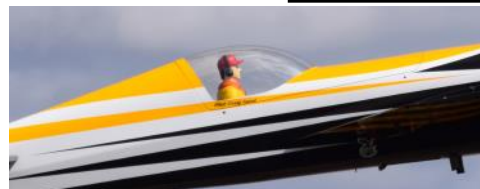
Dan Avila's Turbine powered Cougar.



Dave Domzalski's Profile Avenger racer. (Also on Page One)



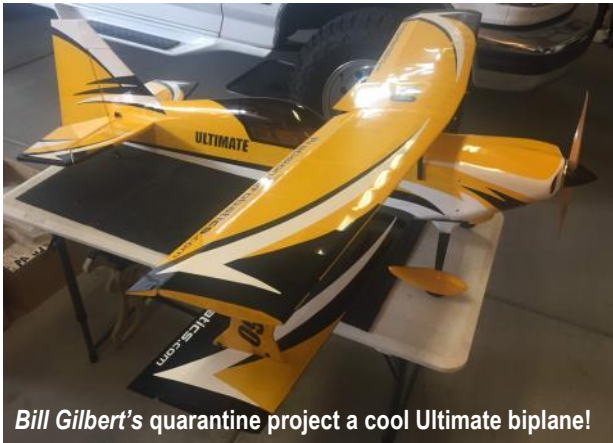
Jeremy Beck's chopper.



We have two associate members from Phoenix, both have big gas powered Extra 330's, great flyers. They get to our field faster than when they drive to their Phoenix field! Both planes have big 4 cylinder gas engines, the sound they make during maneuvers is really outstanding, the sound is "music", almost like that of their full-sized counterparts.



MORE COOL MEMBER FLYING MACHINES



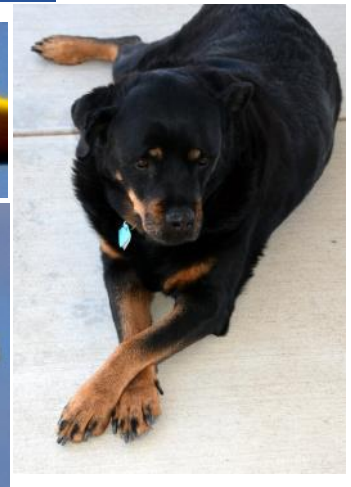
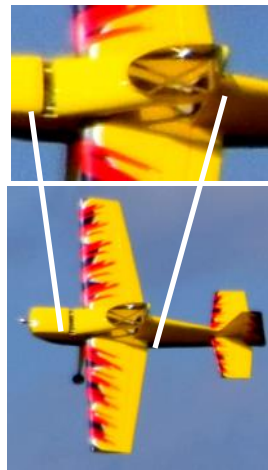
Bill Gilbert's quarantine project a cool Ultimate biplane!



Steve Zingali's very nice profile version of the SR-71 with a pusher prop. A very fast and appropriate rendition of the fastest plane in the world.



Doug McBride's very cool Edge 540 he won at one of our club raffles. Test flight was by Clint Manchester. A sudden gust of crazy spring wind on landing caused the canopy to lodge loose. Clint went around and made a successful landing.



Dennis O'Connor's dog "Molly" looks prayerful in the middle of our Corona Virus crisis!



Dan Avila's USAF EDF Thunderbird



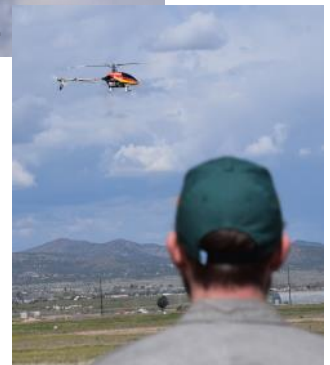
Ryan Burrows T-Rex.



New member Steven Kittel's EDF ducted fan.



Rick Nichols' OV-10



Gasoline Re-invented in WWII Helped Win the War

BY JACK KROHN SUN OIL COMPANY

A Recently declassified article by the British Society of Chemists in Great Britain revealed how the difference in gasoline octane helped win WWII. This article was written by Jack Krohn of Sun Oil Company.

It has always puzzled me as to why the German Luftwaffe kept on using 87 Octane Aviation Gasoline while the Americans and British used 100 Octane Gasoline in their Spitfire Fighters and Americans used 130 Octane in our P-51 and other fighters. This morning I discovered the reason! This is a declassified article by the British Society of Chemists (Declassified in 2014)

Both German and British aircraft used 87 Octane Gasoline in the first two years of the war. While this was fairly satisfactory in the German Daimler-Benz V-12 engine, it was marginal in the British Rolls-Royce Merlin XX engine in British aircraft. It fouled the spark plugs, caused valves to stick, and made frequent engine repair problems.

Then came lend-lease and American aircraft began to enter British service in great numbers. If British engines hated 87 Octane gasoline, American-built, by General Motors, Allison 1710 engines loathed and despised it. Something had to be done!

Then along came an American named Tim Palucka, a chemist for Sun Oil in their South East Texas Refinery. Never heard of him? Small wonder, very few people have. He took an obscure French formula for enhancing the octane of gasoline, and invented the "Cracking Tower" to produce 100 octane aviation gasoline. This discovery led to great joy among our English Cousins and great distress among the Germans.

A Spitfire fueled with 100 Octane gasoline was 34 miles per hour faster at 10,000 feet. The need to replace engines went from every 500 hours of operation to every 1,000 hours, which reduced the cost of British aircraft by 300 Pounds Sterling. The resulting savings was even more, when used in 4 engine bombers.

The Germans couldn't believe it when Spitfires that couldn't catch them a year ago started shooting their ME-109 E and G models right out of the sky.

Of course, the reason for all this success had to be kept secret. If the Germans found out that it was a French invention, they'd simply copy the original French patents. If any of you have ever wondered what they were doing in that 3 story white brick building in front of the Sun Oil Refinery on Old Highway 90 in Texas, that was it. They were re-inventing gasoline.



Merlin engine type 31



The American Allison engines improved remarkably with 100 Octane gasoline, but did much better when 130 octane gasoline came along in 1944. The 130 Octane also improved the Radial Engine Bombers we produced.

The Germans and Japanese never snapped to the fact that we had re-invented gasoline. Neither did our "Friends" the Russians. 100,000 Americans died in the skies over Europe. Lord only knows what that number would have been without "Super-Gasoline". And it all was invented just a few miles west of Beaumont Texas and we never knew anything about it.

Runway Condition Update

By Bill Gilbert, CVMA President

Editors Note,

As all of you know, since most of are area and large swaths of Arizona are pretty much closed down due to the Corona Virus, so we have not been having board meetings or general membership meetings out of caution since COVID-19 seems to like older folks and guys especially and the bulk of our club is made up of retired folks, mostly men. So the super information highway, the Internet, has been buzzing with activity. Bill has been sending our regular messages to the board and has also addressed all members. This page as well as page nine has a lot of information so take note. If you would like to contact the board or communicate with Bill or the editor please do so: Billgilbert1@gmail.com, or BobShanks@aol.com. Bill can also be reached directly as well at (928) 379-1323 or Bob at (928) 533-1082.

CVMA Runway Update to Board Members

In lieu of our normal board meeting this month, I wanted to give you an update on the runway condition. If you will recall, at the March 12 Board meeting we discussed the growing weed problem (no pun intended!) along the north edge of the runway. It is especially predominant on the West end, but to some degree, the problem exists along the East end as well.

What is happening is that weeds are growing through our thin (1.5" ?) runway surface from underneath, cracking open the surface like a blister, damaging the asphalt surface with these blister-like craters. This has occurred in an area approximately 3 ft wide x 220 ft long. Next time you are the field, I invite you to walk the north edge and see it first-hand. Here's a couple of examples:



The most robust fix is to cut away that damaged asphalt, treat the subsoil with herbicide, and re-pave the area, however, we have obtained several estimates for that type of fix and the cost ranges from \$7,253 to \$5,629.

Recognizing that our long-term financial goal is to build up a runway fund of ~\$64,000 for a complete re-surface in 2028, spending this much would impact that. But, we also need to be cognizant of the runway condition and not allow it to deteriorate further by doing nothing.

What Doug McBride and myself have come up with is an alternate maintenance plan, taking advantage of this down-time to:

- *Apply some very strong weed killer in the cracks and aforementioned "blisters". We have a tow-behind sprayer, with a spray wand for the clubs' mower that we will use to apply the chemicals.*
- *Once the chemicals have had time to work, we will need a work party to pick out the dead weeds and tamp down the "blisters". Maybe by using the towable large roller we have.*
- *Then, we will call for our planned crack sealing service. The existing cracks and aforementioned "blisters" will be sealed.*

Throughout the summer we will continue to apply herbicide on the runway areas at risk. We will assess the effectiveness of this plan through the remainder of the year. If it significantly reduces the occurrence of weeds breaking through, then we make this our go-forward maintenance plan.

If this plan is not effective, we will return to this conversation next year, and consider replacing the runway edge, or any other remedies.

As always, your comments/suggestions are welcome.

Best Regards,

Bill

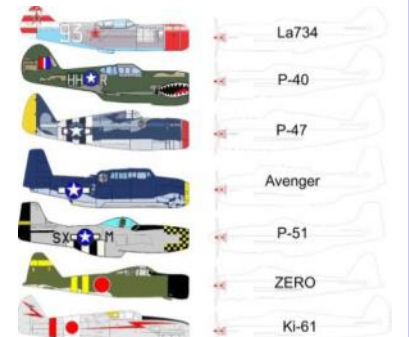
Member Project: Frosty Wells' Super Stearman



Club Races for June 6 Still on the Schedule

Due to COVID-19 we canceled our May Fun Fly and Swap meet. However our races are still being planned for June.

See *Steve Zingali* if you are still interested. He has the little profile kits. *Randy Meathrell* has data for the motor, battery and servos.



Name the Plane: *Japanese Zero Mitsubishi A6M Reisen*

https://airandspace.si.edu/collection-objects/mitsubishi-a6m5-reisen-zero-fighter-model-52-zeke/nasm_A19600335000

No other aircraft surpasses the Mitsubishi A6M Reisen ("rye-sin," Japanese for Zero Fighter) as the symbol of Japanese air power during World War II. Mitsubishi designed the Zero fighter but co-produced the airplane with Nakajima. The two companies built more than 10,000 Zeros between March 1939 and August 1945.

Design work began in 1937 when the Japanese Navy staff directed Mitsubishi and Nakajima to submit proposals for a new aircraft to replace the Mitsubishi A5M carrier fighter (Allied codename CLAUDE). Combat trials began in China during July 1940 and by fall, Zero pilots felled nearly 100 Chinese aircraft for the loss of only two Zeros to friendly fire.

Japanese naval aviators flew 328 combat-ready A6M2 Reisens against American forces at Pearl Harbor and in the Philippines. The Reisen outclassed all Allied fighter aircraft for the first six months of the war until American carrier forces stopped the Japanese in the Coral Sea and at Midway in May and June 1942, respectively. The loss of four Japanese aircraft carriers at Midway underscored a deadly trend. The Japanese were losing experienced pilots and aircraft faster than they could replace them. Yet for almost

two more years the ZEKE, as the Allies code-named it, remained an ominous threat.

Key to the Zero's potent performance was weight. In May 1937, the Japanese naval staff issued preliminary specifications for a fighter to fly from aircraft carriers. To satisfy these demanding requirements, Mitsubishi designer Jiro Horikoshi and his team focused specifically on reducing airframe weight as much as possible. Horikoshi used a new lightweight aluminum alloy developed in Japan and he chose to omit armor plate and self-sealing fuel tanks from the design.

These protective devices weighed hundred of kilograms and could not be incorporated if Mitsubishi hoped to meet the performance requirements specified by the navy. Yet the lack of these components eventually became the Zero's undoing.

The Reisen was considerably lighter than American fighters. It could climb faster and out-manuever them in close combat or 'dog fighting.' But as combat experience mounted and training improved, the American tactics began to change. U. S. Navy and Army pilots avoided the turning and looping dogfight and began to engage the Zeros only when

they could surprise the Japanese pilots by attacking with a height or speed advantage.

This type of attack consisted of a single, straight pass with guns blazing. The American pilot then continued away from the Zero using his superior speed to zoom to safety or circle around at a distance and attack again.

This idea and other tactics transformed pilots flying the Grumman F4F Wildcat (once considered totally obsolete against the Zero) into formidable opponents more than capable of destroying the Japanese fighter.

The Allies began fielding aircraft superior to the Zero in 1942. Lockheed chief designer, Kelly Johnson, crafted the airplane that eventually destroyed more Japanese aircraft than any other, the Lockheed P-38 Lightening. The Japanese called the Lightening the "Forked Devil".



CVMA BOARD BUSINESS UPDATE

BY BILL GILBERT, CVMA PRESIDENT

Dear Members,

Due to the continuing Coronavirus self-quarantine precautions we have been unable to hold a meeting again this month. But there is still some club business we should be aware of. The most urgent in my mind is fire safety and the potential risk to our lease with the city (if we had a fire get out of control). We need to take fire protection more seriously given that we are flying miniature aircraft with a variety of flammable power sources: LiPo, Gasoline, Kerosene.

Additionally, we need to follow the new (in 2019) Yavapai County ordinance to keep property borders free of weeds and grasses taller than 6 inches. Within 30 feet of the property border. This forms a fire break between properties to prevent a run-away grass fire like 2018's grass just West of Viewpoint, that started on the 89A and worked north almost to Perkinsville.

Club Action Items

1. We need a fire station with shovels and fire extinguishers near the flight line. Something like a Rubbermaid small shed with a combination lock will house the tools & extinguishers. A combination lock, with same code as the gate will keep things secure is one idea, another is a small vehicle of some kind to run out to disabled or crashed models rather than trying to drive our bigger and heavier vehicles out onto the field.
2. We need to hire a mowing service

2019 Steve Crowe Fun Fly: Will we every get back to these crowd fun events again?



to do the 30' perimeter mowing. Our little tractor won't cut it (pun intended:-). This is the new normal, given the new Yavapai County ordinance.

3. Once stores are open/safe I can get the tool shed. Then, we need to educate our members on their RESPONSIBILITY to QUICKLY put out any fire. If the fire gets out of hand to quickly call 9-1-1.

4. Our VP, *Doug McBride* who is responsible for field maintenance, will be looking into hiring a mowing service and get some estimates for the job described above, at the best cost. The board has authorization up to \$500 without a membership vote. If the mowing comes in above that, we'll need further discussion. Maybe we could declare an emergency and have the Board vote on it in some fashion using the Internet or something similar.

5. As the weather is improving a little, there have been reports from the field seeing people ignoring the Coronavirus social distancing precautions. While the intent is not to be interring in other people's business, but if we start spreading

this bug because we get lax, it could be deadly for some of our club members.

That's all from me for now. Your inputs, as always, is very important and welcome.

Bill Gilbert
CVMA President



Rick Nichols launches Randy Meathrell's profile P-40 racer. Hopefully we will be able to have a large crowd for our races in June when this virus crisis subsides.

FIRE BREAK ADDED TO OUR FIELD FOR MORE SAFETY



Members,

You may know by now, *Dennis O'Connor, Doug McBride* and myself mowed in a 30' firebreak around the field perimeter in late April. The photograph above is at the entry gate and shows the newly cut fire break away from the fence. This is a new (in 2019) Yavapai County ordinance to keep property borders free of weeds and grasses taller than 6 inches within 30 feet of the property border. (Also mentioned on page 9)

This firebreak is a "fire-wise" feature that will help prevent any accidental fire that could possibly consume our field if it got out of control and then could leave the field boundaries and ignite adjacent properties. We are being responsible tenants and good neighbors to Chino Valley.

Also important to highlight is the fact that we will likely have to mow again sometime in the summer as weeds & grasses grow back. It costs us approximately \$275 to rent the tractor mower. Unfortunately this is "the cost of doing business", flying aircraft with flammable fuels (gasoline, glow fuel and lipo batteries) over a dry grass field.

I am sure many members are aware of the efforts to obtain a "fire cart" of some kind and construct a shed partition to allow housing the cart for easy access in case there is a fire.

The picture below right was taken from the far NE corner of the property. Until you have driven the perimeter, you cannot appreciate how large, and beautiful, our field is. It takes 30 minutes on the tractor to do one lap. It takes over 6 laps to mow the 30' swath.

Bill Gilbert
CVMA President



What is Synthetic Aperture Radar (SAR)? A Brief Introduction

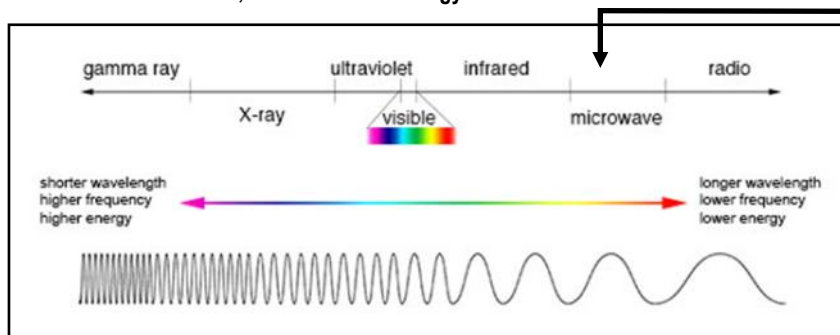
<https://www.capellaspace.com/sar-101-an-introduction-to-synthetic-aperture-radar/>

WRITTEN BY JASON BROWN ON FEBRUARY 10, 2020. POSTED IN SAR, SATELLITE IMAGERY, SATELLITE TECHNOLOGY & SPACE.

By Daniel Hogan (In-Q-Tel CosmiQ Works) and Jason Brown (Capella Space)

When asked to picture a “satellite image,” most people envision something like the left side of the figure above. It’s an optical image – a photograph – albeit one taken by a very powerful camera. But optical images are not the only way to visualize the earth’s surface from a satellite or an airplane.

Synthetic aperture radar, or SAR, is a completely different way to generate a picture by actively illuminating the ground rather than utilizing the light from the sun as with optical images. The right side of the image above shows how very different SAR images look from optical images. These differences present challenges but also create new capabilities. One major advantage of SAR is simple: Even the best aircraft-mounted or satellite-mounted optical camera is less useful at night and useless when clouds or smoke are present. SAR can capture images at night and see right through clouds and smoke. It is a 24-hour, all-weather technology.



Synthetic Aperture Radar wavelengths are here.

Figure 1. Comparison of wavelength, frequency, and energy for the electromagnetic spectrum. (Credit: NASA’s Imagine the Universe)

How Does Synthetic Aperture Radar Work?

Synthetic aperture radar is a way of creating an image using radio waves. The radio waves used in SAR typically range from approximately 3 cm up to a few meters in wavelength, which is much longer than the wavelength of visible light, used in making optical images. These wavelengths fall within the microwave part of the spectrum in the figure below.

Figure 1

This is a comparison of wavelength, frequency, and energy for the electromagnetic spectrum. (Credit: NASA’s Imagine the Universe) RADAR is an acronym for RAdio Detection And Ranging. Radar is an active system, which generates its own radio waves and transmits them from its antenna, toward a target. Depending on the target properties and the imaging geometry, the radar antenna will receive all, some, or none of the radio wave’s energy (this is the Detection part of RADAR). This received signal will travel for an amount of time proportional to the target’s distance from the antenna (this is the Ranging part of RADAR).



SAR satellite image of North Korean proposed hospital in Pyongyang — 2020 SAR image courtesy of Planet Labs Inc.

Synthetic Aperture Radar (SAR)

To mitigate the undesired effects of real aperture radar’s poor azimuth resolution, the motion of the antenna along the azimuthal direction is utilized to “synthesize” or give the effect of a long antenna. This synthesizing process is possible because of scatter (The target) on the ground remains within the real-aperture radar beam for many radar pulses. Adding up the reflections from all these pulses appropriately allows one to synthesize using a large antenna with a much narrower beam width, resulting in a better spatial resolution in the azimuth direction. This technique is applicable for aerial systems as well as spaceborne systems. Images in SAR can be rendered into recognizable terrain maps and images for interpretation.