

Grand Canyon – Lake Powell Flight

Part 3: Route and Logistics

November 5, 2019

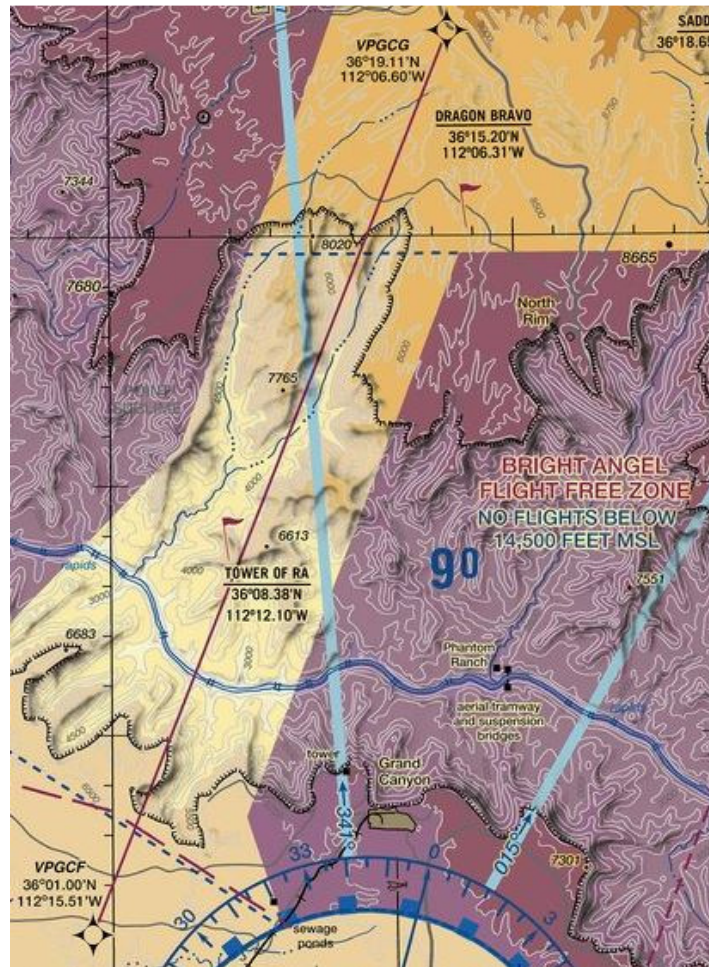
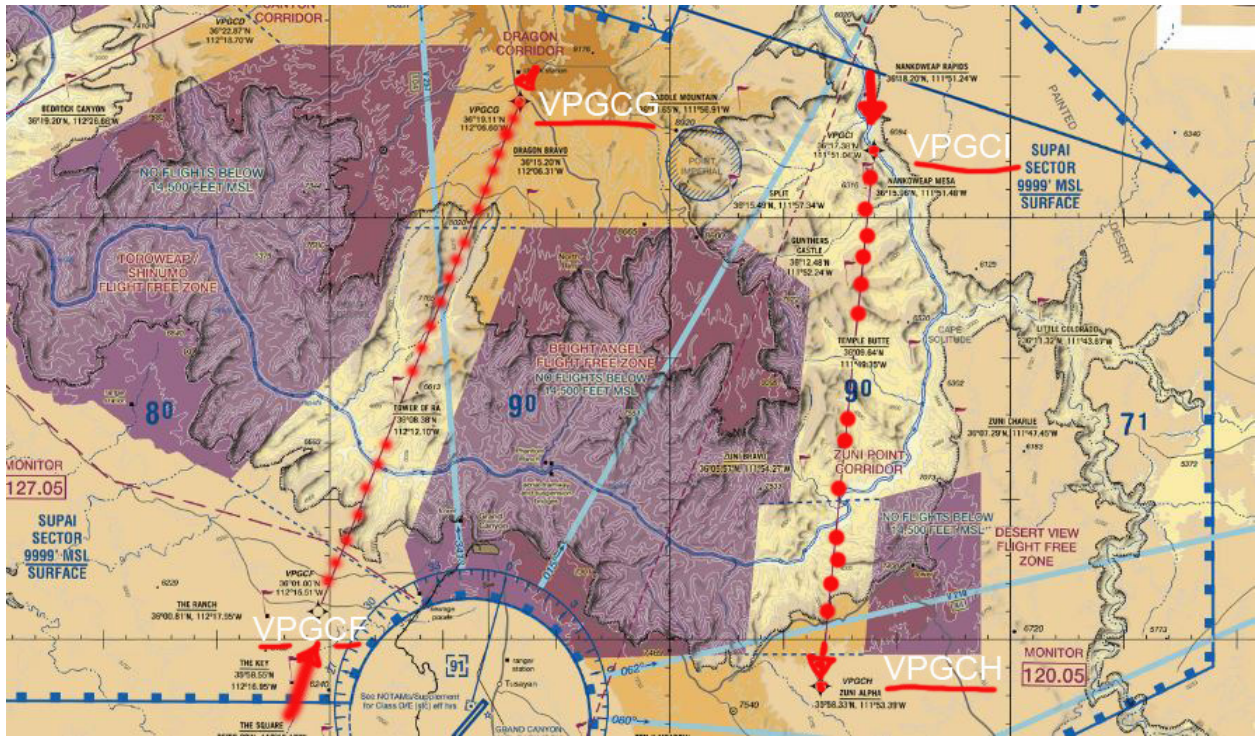


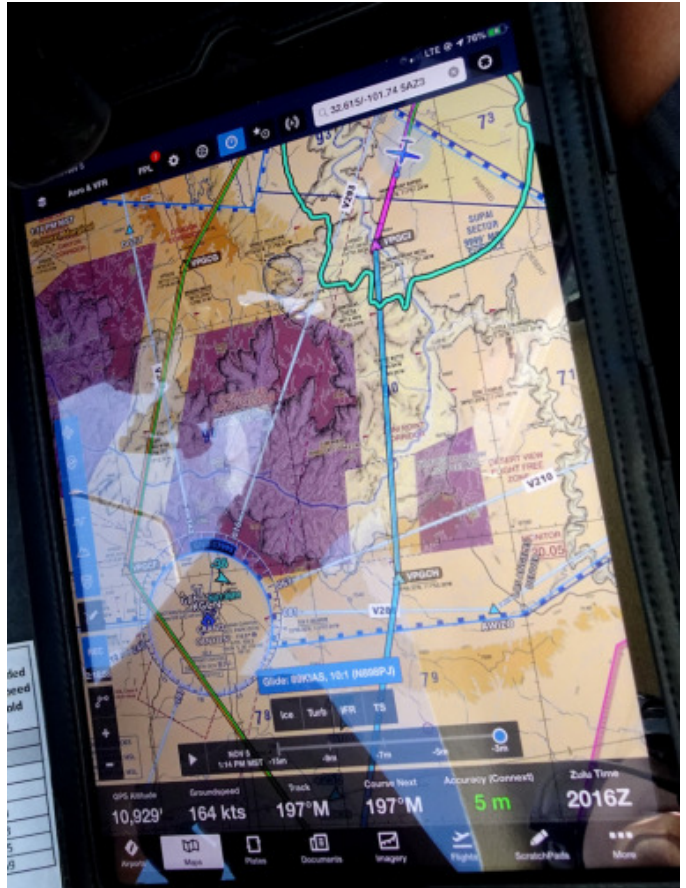
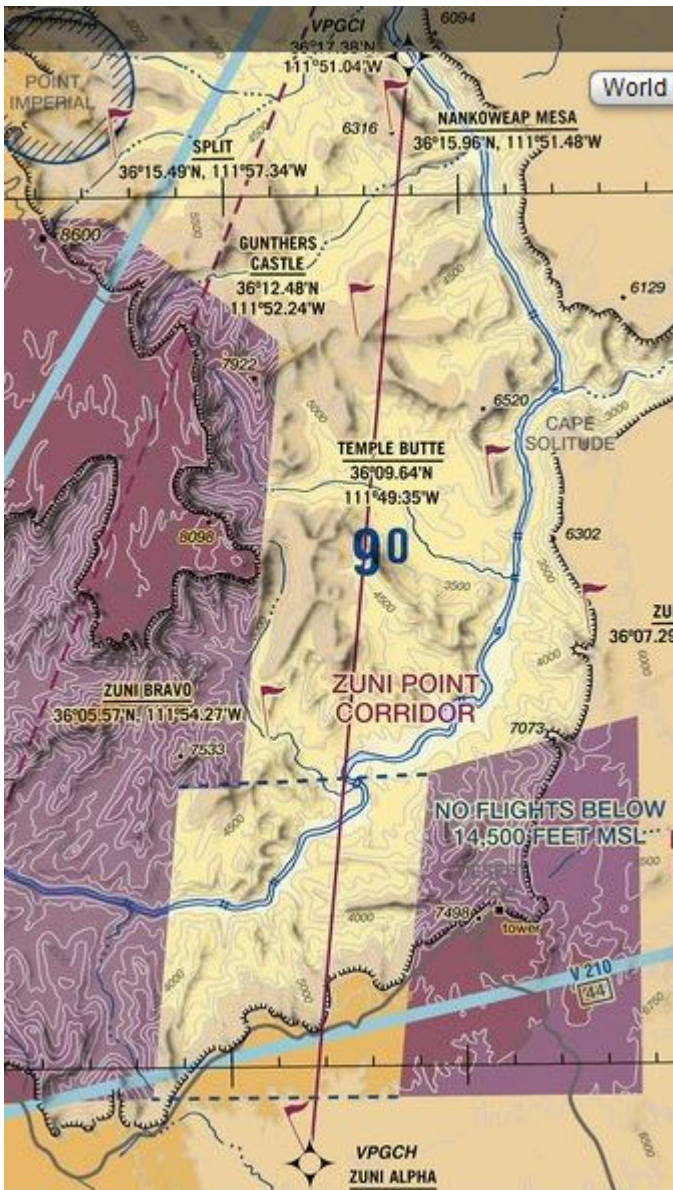
Satellite Map of the Grand Canyon Area

Precise navigation is required of pilots. There are many “rules of the sky” that pilots must follow. In general, when flying under Visual Flight Rules (VFR) the pilot is free to fly where he/she wishes but must avoid other aircraft and clouds. However, there are many areas across the country that have flight restrictions and pilots must observe the rules which: totally forbid entry, may require permission to enter, or have time, date and/or altitude related restrictions. There are temporary restrictions which also must be observed, for example when a high ranking government official is in an area or games are held at large sports venues, flights may be restricted.

The Grand Canyon is recognized as one of the Seven Wonders of the World. Flights over this and many other national parks and recreation areas are regulated to reduce noise pollution. The purple areas in the VFR flight map below restrict flight to a minimum altitude of 14,500 ft. and are under ATC control (Class B airspace). Supplemental oxygen for pilots and passengers is required for flights of 12,500 ft and higher. Therefore, many small general aviation aircraft could not meet this requirement even if ATC permitted entrance into this airspace. To enable flights to cross the canyon area, specific VFR corridors are defined. Corridor altitudes are assigned as follows:

- Northbound 11,500 or 13,500 MSL (mean sea level)
- Southbound 10,500 or 12,500 MSL





The south leg was flown on the Zuni Point Corridor between waypoints VPGCI to VPGCH at 10,500 MSL. Pictured to the right is the flight path approaching the Zuni corridor as displayed on Mathias' iPad running ForeFlight.

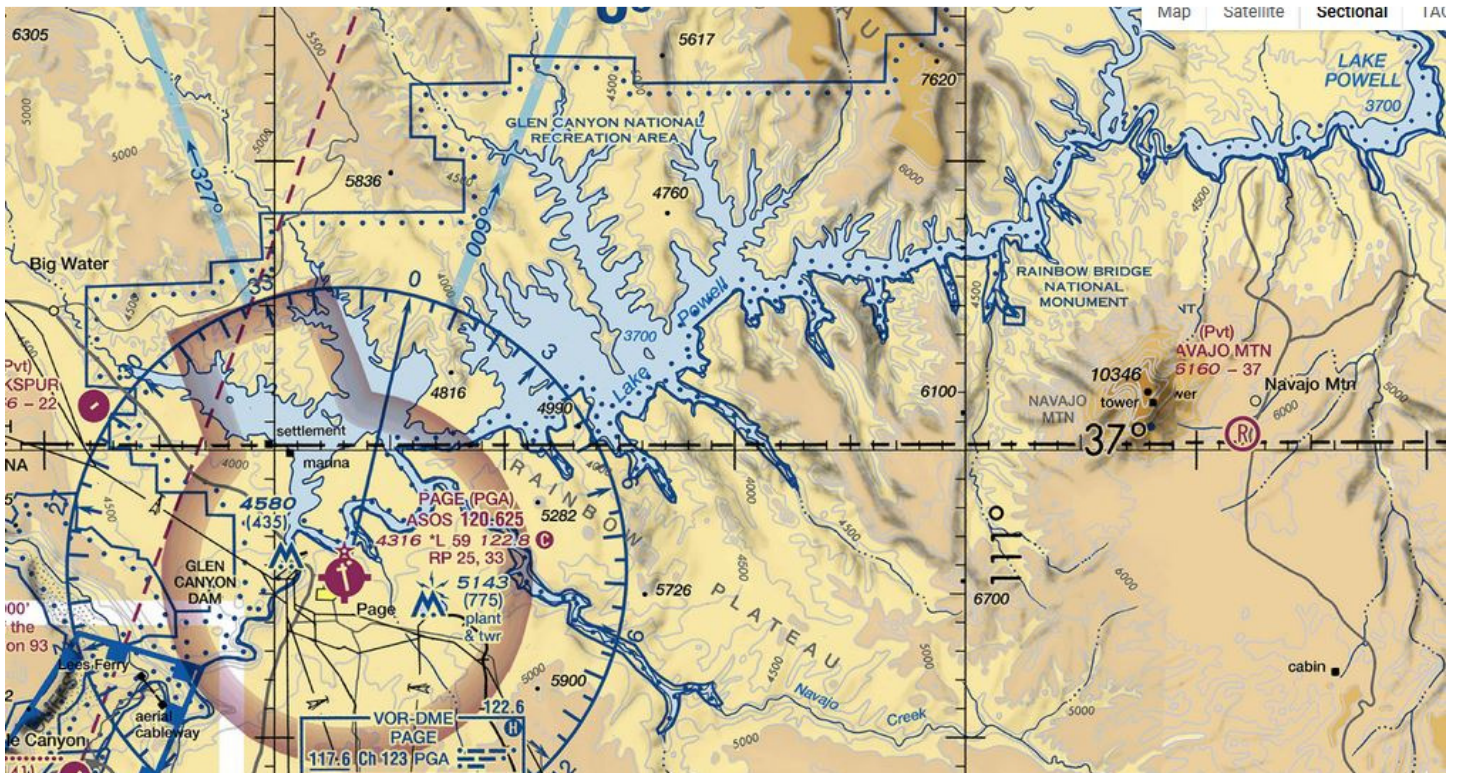
Once north of the Grand Canyon we continued northward towards Lake Powell. We maintained our 11,500 altitude until turning south, and descended to 10,500 ft.

Pilots are requested to maintain a minimum altitude of 2,000 feet above the surface of the following: National Parks, Monuments, Seashores, Lakeshores, Recreation Areas and Scenic Riverways administered by the National Park Service, National Wildlife Refuges, Big Game Refuges, Game Ranges and Wildlife Ranges administered by the U.S. Fish and Wildlife Service, and Wilderness and Primitive areas administered by the U.S. Forest Service.

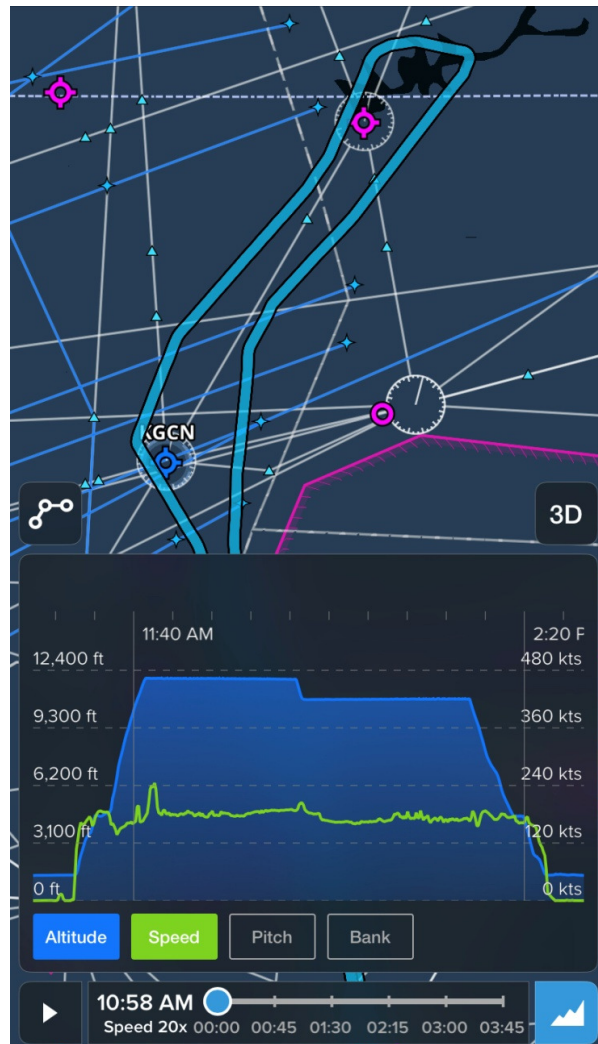
FAA Advisory Circular AC91-36 defines the surface of a National Park area as: the highest terrain within 2,000 feet laterally of the route of flight, or the upper-most rim of a canyon or valley. Simply stated, the pilot should locate the highest ground on their flight path and add 2,000 feet to their cruising altitude.



A view of Lake Powell from a satellite

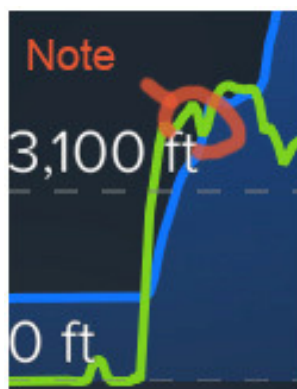


The way a Pilot sees Lake Powell on a VFR Sectional Map. The blue circle ring indicates there is a VORTC navigational aid at the Page airport. The magenta shaded ring indicates the Page airport airspace.



Mathias' computers and ForeFlight software track everything. The thick blue line in the upper chart shows the flight track past KGCN (Grand Canyon airport) to the Dragon Corridor, the turn around Lake Powell, and track south via the Zuni Corridor. The lower chart shows the altitude (blue GPS sourced) and ground speed (green – GPS sourced) profile for the entire trip.

Next, I'll highlight the concept of trading airspeed for altitude. The red circled area of chart below provides the data.



As noted in the red circle, there is a decrease in airspeed and a subsequent rapid increase in altitude happened quickly. Airspeed was around 178 kts (204 mph/330 kph) when Mathias commanded a nice upwards jump at 2300 ft. per minute

for around 18 seconds. In that time the climb was from approximately 3900 ft to 4500 ft MSL. Airspeed dropped about 43 kts to 135 (155 mph/250 kph).



Pictured here, we were at a nice greater than 2,000 fpm climb. We were at 4,300 with only 200 ft to go to the 4,500 ft target altitude!



Loss of airspeed, down to 135 kts (left gauge indicated above the green band .. 155 mph/250 kph) with a climbing attitude (indicated in the right instrument).

Mathias leveled off nicely at 4500 ft. Once we cleared Williams Gateway class B-airspace we started the climb up to the target cruise altitude of 11,500 ft.

Trading airspeed for altitude can be an important tool should there be a sudden loss of power. Say you're at cruise speed of 160 kts at 8500 ft MSL. If power cuts, the pilot quickly climbs until airspeed drops to Best Glide Speed (for this Mooney ~ 90 kts). Once the airspeed is lost, the pilot levels the attitude and trims the elevator to hold Best Glide Speed. Losing 80 kts provides additional altitude which buys critical time to find a suitable landing spot or solve the loss of power problem, such as switching fuel tanks or with carbureted aircraft applying carburetor heat.



There is plenty of data for a pilot with a modern cockpit. Synthetic vision is provided by his iPhone. Note the waypoints for the Dragon (VPGF - VPCG) and Zuni (VPGCI - VPGCH) corridors in the top window (white background) ... the ETE of 3 hrs and 15 min displayed was spot on. Take off was 11:15 and we touched down at 14:30 (2:30 PM).



We saw there was an aircraft 2000 ft below us, identified as N190GC. Mathias snapped this photo of N190GC.



I found this photo of N190GC, a 1970 De Havilland Canada DHC-6-300 Twin Otter. It flies for Scenic Airlines.



Fire north of Flagstaff's San Francisco Peak

Large wildfires can present a danger to aviation. The smoke and soot obscures visibility and local weather patterns create up and down drafts. There was no "official" warning or requirement to stay out of the area of this fire, so we assumed it was a prescribed burn.



We look forward to seeing you on the next flight!