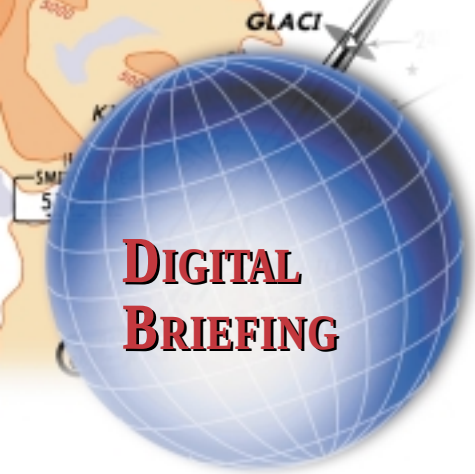

Digital Briefing

Jeppesen Electronic Chart Clinic
Fifth in a Series

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So now that you have the ability to display an enroute chart electronically, you also have the ability to modify what gets displayed and what does not get turned on. How much freedom do you want to create your own image? How much freedom *should* you have to create your own chart?

These are questions that you have obviously asked. And they are questions that many have asked.

The electronic enroute chart that is available in FliteStar® and FliteMap® has many options. But there are some fundamental rules that should never be violated. As an example of rules not to be broken, you as a pilot don't have the ability to change a VOR frequency, its name or its location. One of the basic rules is that you have the ability to change what is displayed and what is not displayed, but you *don't have the ability to change* information.

Determining Minimum IFR Altitudes

One of the first questions you might want to ask yourself is, "Should I fly airways or should I fly direct since I have an IFR GPS in my airplane?" One of the considerations, of course, is the determination of the minimum altitude. If you are flying in most places in the world at FL180, consideration for the minimum altitude is not a big deal since you are well above any terrain or obstacles. But if you wish fly a direct route at 8,000 from Salt Lake City, Utah to Denver, Colorado, terrain and obstacles are very important.

With FliteStar, there are many ways to determine the minimum altitude for an IFR (or VFR) flight across the Rocky Mountains. For starters, a flight plan can be computed between Salt Lake City (KSLC) and Centennial Airport (KAPA) using the option of favored route type. By selecting an RNAV direct route using GPS, the distance is 334.8 nautical miles - but radar coverage over the Rockies at lower altitudes is pretty spotty so it is probably better to try a computer flight plan on airways to see if the flying distance is very much longer. A computed flying plan on Victor airways comes up with a total distance of 351.8 nautical miles - only17 miles farther.

A whole discussion emerges. What will air traffic control allow on direct flights? What will they do if they lose you from radar coverage? What altitudes will they allow when they can't see you on radar? Do they have altitudes for direct routes?

The easy answer to all this is to file the airways, then all the airway minimum altitudes become usable. But with GPS, why zig zag across the country when a straight line is more efficient? Even though the 17-mile difference is negligible, there are many other cases where the difference in distance is significant.

All Air Route Traffic Control Centers (ARTCCs) have minimum IFR altitudes (MIAs) for their areas of coverage. These altitudes are known only to the Centers and are not published anywhere. But, they are available after you are airborne and ask for the minimum IFR altitudes in their sectors while flying direct. That doesn't do much good, however, for planning purposes.

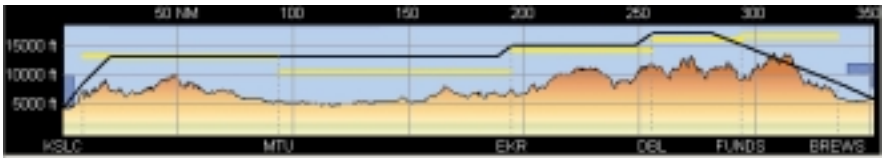
Determining the minimum altitudes for an IFR direct route is relatively easy. On the low altitude paper charts, the MORAs (Minimum Off Route Altitudes) are depicted in one-degree blocks inside of each degree of latitude and longitude. In FliteStar, the MORAs are included in the navigation log after the flight plan is computed. For the route from KSLC to KAPA, the MORAs are 14,100 feet, 16,800 feet, and 16,600 feet. Mighty high. The MORAs in the United States are the same figures as the OROCAs (Off Route Obstacle Clearance Altitudes) provided by the FAA. The MORAs and OROCAs provide 1,000 feet of obstacle clearance everywhere except in the designated mountainous terrain areas where 2,000 feet of obstacle clearance is provided.

ATC still hasn't decided if the MORAs are considered IFR minimum altitudes. As of now, they still believe the MORAs should be used only for consideration of obstacles but not minimum IFR altitudes since MORAs do not necessarily provide for communications coverage.

Consideration for Oxygen

The MORAs are so high that oxygen would be required for most of the route. By computing a flight plan using the airways, lower MEAs can be found that will allow for lower altitudes for portions of the flight. In FliteStar, the computed flight plan produces both a plan view and a profile view of the computed route.

Refer to the illustration of the profile view of the computed flight plan on airways from KSLC to KAPA. You can see the yellow horizontal lines that represent the MEAs on the selected airways. When responding to the queries on the flight plan wizard, an altitude of 13,000 feet was selected. The black line shows the requested 13,000-foot altitude, and that it is a satisfactory altitude until passing Meeker (EKR). After EKR, a higher altitude must be used because of the higher MEAs. After passing Table Mountain (DBL), an even higher altitude should be requested for crossing the Continental Divide just in front of you.



By looking at the yellow horizontal line, you can see that the MEA between Myton (MTU) and EKR is down to 10,000 feet, so a lower altitude could be requested for that 101.2-nautical mile segment if it is more comfortable without wearing oxygen equipment.

After DBL, the MEA becomes even higher after the FUNDS intersection, but by that time you would normally want to start a descent into the Denver area. The black line in the profile view cuts through the brown terrain near Denver. This indicates that if you start a normal descent into KAPA from your cruising altitude, your descent route would be below the terrain west of Denver.

From a practical standpoint, Denver Center would most likely have you in radar contact near the FUNDS intersection. Once you are in radar contact, Center would then be able to give you vectors with the minimum altitudes to start your descent and avoid the mountains.

In the next article, we will continue to look at the electronic enroute chart.

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