

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

September 12, 2017

Personal Electronic Device

**Specialist's Factual Report
By Sean Payne**

1. EVENT SUMMARY

Location: Minden, Nevada
Date: August 07, 2016
Aircraft: AMS Flight D O O Carat A Motorglider
Registration: N11DY
Operator: Private
NTSB Number: WPR16FA160

On August 7, 2016, at an unknown time, an experimental AMS Flight D O O Carat A motorglider, N11DY, was substantially damaged when it impacted terrain about 7 nautical miles northeast of Minden-Tahoe Airport (MEV), Minden, Nevada. The private pilot was fatally injured. Visual meteorological conditions prevailed, and no flight plan was filed for the personal flight, which departed MEV at 1204 Pacific daylight time. The flight was conducted under the provisions of Title 14 *Code of Federal Regulations* Part 91.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following personal electronic device (PED):

Device Manufacturer/Model:	Apple iPad Mini
Serial Number:	F9FRR01YGHVK

3.1. Device Description

PEDs are a category of devices comprised primarily of portable computing devices and mobile phones. Portable computing devices are typically capable of internet access, email, messaging services, and can run user-installed applications to perform specific

tasks. PED user and system data is typically stored on non-volatile memory¹ and can be accessed through manufacturer-provided interfaces.

3.2. Data Recovery

The device arrived showing signs of heavy impact damage. The screen was shattered and the device was bent. Figure 1 shows the device after some triage work had been performed.

The device's internal processing board was removed and placed in a surrogate of the model of iPad. The surrogate device allowed the accident device's mainboard to power but the device was passcode locked. A passcode was provided by the deceased pilot's family which was successful at unlocking the device. The device was then forensically downloaded and its electronic contents were examined.

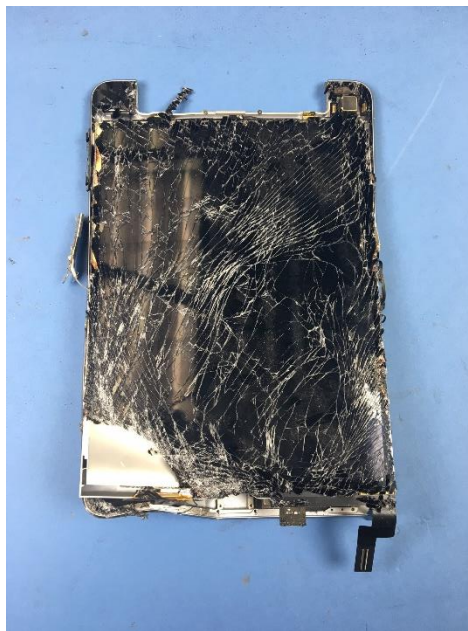


Figure 1. Photo of damaged iPad Mini 4.

4. DEVICE INVESTIGATION

General

The device was examined for electronic content and electronic communications related to the accident. Some photographs of the accident airplane taken at various times prior to the accident were discovered. The photographs were provided to the Investigator-In-Charge. Additionally, an electronic flight bag (EFB) application called "FlyQ" by Seattle Avionics was discovered on the device. An examination of the FlyQ application is discussed below. No other pertinent electronic content or communications was found.

¹ Non-volatile memory is semiconductor memory that does not require external power for data retention.

FlyQ Application

The FlyQ application is a EFB and electronic charting application available for iOS and Android devices. The application allows the user to utilize the device's GPS signal or an external GPS device to chart the aircraft's current position and plot the navigational positions over representations of electronic aviation charts. Typically, EFBs also allow the user to perform detailed flight planning operations and weather data collection and representation. FlyQ does not record tracklog data unless the device running the application is connected to an ADS-B enabled standalone hardware device.

Upon unlock of the device, the FlyQ application was found running. The user was running version 2.3.2 (14) of the FlyQ application. Figure 2 shows a screenshot of the FlyQ application when first opened. The reference waypoint of the device was set by the user to be Reno/Tahoe International Airport (KRNO). A magenta line was set between a point east of Seattle consistent with Seattle Avionics' office in Woodinville, Washington and the reference waypoint. Figure 3 is a zoomed out image of the FlyQ application showing the magenta line being drawn to the position in the Seattle area.

Figure 4 shows the Nav Log page of FlyQ. It appeared that current position updated to a location in the vicinity of KMEV. The Nav Log page showed the device at an altitude of 7,000 feet with a magnetic heading to the KMEV waypoint of 051 degrees and a distance of 0.4 nautical miles. The estimated time enroute was calculated as 24 seconds and displayed in the nav log. The pilot's username has been redacted from the upper righthand corner of the application.

Figure 5 shows the device's updated current location as described in figure 4.

Figure 6 is the application's recent airports page. The last five recent airports are displayed. The recent airport page does not necessarily indicate that a flight had taken place to any of the displayed airports.

Figure 7 shows the user's settings on the FlyQ settings page.

Figure 8 shows one of two user entered "personal waypoints." This page depicts the coordinates for the "PARADISE PM" personal waypoint.

Figure 9 shows one of two user entered "personal waypoints." This page depicts the coordinates for the "SUNRISE SP" personal waypoint.

Figure 10 shows the user had at one time downloaded VFR charting information for California, Nevada and Utah. The screen shows that at the time of electronic investigation those charts had expired.

Figure 11 shows how the user had configured the FlyQ map overlay. The sectional layer was turned on as well as the following options:

- Flight Plan
- Runways

- Personal Waypoints
- Radar
- METAR/TAF
- Winds Aloft
- SIG/AIRMET
- TFR
- Obstacles
- TAWS
- Courseline
- Rings

Figure 2. A screenshot of the FlyQ application when first opened.



Figure 3. A zoomed out view of the magenta waypoint line when the application was opened.

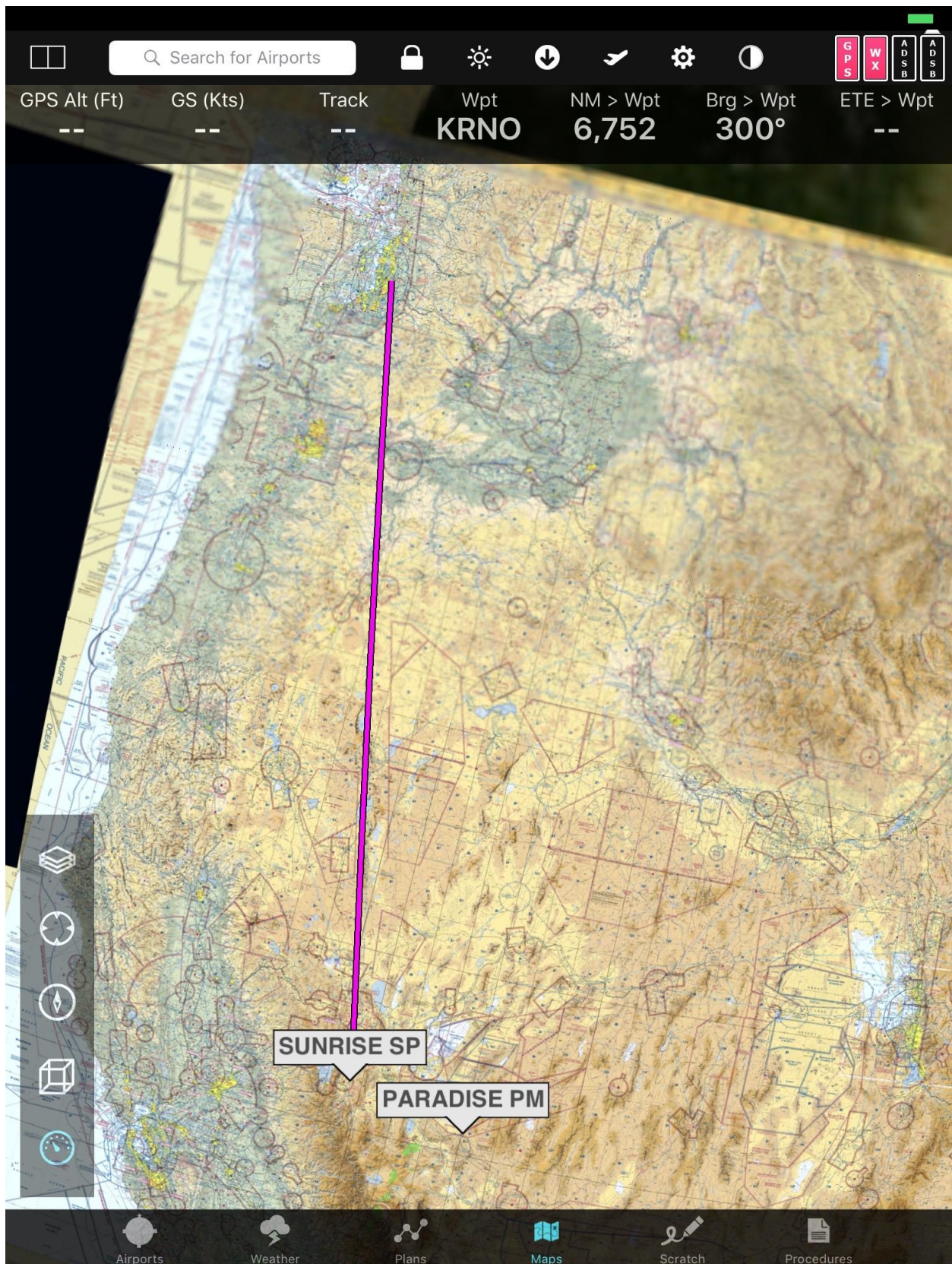


Figure 4. The Nav Log page after showing a different current location than seen previously.

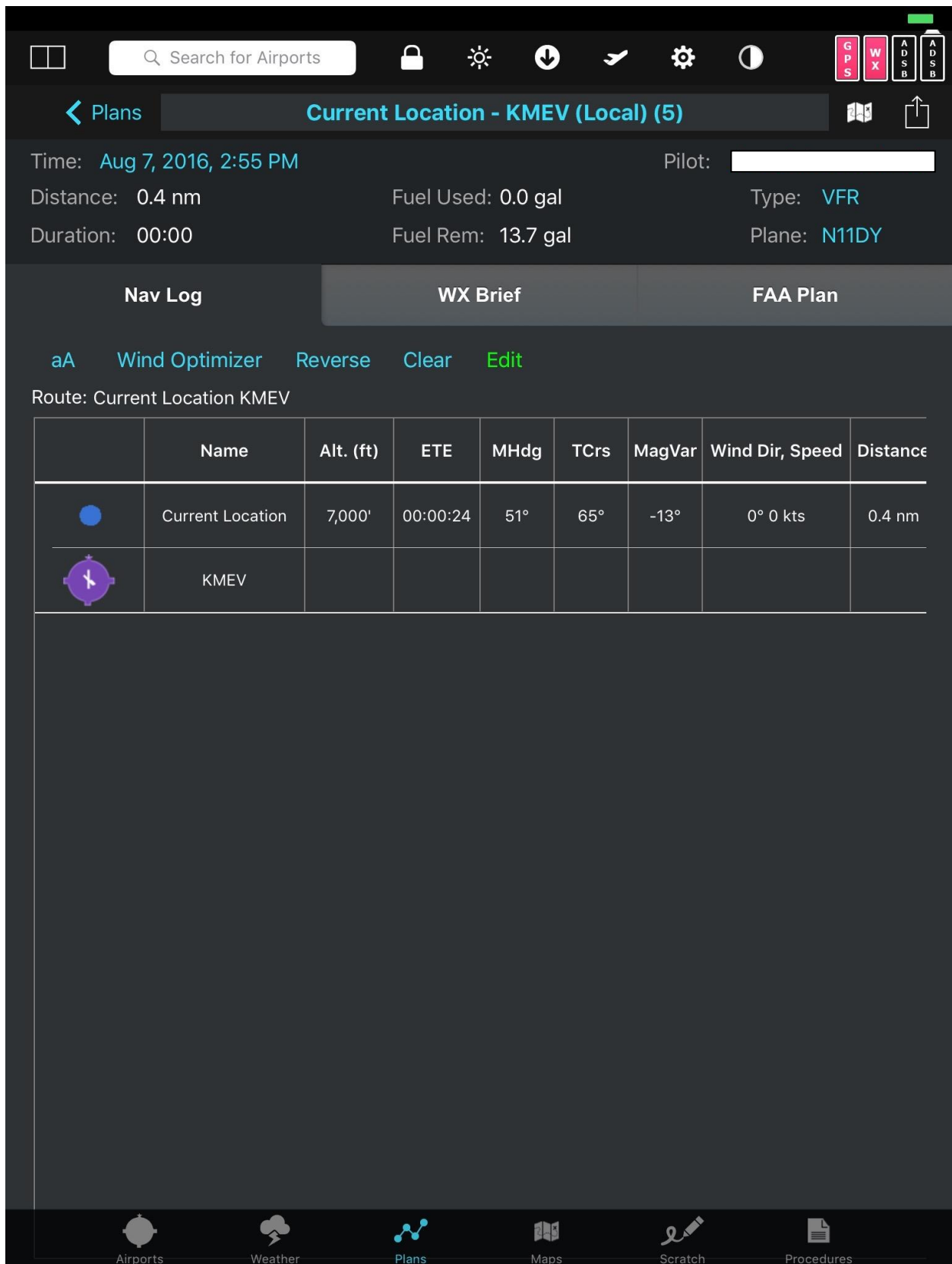


Figure 5. A view of the alternate current location in the region of KMEV.

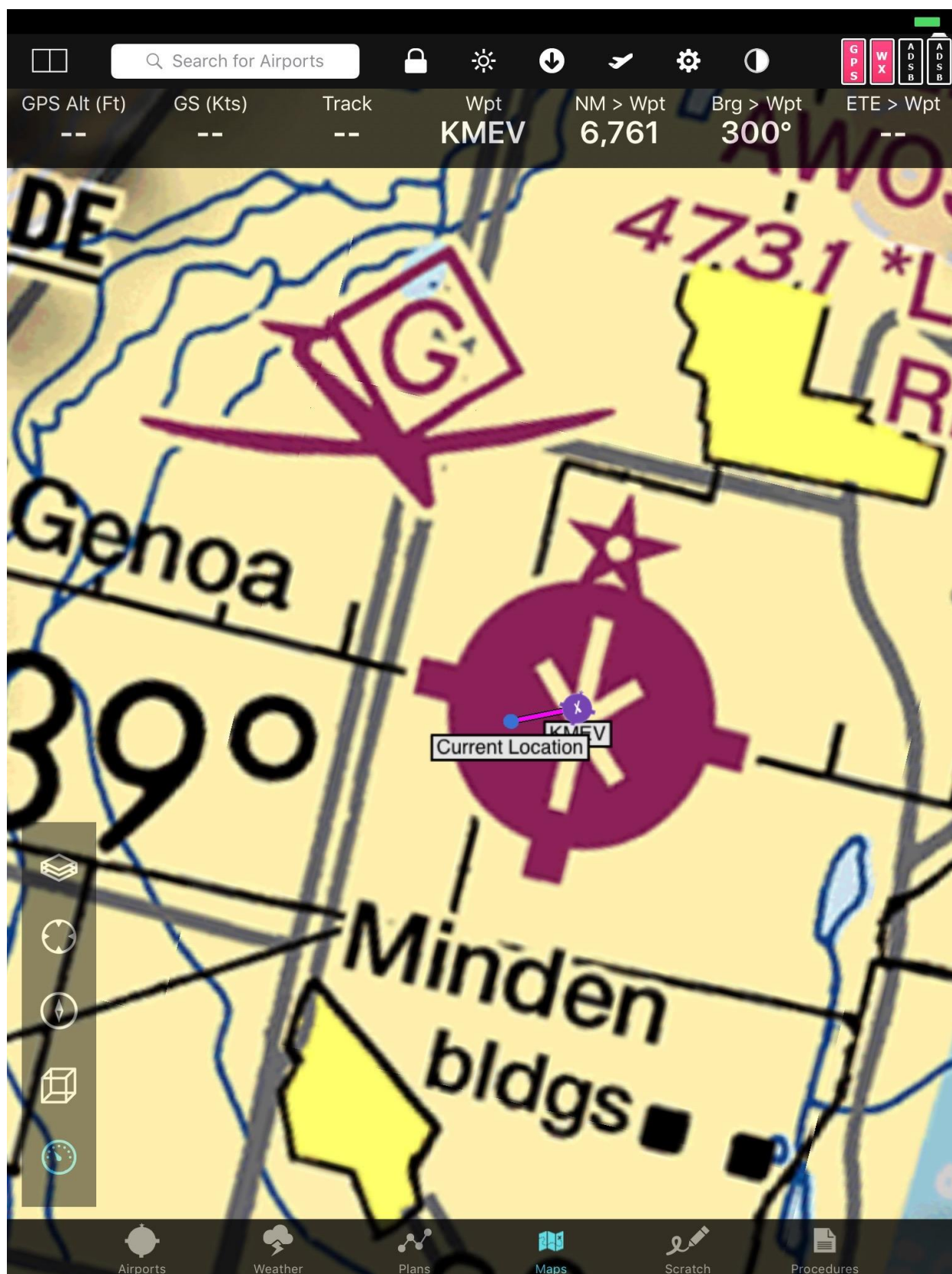


Figure 6. A screenshot of the recent airports page.

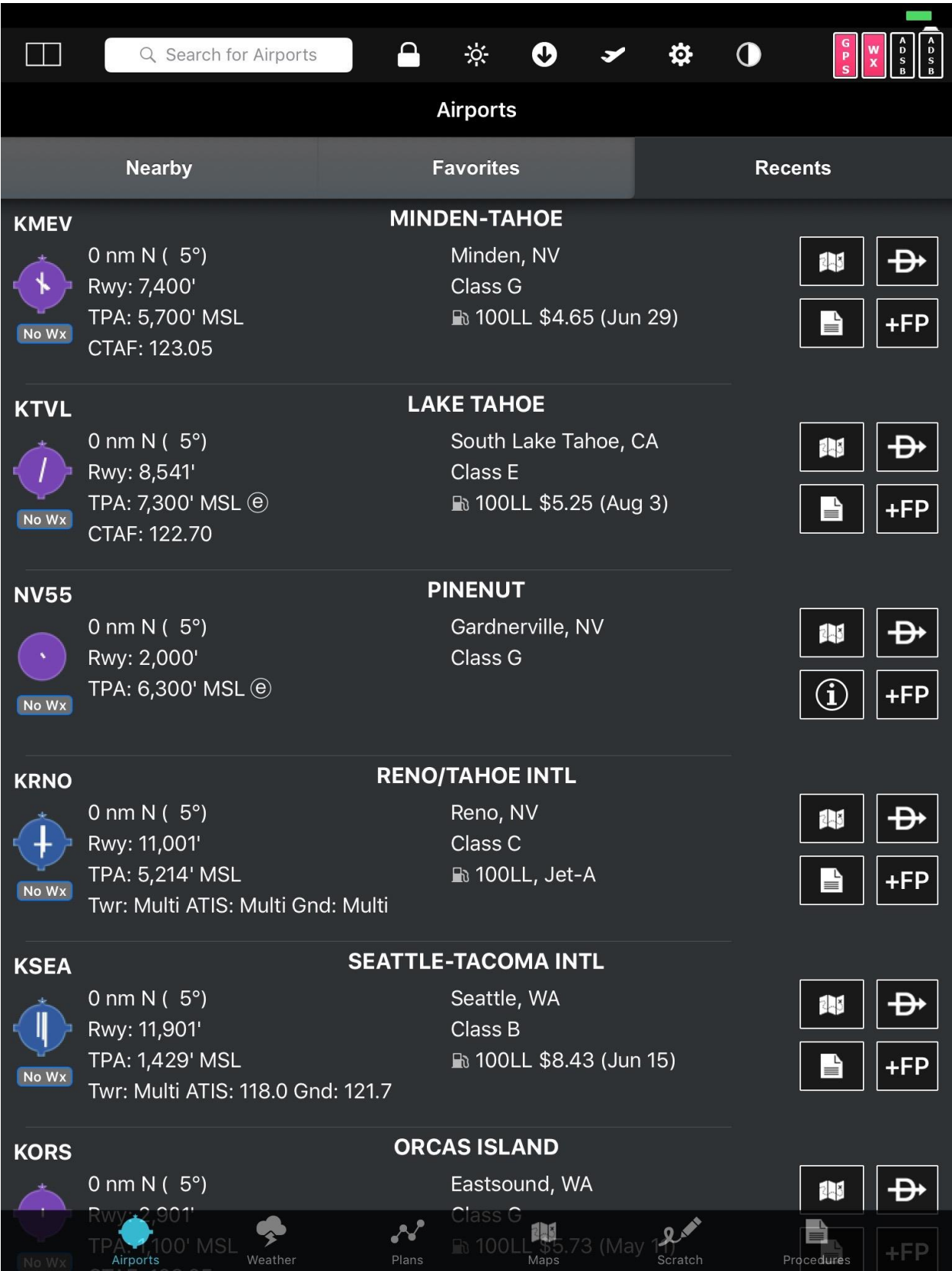


Figure 7. A screenshot of the settings page showing a majority of the user's settings.

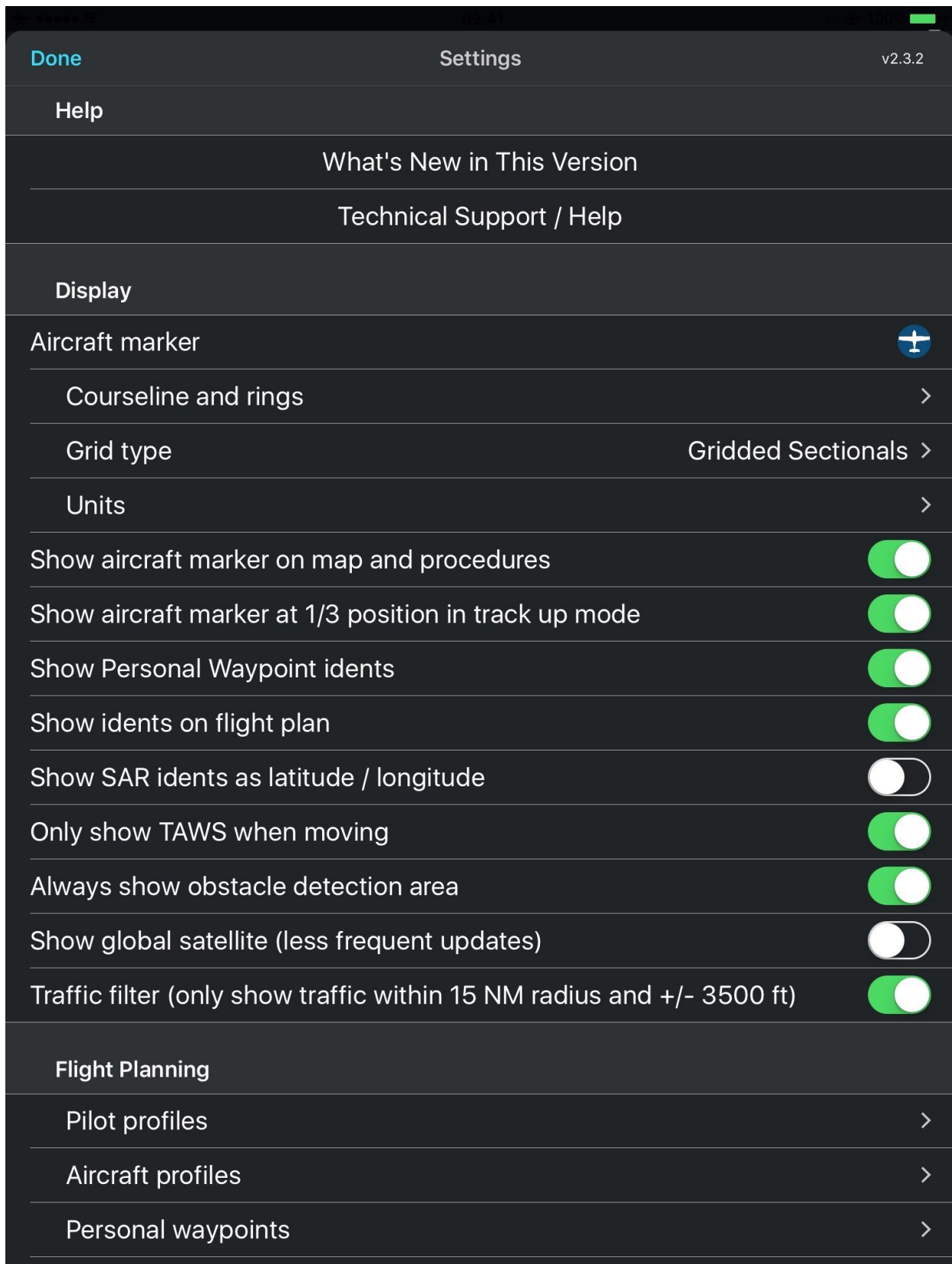


Figure 8. Coordinates for the “PARADISE PM” personal waypoint.

Personal Waypoints

Delete Save

Ident	PARADISE PM
Name	(Optional. Spaces and most characters OK.)
Latitude	N 38° 43' 44.8"
Longitude	W 117° 58' 30.0"

Latitude and longitude accepted in several formats such as:
Degrees.decimal (e.g. W123.456)
Degrees.decimal (e.g. -123.456)
Degrees'hours'minutes.seconds (W123'27'22)

Figure 9. Coordinates for the “SUNRISE SP” personal waypoint.

Personal Waypoints

Delete Save

Ident	SUNRISE SP
Name	(Optional. Spaces and most characters OK.)
Latitude	N 39° 1' 1.9"
Longitude	W 119° 40' 0.8"

Latitude and longitude accepted in several formats such as:
Degrees.decimal (e.g. W123.456)
Degrees.decimal (e.g. -123.456)
Degrees'hours'minutes.seconds (W123'27'22)

Figure 10. A screenshot of the ChartData Manager page.

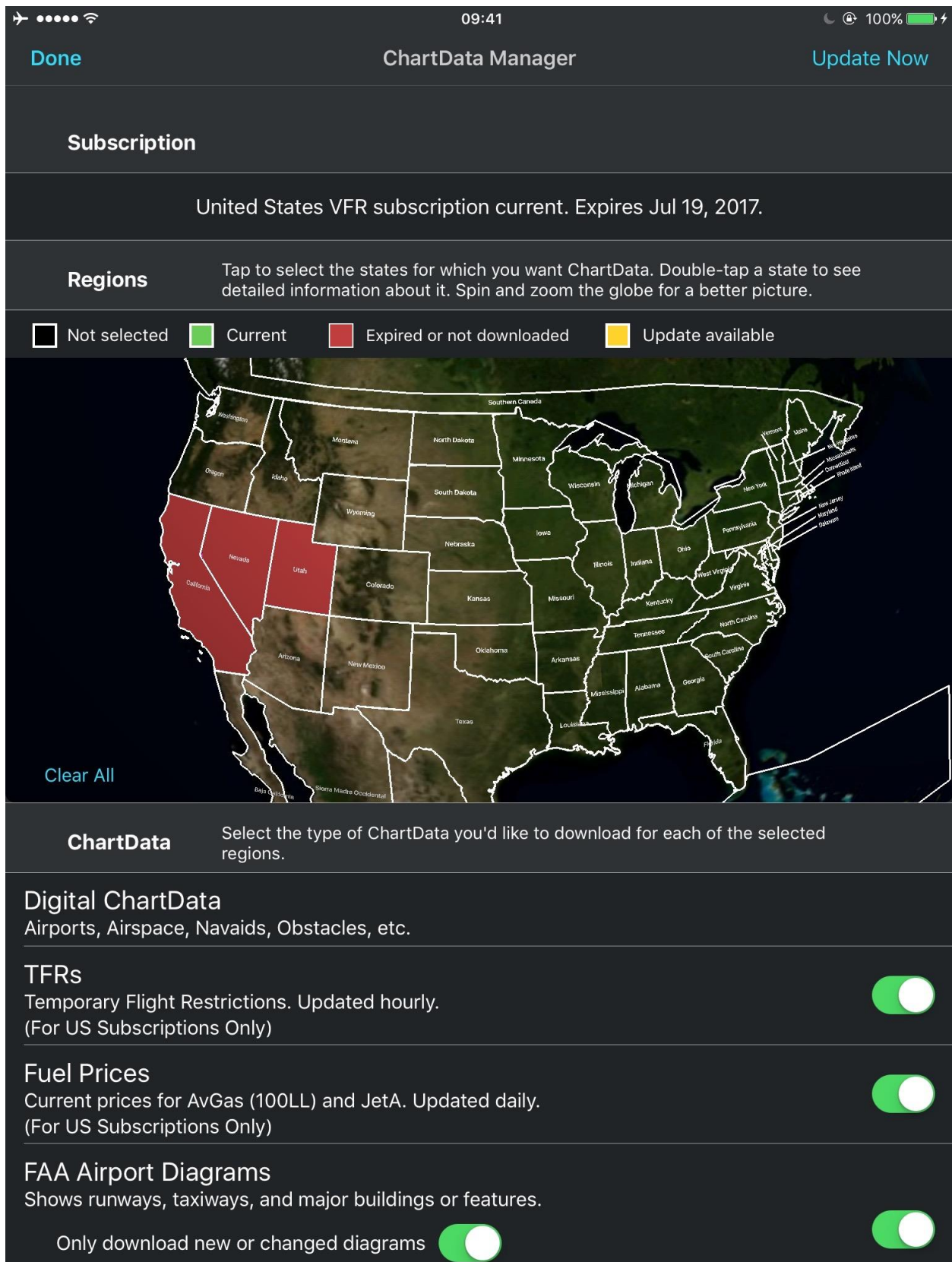


Figure 11. A screenshot of how the user had configured the electronic chart layers in the FlyQ application.

