ADL and GDL90 Traffic Receiver Interconnect

ADL140/150(B)/160/170/180(B)/190/200

Version 1.00

11.05.2022

1 Version History

Version 1.00 published 11.05.2022

2 Page Index

This manual contains numbered pages 1 to 12.

3 Emergency procedures

If you suspect any malfunction of the ADL device or interference with other aircraft systems, deactivate the device by pulling / deactivating the aircraft circuit breaker for the device or pulling the cigarette lighter plug whichever is applicable. Do not reactivate the device until the problem has been investigated and resolved on the ground.

In case of a generator failure or similar situation requiring electric load shedding, deactivate the ADL device by pulling / deactivating the aircraft circuit breaker for the device or pulling the cigarette lighter plug whichever is applicable.

4 ADS-B Traffic Warning

Some ADL devices come with a non-certified 1090 MHz ADS-B receiver. Not all aircraft is broadcasting 1090 MHz ABS-B and the non-certified nature of the ADL devices means that, due to antenna installation etc., it could miss signals from aircraft broadcasting ADS-B. **THEREFORE, NEVER RELY ON THE ADL DEVICE FOR COLLISION AVOIDANCE!**

5 General Description

Often pilots will have an ADL device to receive satellite weather data and another device to receive traffic information. Some ADL devices also provide ADS-B traffic data themselves, but can still be enhanced by combining them with other traffic devices.

This manual explain how to run two WiFi enabled devices together. But do not forget there is also the option to connect traffic devices to installed ADL devices (ADL140/150(B)/190/200) via RS232 wire.

Running the ADL and traffic devices together requires two major steps. First you have to bring them into one common WiFi as your iPad etc. will only be able to connect to one WiFi at a time. Second you will have to configure the devices such that certain data is not sent by both devices at the same time or your navigation app might not work as expected.

6 Compatible Devices

All ADL140 and later can be run together with another traffic devices. Older ADL110B/120/130 are unfortunately not compatible. Please make sure you have the latest firmware installed on the ADL device for best results.

Compatible traffic devices must be able to send the so called GDL90 format. Popular options are the Stratux, SkyEcho2, AT1 and many more.

7   Joining the WiFi Networks

We recommend to run the ADL device as a client in the WiFi created by the third party traffic device. But in some cases you could probably run the inverse configuration if desired.

Start up your traffic device and connect the iPad (or iPhone etc.) to the devices WiFi. Got to the general WiFi settings and note those three essential values we will need later on:

WiFi SSID (the name of the Wifi)
WiFi Password (or none)
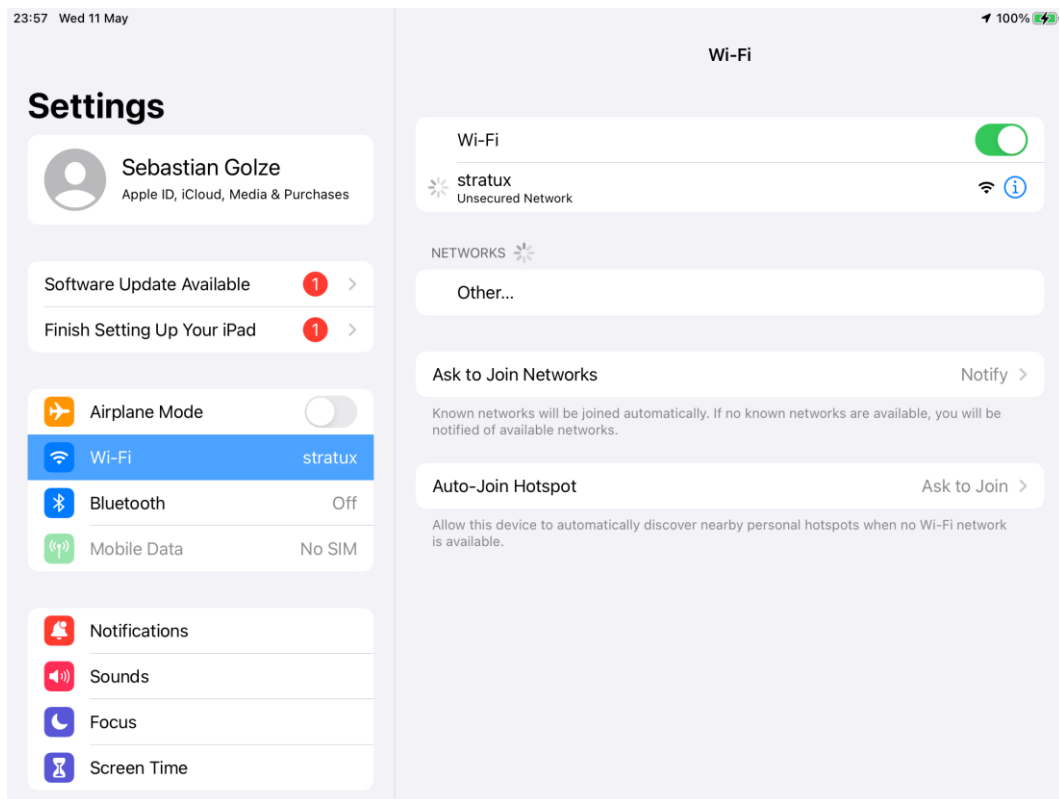Subnet mask (usually 255.255.255.0 but could be different)
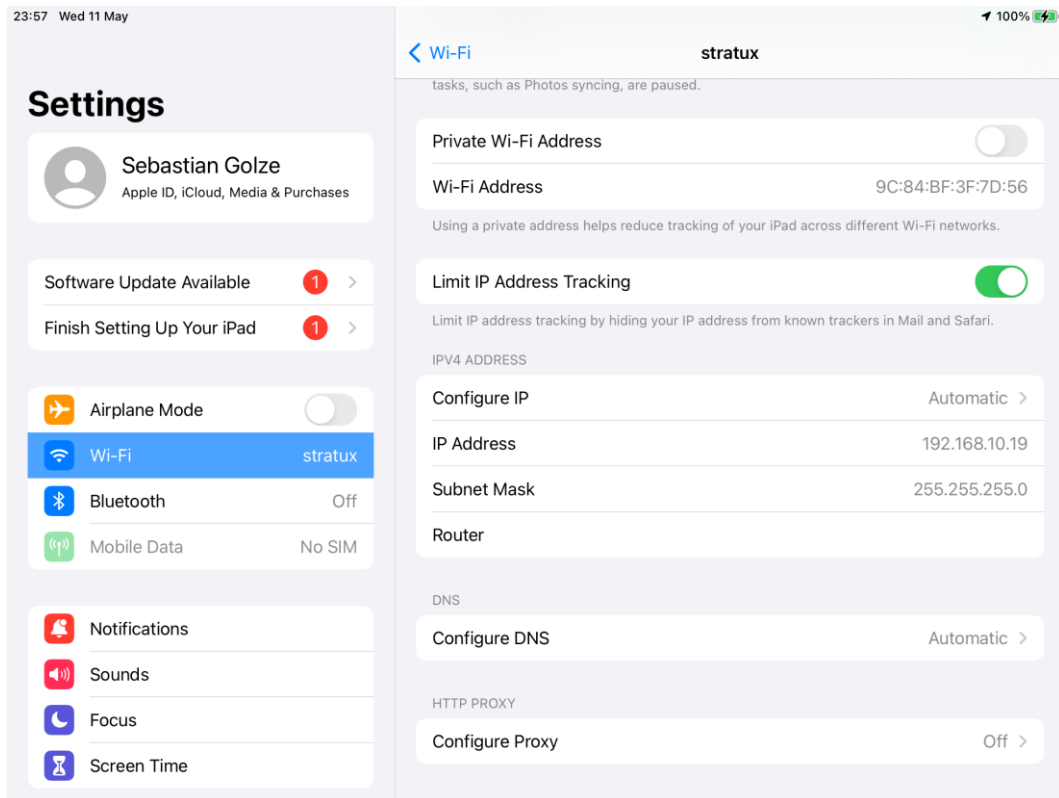

Figure 1   Connecting to stratux WiFi

Figure 2   WiFi details, access this page with the (i) next to the WiFi name

Now start up your ADL device and connect the iPad to the "ADL Connect" WiFi. Remember whatever changes you make to the WiFi configuration, as a fallback the ADL device will always boot up with the ADL Connect WiFi active. Then after 90 seconds it will switch over to your custom configuration. This way you can fix a configuration mistake and are not looked out. If you missed the 90 seconds simply power cycle the ADL device.
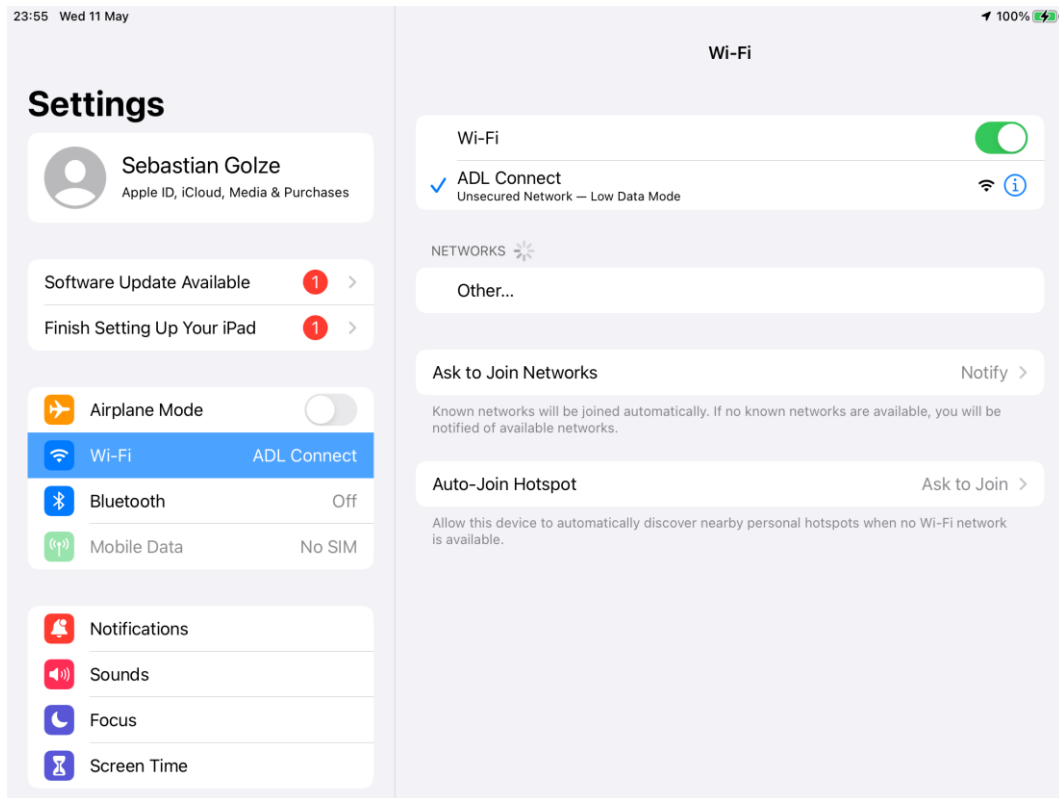
Figure 3   Connecting to the ADL Connect WiFi

Open the ADLConnect app and when properly connected got to the Config page. Enter the values we recorded above in those fields:

WiFi Mode: "Client"
WiFi SSID: as recorded above (upper and lower case matters)
WiFi Password:as recorded above (upper and lower case matters)
If no password is used simply leave this field empty (make sure it is really empty)
WiFi Subnetmask: as recorded above

Now press "Save and Reboot ADL"

The ADL device will reboot and the 90 second cycle will start. If you wish you can connect to the ADL Connect WiFi and verify the status messages at the bottom of the "Update WX" page.

Connect your iPad to the traffic device WiFi. Open the ADLConnect app and wait for it to detect your ADL device. Remember this will take 90 seconds. Now you should be able to use your ADL device as usual just that you connected to it using the WiFi provided by the traffic device.
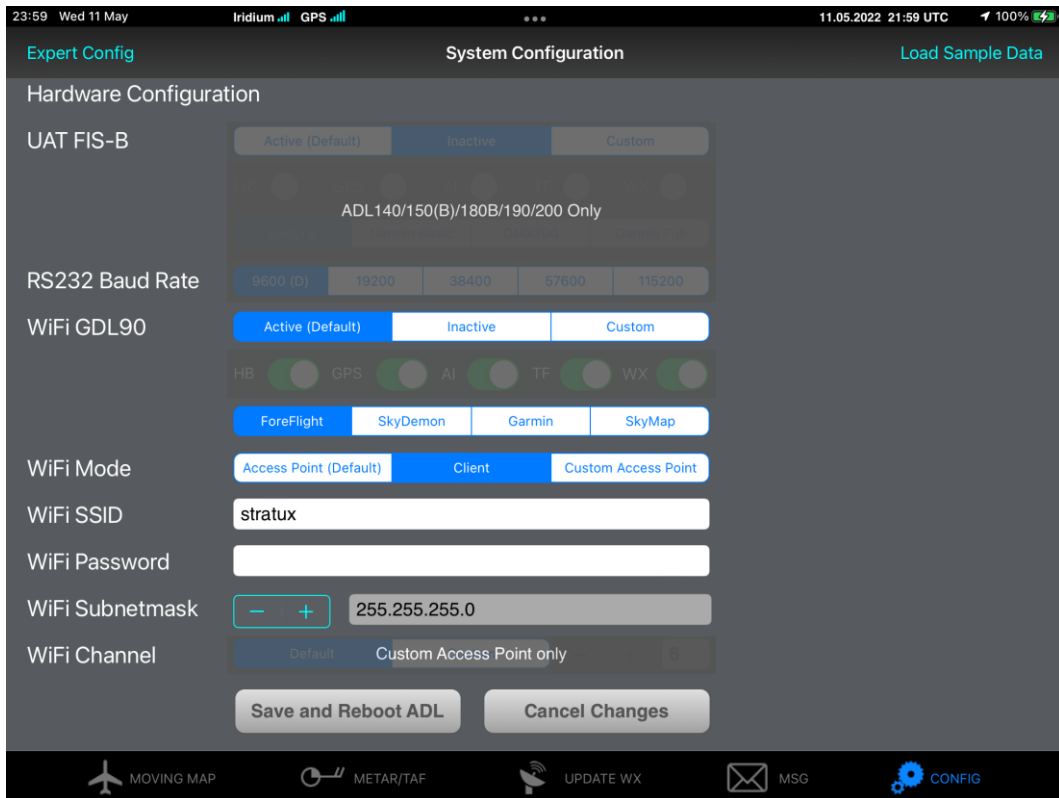
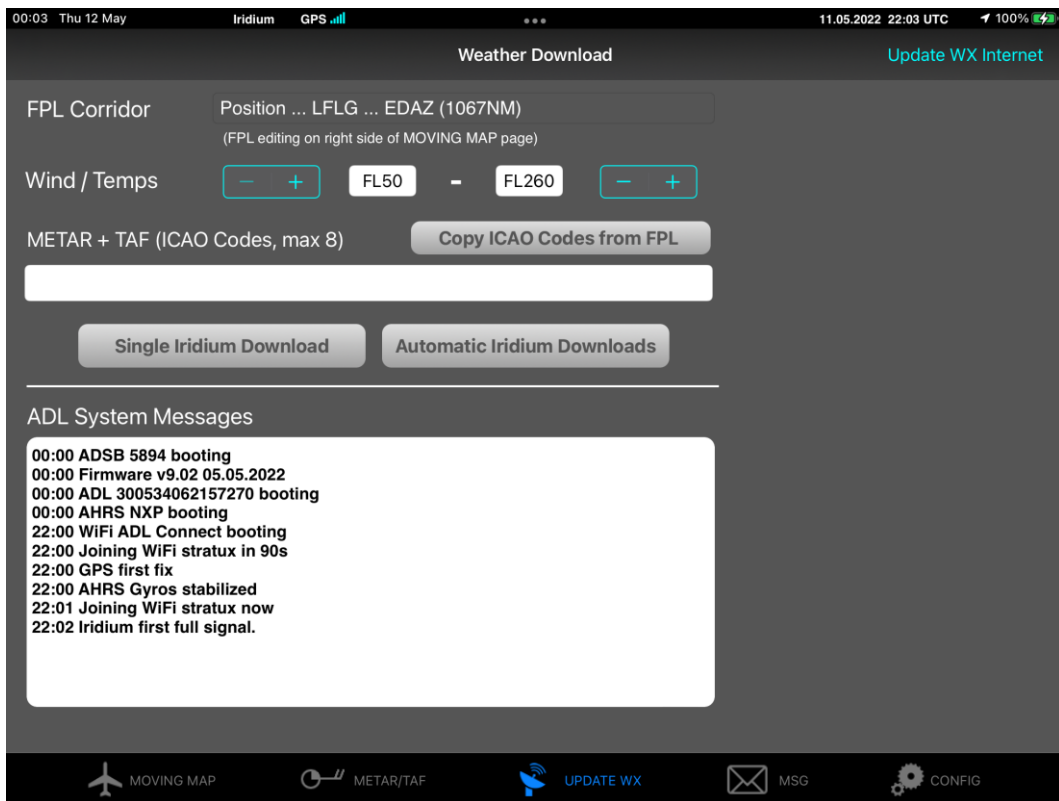Figure 4   Configure the ADL device as a WiFi client

Figure 5   ADL boot up sequence with 90 second delay until stratux WiFi is joined

Figure 6   ADL200 device running as a client in the stratux WiFi

8   Configuring the GDL90 Data Stream

Frist make sure your traffic device is really broadcasting GDL90 traffic data. For some devices like the Stratux this is always the case while others like the AT1 might have to be reconfigured.

Then connect to the traffic device WiFi, open the ADLConnect app and wait until it connects to the ADL device. On the Config page you can now set up the GDL90 data stream. We suggest you select:

WiFi GDL90: "Custom"

Below you can select which data is actually sent out by the ADL device. The fields are:
HB – heartbeat
GPS – GPS data
AI – AHRS / attitude data if your ADL device is equipped (ADL180(B)/190/200)
TF – Traffic data if any is available to the ADL device (internal or RS232 wired sources)
WX –Weather data

We recommend that you usually select AI, TF and WX only. Sending the heartbeat and GPS in parallel to similar data sent from the traffic device usually confuses the navigation app. In some instances you might also deactivate AI and / or TF if this data might be redundant to capabilities of your traffic device.

Below you can adapt the GDL90 data stream to your target application. This makes slight adjustments to the data format based on your favorite navigation app.

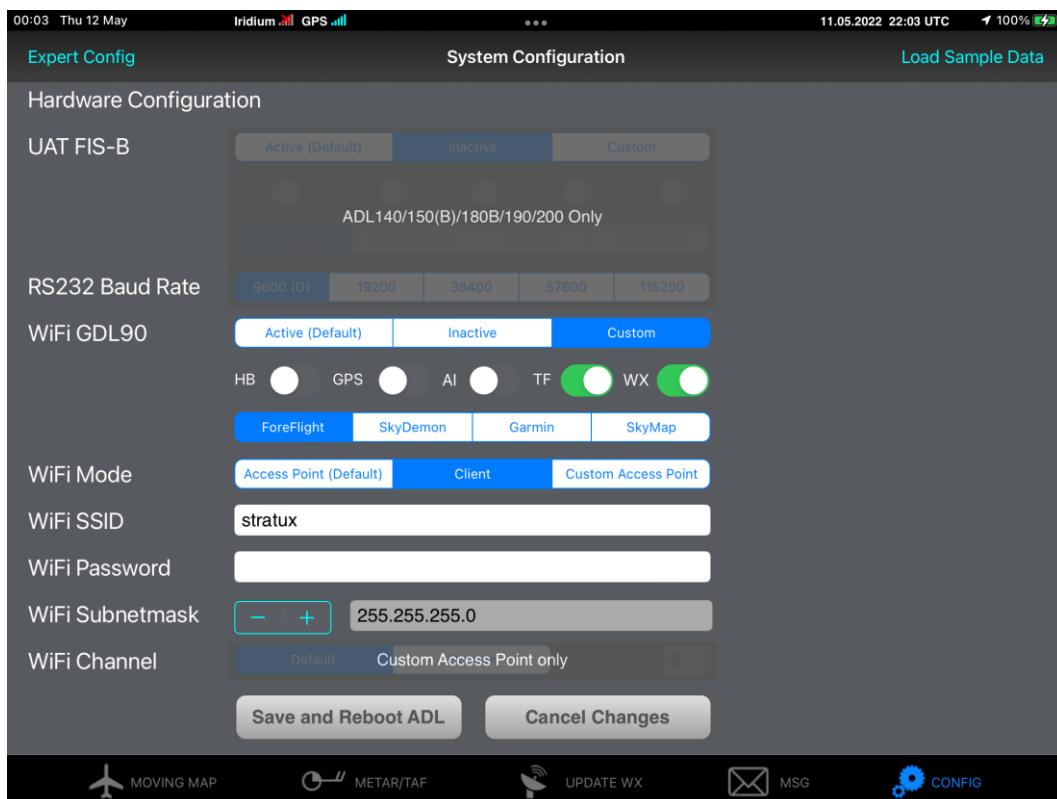Once you made your choices, press "Save and Reboot ADL" below.

Figure 7   WiFi GDL90 Configuration

9 Testing

Wait until everything is up and running. Now you should now be able to display weather data (and in some cases ADL based traffic) in parallel to the traffic data provided by your traffic device. If in doubt on how to display the GDL90 data in your favorite app, please look up the separate manuals we have for each major navigation app.
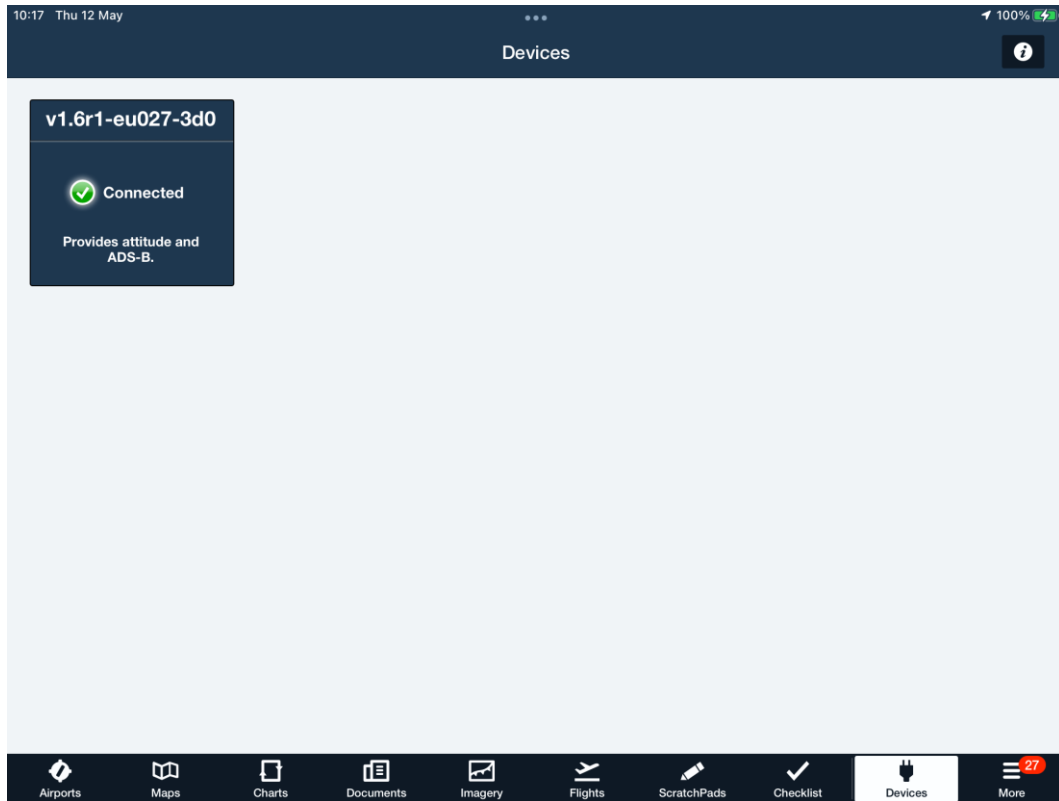

Figure 8   ForeFlight connected to stratux and ADL200 (note only stratux is displayed in this configuration)
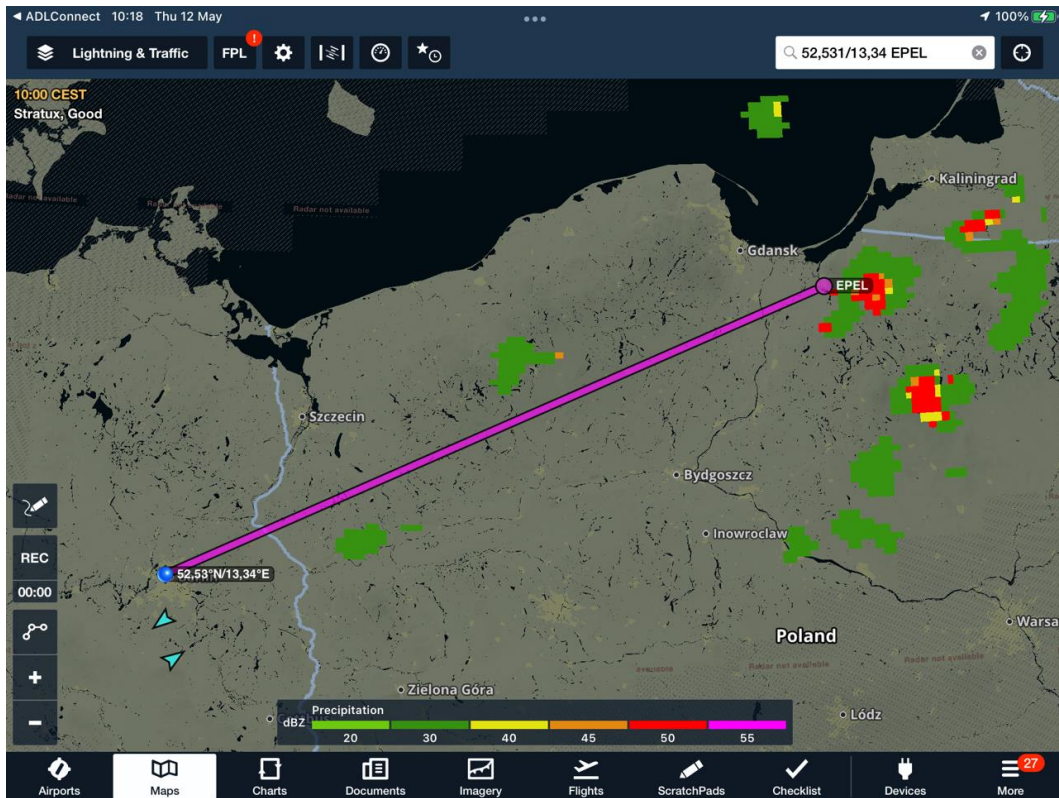
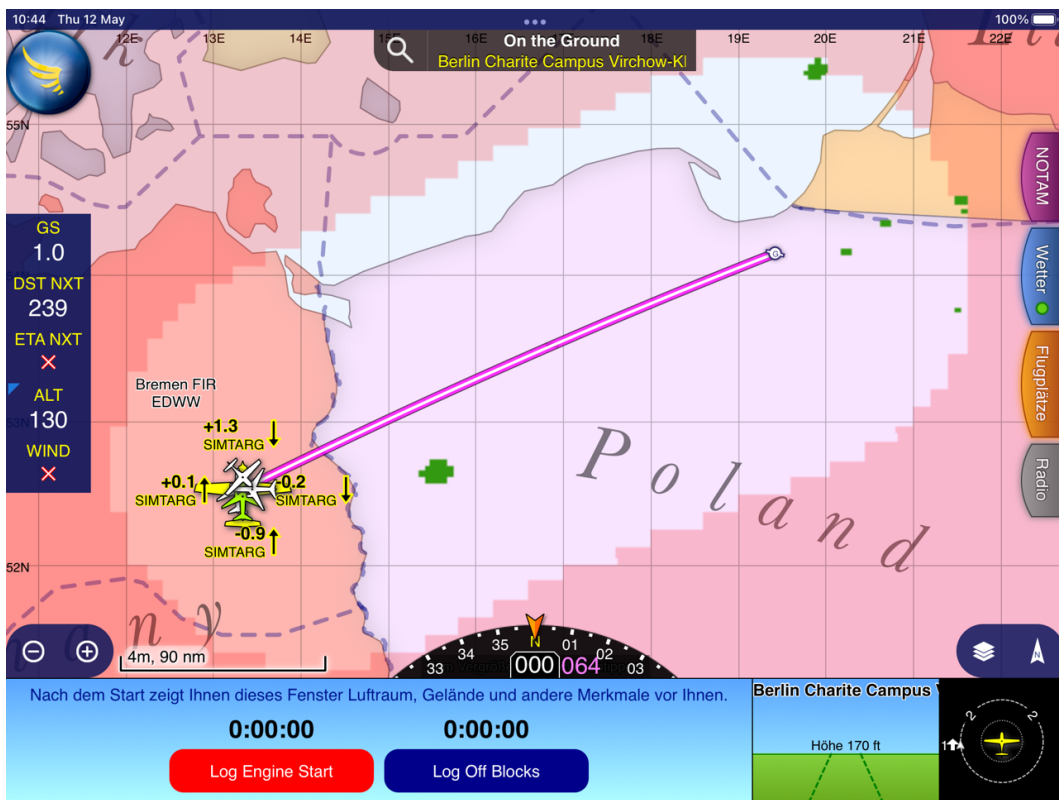Figure 9   ADL200 weather data and stratux traffic displayed in ForeFlight

Figure 10   ADL200 weather data and stratux traffic displayed in SkyDemon

Figure 11   ADL200 weather data and stratux traffic displayed in Garmin Pilot

10 Contact

Golze Engineering
Bredowstr. 29
10551 Berlin

www.golze.tech

mail@ing-golze.de
+49 30 39805204