

RUSKIN MOBILE

QUICK START GUIDE

RBR *virtuoso*³

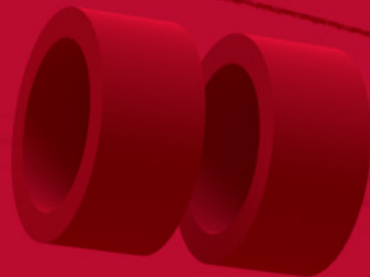
RBR *duo*³

RBR *concerto*³

RBR *maestro*³

RBR *brevio*³

RBR *quartz*³



rbr-global.com

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1 Ruskin Mobile



Ruskin Mobile is a light version of Ruskin, with all the essential functions needed to manage deployments, and with the added advantages of a smart phone such as augmenting data with GPS tracking, displaying live data and uploading to the cloud. Ruskin Mobile connects to Wi-Fi enabled RBR instruments and works on iPhone®, iPad®, Android™ phone, and Android™ tablet.

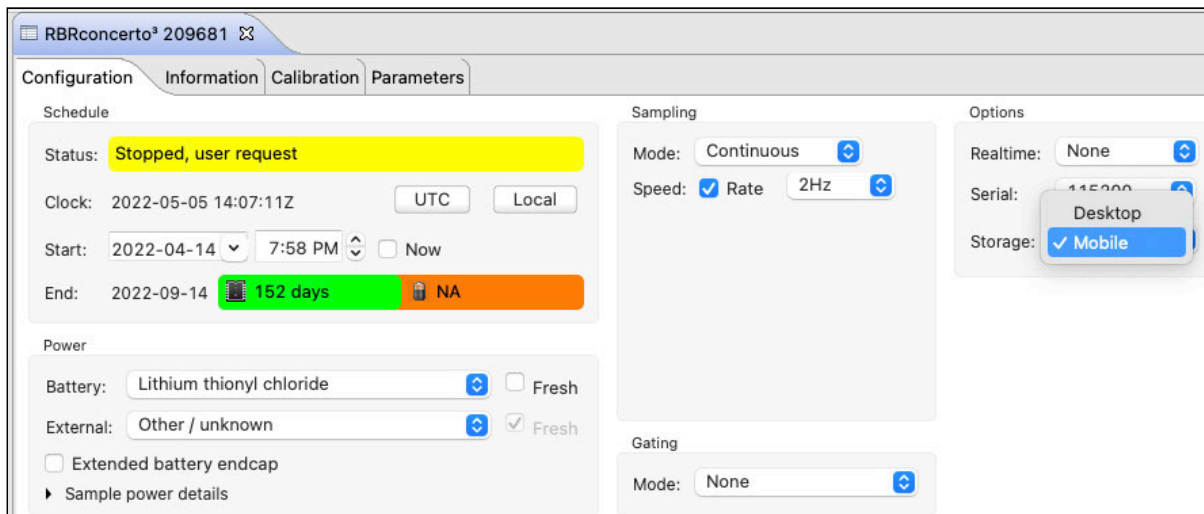
Install the Ruskin app on your mobile device by going to the Apple App store or Google Play.

2 Select Mobile on Ruskin

By default, new deployments started from a mobile device are set to **Mobile** data storage format, and nothing needs to be adjusted.

However, when you start a deployment from your laptop or desktop computer, it defaults to **Desktop** format which will limit your abilities to view the dataset on the mobile device.

On some occasions, you may set up your instrument from the laptop with the intention to view the dataset on your mobile device afterwards. In this case, go to the **Configuration** tab and open the **Storage** dropdown menu under **Options**. Select **Mobile**.



With **Mobile** data storage format selected, you will be able to track your instrument by adding the GPS location of your phone or tablet to the dataset. The RSK file will store data already calibrated, facilitating faster downloads over the Wi-Fi.

⚠ The raw data are not stored when operating an instrument with the storage format set to **Mobile**. The **RSK file** will only contain the calibrated data, which prevents re-processing the dataset with new calibration coefficients.

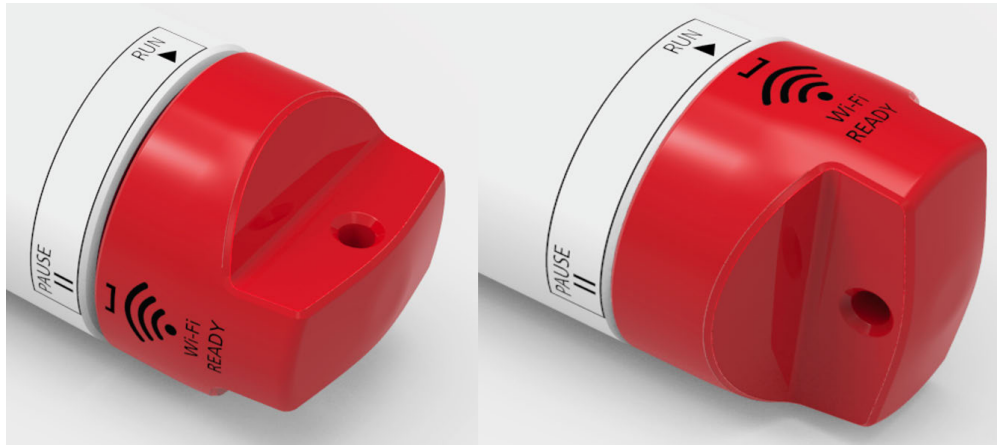
Ruskin Mobile can download datasets created in **Desktop** format. However, features such as charting will not be available.

⚠ You cannot change between **Desktop** and **Mobile** storage formats for the same deployment. If started in **Desktop** mode, there are two options:

1. Stop the current deployment, change the setting, then start a new deployment.
2. Continue the same deployment in **Desktop** mode, without the ability to view charts. You can still download your dataset, [archive it to Dropbox](#) or another sharing destination, and then use Ruskin Desktop to display it on your computer.

3 Connect to your instrument

RBR instruments with a built-in Wi-Fi module have the **WI-FI READY** icon on the end-cap and can connect to mobile devices.




The Wi-Fi module needs to be enabled at the time of purchase. Contact [RBR](#) if you have any question about this feature.

- ⚠ Any given instrument may be connected to only one device at a time. Connect to your instrument and set up all deployment parameters before submerging it.


Steps

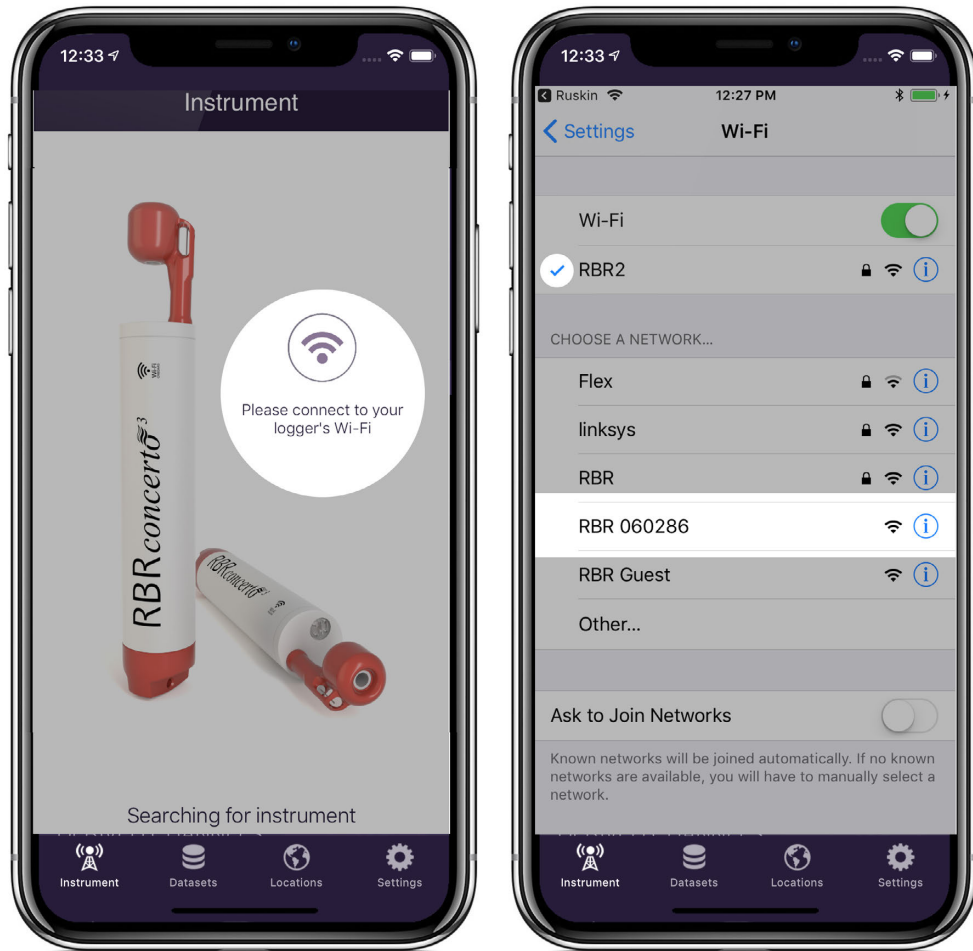
- ⚠ Twisting the end-cap to the **RUN** or **PAUSE** position will activate the Wi-Fi. However, twisting to the **PAUSE** position will also pause the instrument.

1. **Android**

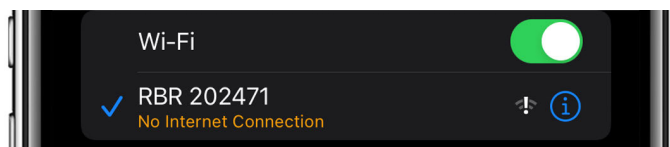
- Twist the instrument end-cap any direction to activate the Wi-Fi. The Wi-Fi will stay on for 60 seconds, waiting for you to connect.
- Open Ruskin  and tap **Search for instruments**. If only one instrument is detected, Android will automatically connect and begin downloading the latest dataset.


2. **iOS**


- Twist the instrument end-cap any direction to activate the Wi-Fi. The Wi-Fi will stay on for 60 seconds, waiting for you to connect.
- Open Ruskin  and tap the convenience button on the landing page. The app will take you to the **Settings** page, from where you will navigate to **Wi-Fi**. The instrument will create its own SSID and appear under available Wi-Fi networks. Its name will be the RBR serial number, for example, **RBR 060286**.



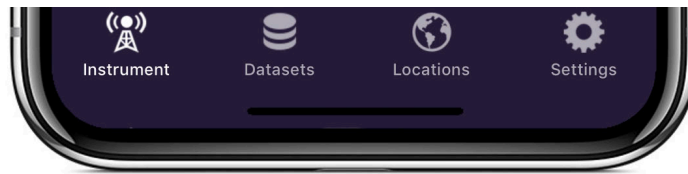
- c. Tap the instrument SSID name to connect and wait for a blue checkmark to appear on the left of the Wi-Fi network.
A message "No Internet Connection" will appear below. It has no effect on using Ruskin Mobile to manage deployments and refers only to the inability to browse websites while connected to the instrument.



- d. Return to **Settings**, then to the Home screen.
- e. From the Home screen, tap the Ruskin app icon . Ruskin Mobile will automatically connect to the instrument.


 The Wi-Fi is disabled after 60 seconds of inactivity. Twist the end-cap to **RUN** or **PAUSE** to re-activate the Wi-Fi.


There are four views on Ruskin Mobile: **Instrument**, **Datasets**, **Locations**, and **Settings**, accessible via the toolbar at the bottom of the screen.




When first connected, Ruskin Mobile will open the **Instrument**  view of the app. Use this tab to set up and manage your deployment.




Tap **Datasets**  to access local datasets and charts, upload datasets to your Dropbox account or another sharing destination, and (optionally) delete archived datasets.

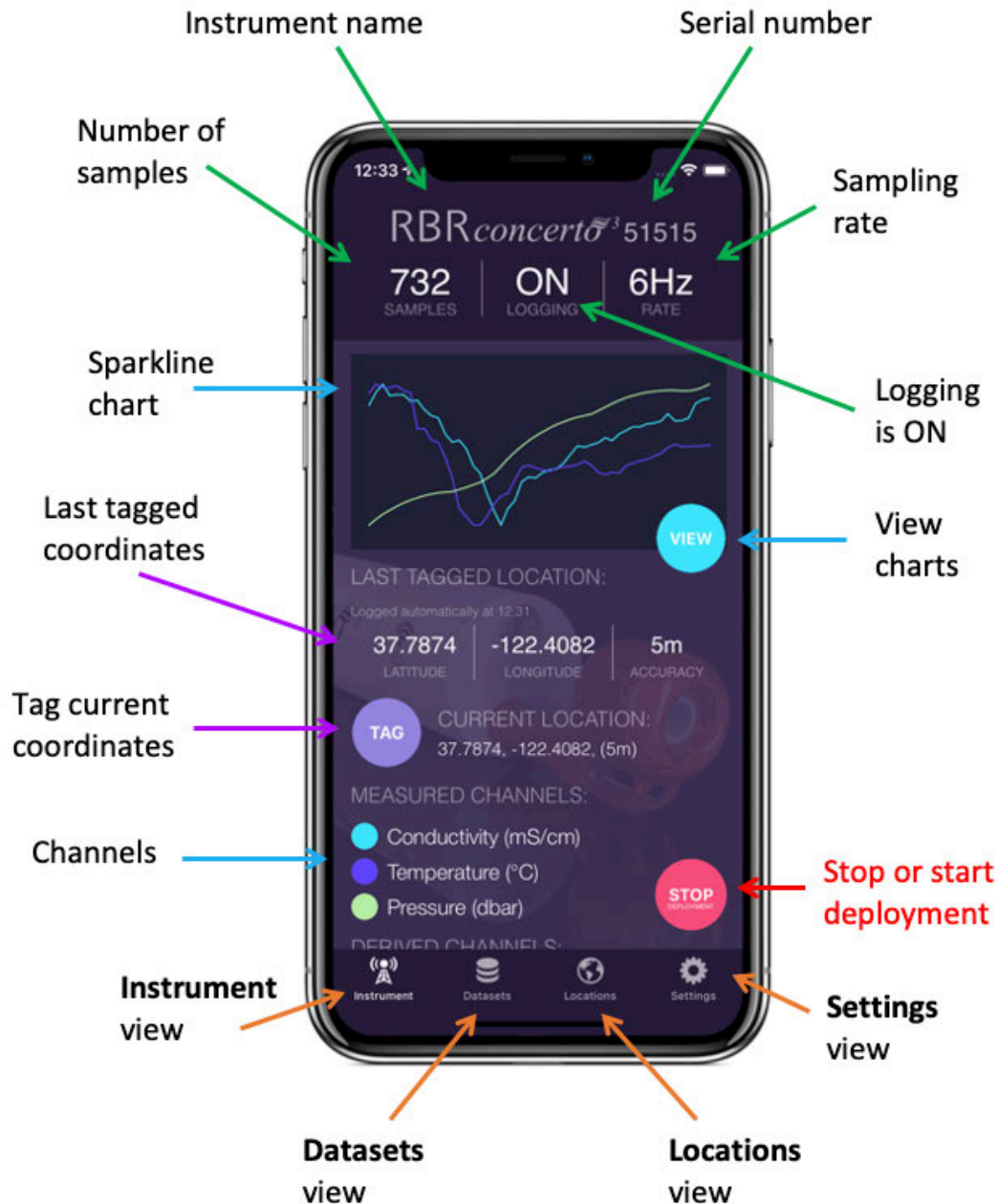
Tap **Locations**  to track your instrument during deployment.

Tap **Settings**  to manage your deployment preferences and share feedback or contact the support team.

4 Deploy your instrument

The Ruskin Mobile screen is divided into several areas where current parameters are displayed, and includes three operating buttons. There is a toolbar at the bottom of the screen, with four views: **Instrument**, **Datasets**, **Locations**, and **Settings**.

When connected to an instrument, the **Instrument**  view contains information about your instrument and its deployment.

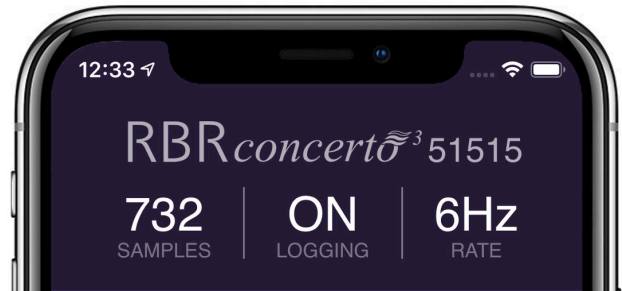


Status

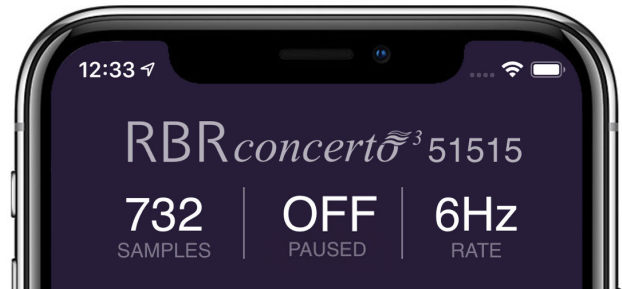
The top of screen shows the name and serial number of the instrument, followed by its status:

- Number of samples taken
- Logging state (**ON** or **OFF**)
- Sampling rate

When the logging state is shown as **ON**, the instrument is logging data.




When the logging state is shown as **OFF**, the deployment is paused but still in progress.



A deployment can have only one sampling rate, thus you cannot change it when logging is just paused.

To adjust the sampling rate, you have to stop the deployment using the red **STOP** button. A message "Deployment stopped" will be displayed, and the sampling rate field will become editable. However, you cannot resume the same deployment after stopping it. After changing the sampling rate, you will have to start a new deployment.

 Once a deployment has been stopped, it cannot be resumed.

Realtime data

A sparkline chart shows the last 50 readings for each of the measured channels (or the last 150 readings when using a tablet). These are typically out-of-water samples and serve to provide realtime feedback from the instrument.

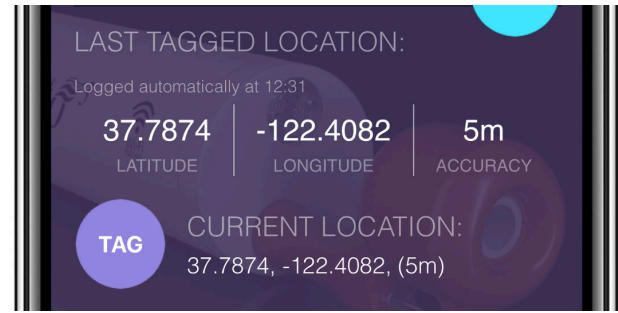
To view charts of the full deployment, tap the light blue **VIEW** button.



Geotagging

Your instrument does not have a GPS, but its location information may be available depending on your phone/tablet tracking capabilities.

Whenever the Ruskin App connects to an instrument, it automatically logs its location at that moment. Even if the boat moves away from the starting point during download, the initial location will be captured in the dataset. Should a more accurate location fix be attained within the first minute after connection, those coordinates will be used instead.




The **LAST TAGGED LOCATION** data indicate when the last GPS coordinates were added to the dataset.

As the app uses GPS, a clear view of the sky will allow a more accurate waypoint, rather than downloading inside a ship cabin, for example. To conserve the battery life of your phone, GPS tracking only occurs when the Ruskin App is open or when you are recording a track of your location.

It can take a few moments after opening the app to get an accurate location fix. When GPS is working well, an accuracy of around 5 metres can be expected.

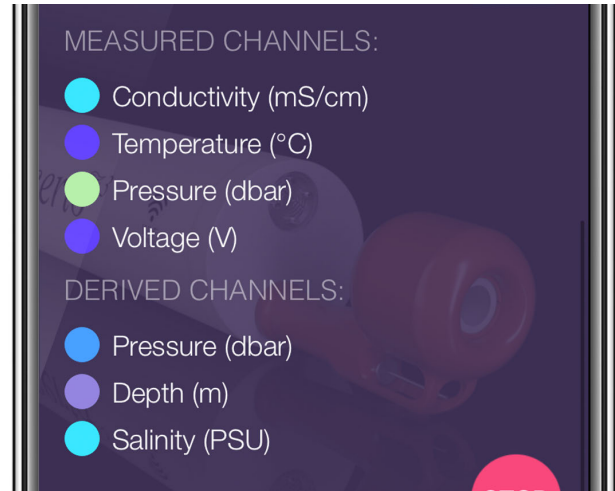
Tap the purple **TAG** button to log the **CURRENT LOCATION** data manually. The last tagged location will be updated to indicate the coordinates and accuracy of the manual GPS waypoint fix.

Both types of waypoints described (manual tags and those taken automatically on download) can be seen plotted on a map in the **Locations**  tab.

Channels

Scroll to the bottom of the **Instrument** tab to view measured and derived channels, along with their units of measurement.

The coloured circle to the left of each channel indicates the sparkline colour representing the latest readings from that channel.

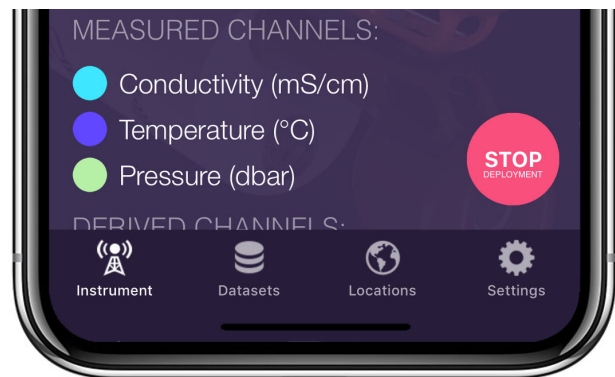


Deployment

The red button in the bottom right corner reads either **START** or **STOP**, depending on whether a deployment is in progress.


Tap the **START** button to begin a new deployment. When a new deployment is started, the data on the instrument will be erased.

Tap the **STOP** button to end the current deployment. Once a deployment has been stopped, it can not be resumed.



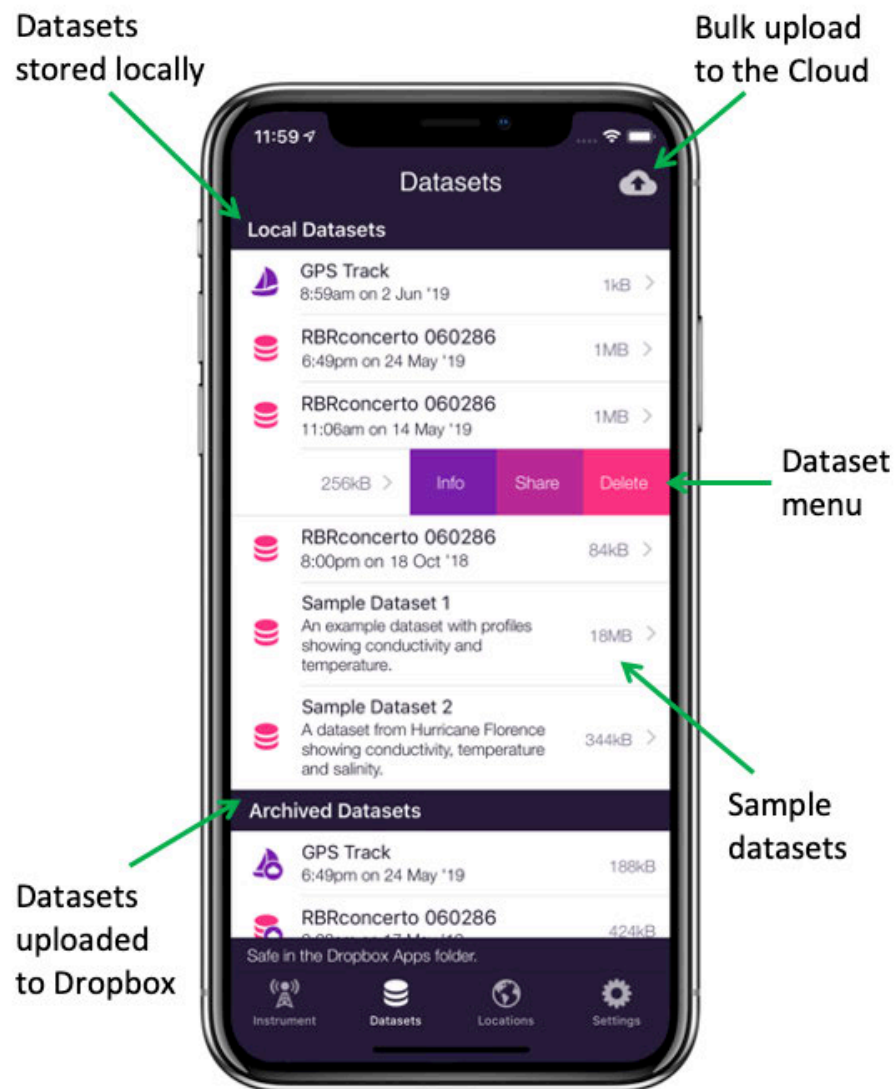
 Use the twist activation feature to pause deployment if you intend to continue with it later.

One dataset is created for each deployment. Deployments are typically long-running and consist of many sampling periods (activated by twisting the end-cap to **RUN**) and paused periods (activated by twisting the end-cap to **PAUSE**). Each deployment can only have one sampling rate, and it cannot be changed while logging is just paused. To change the sampling rate, stop the deployment.

 When the deployment is stopped, twisting the end-cap to either **RUN** or **PAUSE** will activate the Wi-Fi, but the instrument will not vibrate as it is not sampling.



5 Access datasets and charts

When connected to an instrument, the **Datasets**  view allows access to local and archived datasets.

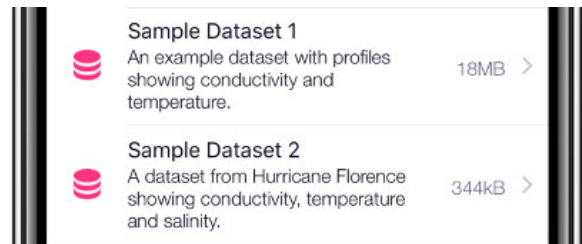


The **Local Datasets** list includes the datasets stored on your mobile device after they were downloaded from connected instruments. You can view charts for these datasets on your device.

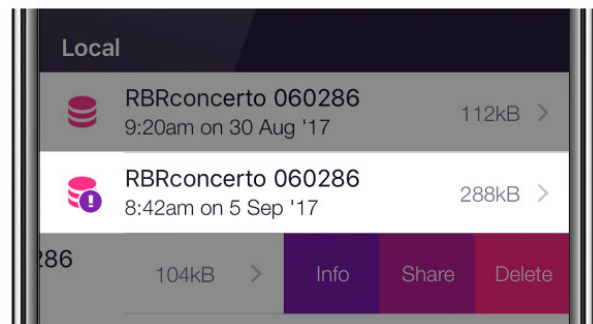
To save space, you may choose to upload your datasets to Dropbox. These datasets will be on the **Archived Datasets** list. If you have not set up your Dropbox and are using other ways to upload datasets from your device, the second list will not appear.

 By default, the datasets will be automatically removed from your device once they are uploaded to Dropbox. Thus, you cannot view charts for archived datasets. To change this preference, go to the **Settings**  tab.

Sample datasets, captured from real deployments, are available to demonstrate the features of the Ruskin app.



If a dataset is in **Desktop** format instead of **Mobile**, its icon will include an exclamation mark. You will not be able to view charts for this dataset.



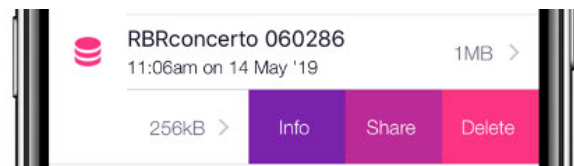
Tap **GPS Track** to display raw GPS tracking data.




Every time the instrument comes out of the water, Wi-Fi automatically turns on and your mobile device records that location. The Ruskin mapping feature uses these GPS coordinates to plot the route of your instrument on the map.

Uploading and sharing datasets

On iOS, swiping to the left on an item in the **Datasets** list will reveal several operations that can be performed on that dataset: **Info**, **Share**, **Delete**. On Android, long-pressing the item reveals the equivalent context menu.




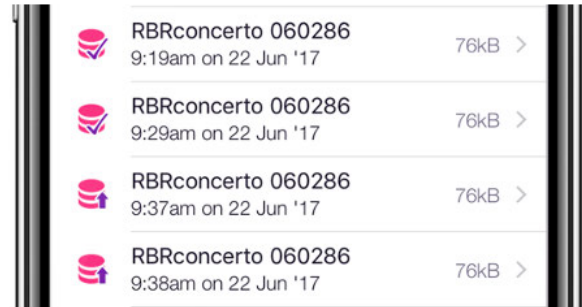
The **Share** option shows a context menu of the available for that dataset. What these are, depends on the apps you have installed on your phone, but a number of options come without additional apps. On iOS these include sharing by email, AirDrop, and saving to Files (as of iOS 11). To see your cloud drive (Google Drive, Baidu, Box, Microsoft OneDrive, iCloud, Dropbox, etc.) as a sharing destination, you need to install that app.

 Sharing options are only available for local datasets.


Dropbox

There are additional features available for Dropbox sharing which, incidentally, do not require the Dropbox app to be installed.

To enable Dropbox integration, you must sign in to Dropbox. The option for this is at the top of the **Settings**  tab.



Press the **Cloud** button in the top right corner of the **Datasets** tab to bulk upload all your local datasets. As the datasets upload, the icon will transition from an upwards arrow to a checkmark.

By default, the datasets will be automatically deleted from your device once they are uploaded to Dropbox. To change this preference, go to the **Settings**  tab.

Charting

Tap on a dataset on the **Local Datasets** list to view its charts.

 To view charts for the currently connected instrument, go to the **Instrument** view.


The charts are separated into casts (one cast per page). Each time the instrument descends and ascends again is considered to be one cast, and a new chart is created for each. Swipe left and right to view the chart for each cast. In the example shown, the dataset includes 10 casts.

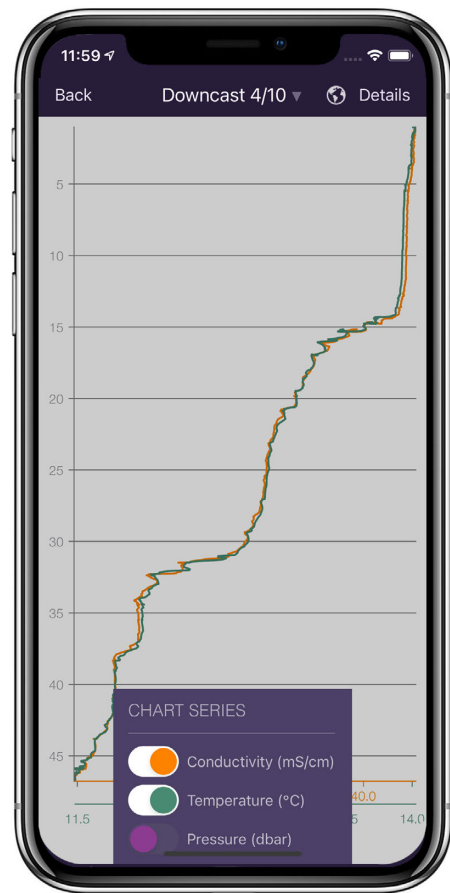
The instrument determines the start and end of a downcast by depth (pressure) readings, and thus only a single chart will be created when testing the out-of-water samples.

In portrait orientation, channel data is plotted by depth, and only downcast data. The upcast data is omitted.

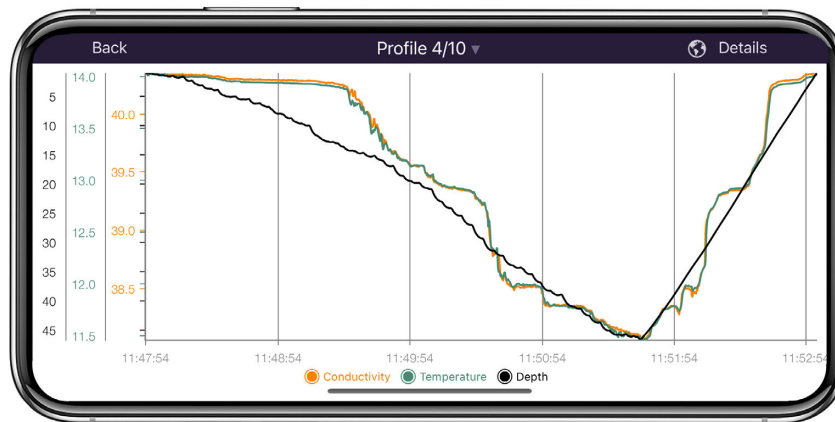
When the instrument sensors face downwards, the downcast provides the most accurate data, while the upcast data can be subtly impacted by the turbulence from the leading instrument housing on the ascent.

Tap on the multi-coloured caption under the plot to open the legend with units of measurement. Use the toggle buttons to select which channels to display on the chart.

 When viewing out-of-water samples, the downcast chart will appear like a random plot because there is no change in depth.

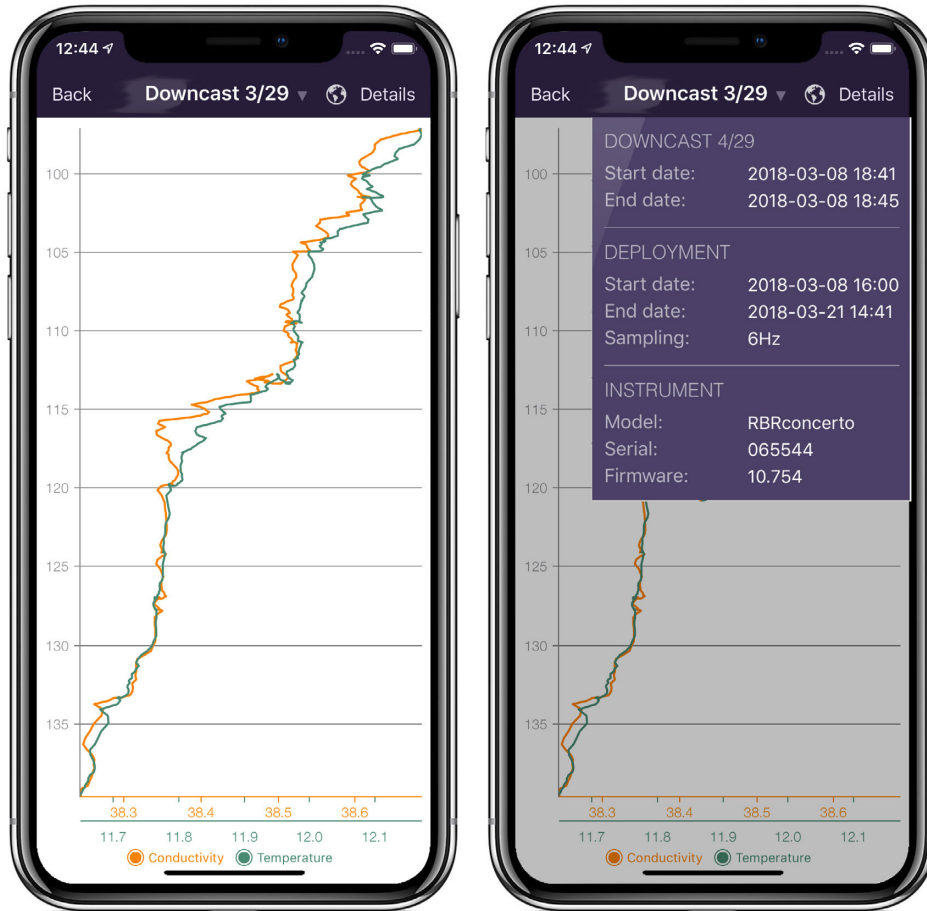


In landscape orientation, the channel data is plotted by time. Depth is inverted, so the bottom reading on the chart intuitively represents the bottom of the cast.

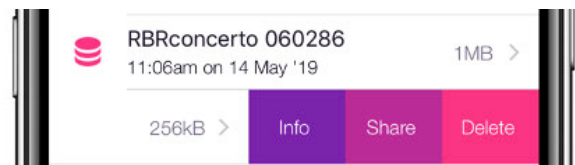


Use pinch-to-zoom to zoom in and out on your data. The chart axes adjust relative to each other on zooming and panning around the chart. As a result, all chart series occupy the full height or width of the chart and can be easily compared side-by-side.


Tap on **Details** in the top-right corner to reveal information about the displayed cast and deployment parameters. The deployment data is also available in the **Info** context menu of the **Datasets** list.

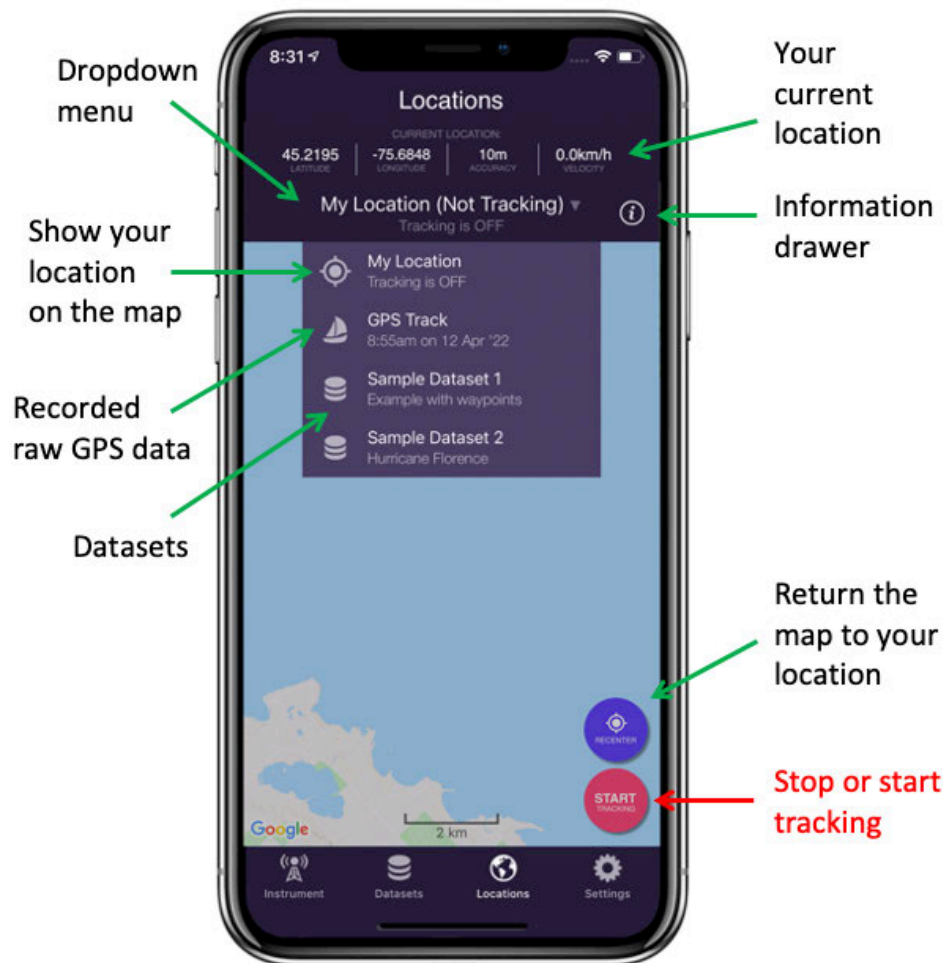


The same deployment data is also available in the **Info** context menu of the **Datasets** list.




6 Track your instrument

When connected to an instrument, the **Locations**  view allows you to display its GPS coordinates and plot profiles as data points on a map during deployment. This feature relies on location capabilities available on your mobile device.



Tracking

 The Ruskin tracking feature relies on location capabilities of your mobile device. When the boat is towing the instrument, the phone and the instrument are at the same location at any given time. The app knows where the instrument was for each sample and adds this information to the dataset, thus ensuring continuous tracking.

The red button in the bottom right corner reads either **START** or **STOP**, depending on whether tracking is in progress.

Tap the red **START** button to start tracking. A red tracking banner will appear at the **Locations** icon in the toolbar.

The first time you use this feature on iOS, you will see a prompt, "Allow Ruskin to also access your location even when you are not using the app". Select **Always allow**; otherwise, when you leave the app, tracking will cease.

Follow your deployment on the map, or view a broader context by using pinch-to-zoom or panning away from your track. Tap the purple **RECENTER** button to return to your location.

Tap the red **STOP** button to stop tracking.

Unless you tap STOP, tracking will continue for up to 24 hours, even with the app in the background. On iOS, you can also interrupt GPS tracking by force-closing the app: double-tap the home button and swipe upwards (or, on iOS devices with faceID: swipe upwards and pause in the centre of the screen, then swipe up on the app to be closed).



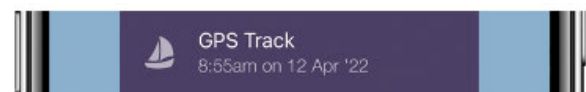
✔ To save battery power, stop GPS tracking when you stop deployments.

GPS track files

A waypoint is automatically added to the RSK geodata table whenever the instrument connects and also whenever you tap the purple **TAG** button in the **Instrument** view. Raw GPS data is saved as a GPS track file in the GPX format.

When a deployment is in progress, its track will be displayed on the dropdown menu as **Active track**. All previously recorded tracks are displayed as a **GPS Track** with time and date listed below.

Tap **GPS Track** in the dropdown to open a track file. You can also access and manage them from the [Datasets](#) view.



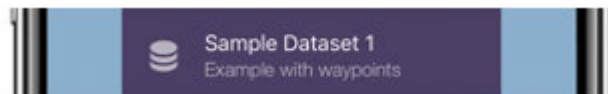
When you open a previously recorded track in the **Locations** view, the current location details disappear from the header along with the red **STOP** button and blue **RECENTER** buttons. This does not affect the recording of the current track. To view current location stats or stop tracking, open the dropdown menu and tap **Current Track**.

One track creates one tracking file. When you open it, there will be no profiles, tags, or download pins. Track files use the [GPX](#) format, augmented with a couple of minor extensions. A track file is independent of any RSK, but Ruskin uses it to inject location data into the RSK whenever the RSK is downloaded. The RSK geodata table will contain one row for every GPS entry captured during the deployment.

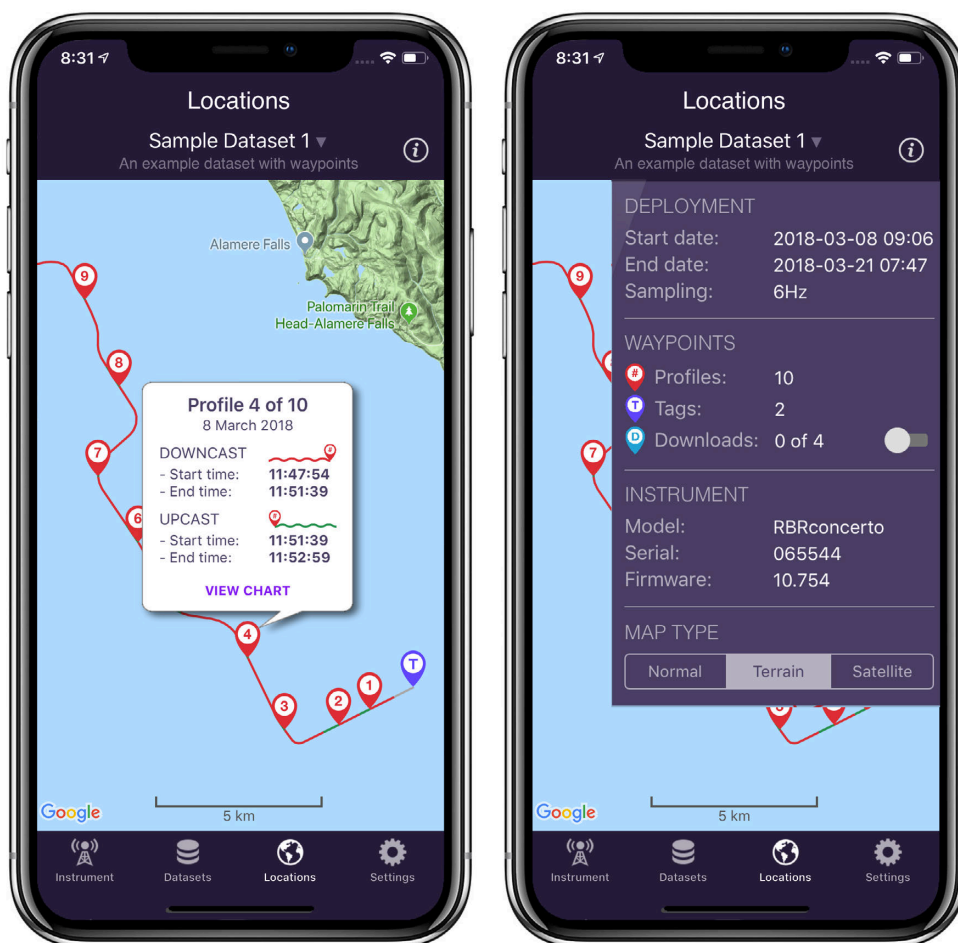
In most cases, you do not need to access the GPX file as RSK contains all the needed data. However, you have an option to upload the GPX files from the Ruskin app independently of RSKs. You may wish to use a track to illustrate your course on a map using various online tools, or convert it to other formats such as [GeoJSON](#) or [KML](#).

Profiles

Open the dropdown menu and tap on a dataset.



A map will open, showing the tracked route recorded during deployment. Tap on the **Information drawer** button at the top right to view the details related to deployment, waypoints, instrument, and map type.



There are three colours used to draw the track:

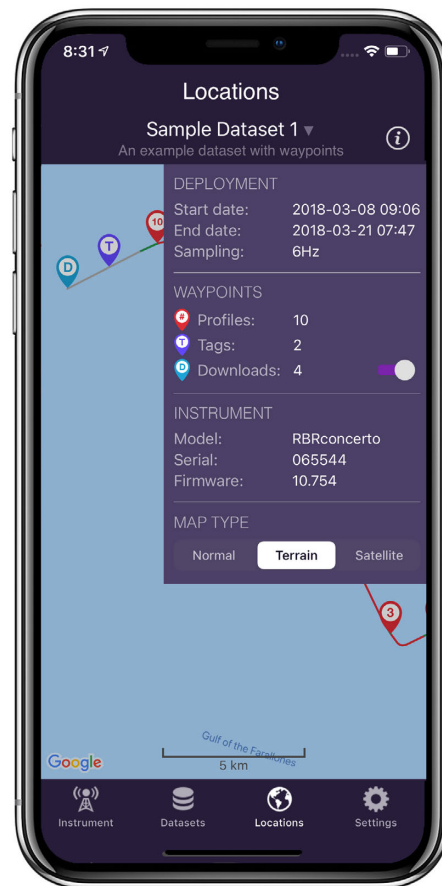
1. A red line for the downcast segments
2. A green line for the upcast segments
3. A light grey line for segments not associated with the profile (e.g. out-of-water periods)

There are three types of tag pins used to mark locations:

- Red profiles tag pins with numbers
- Purple manual tag pins with a letter "T"
- Blue download tag pins with a letter "D"

Download tags are automatically added whenever the instrument downloads to your mobile device. Typically, it occurs when the instrument ascends and reaches the surface, or at the end of a deployment. They are hidden by default. Use the toggle switch on the information drawer to display them. You will see them appear whenever the line colour changes from green to red, and at the very end of the track.

Tap on a tag pin to open an information window. For the red profile tag pins, it includes a link to view the chart for that profile.



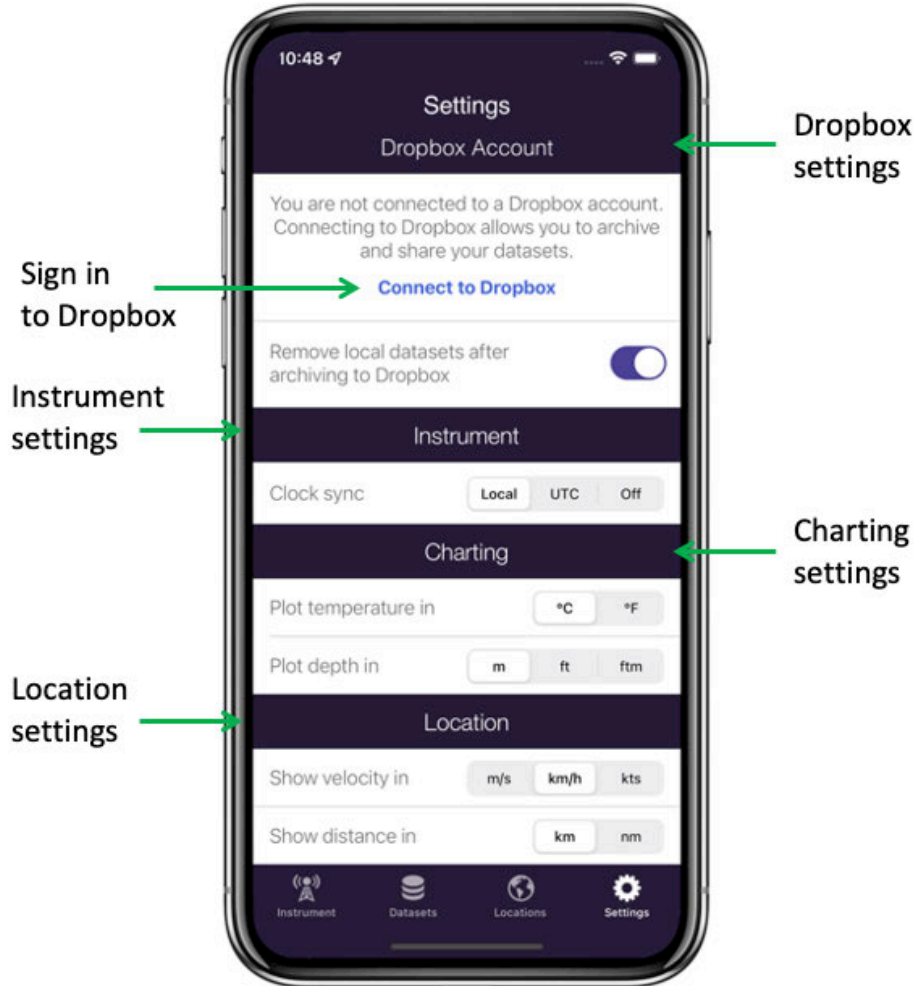
If no raw tracks coincide with a deployment, only download and manual tag pins will be displayed. Download pins are hidden by default, so if there are no manual tag pins, the map may appear empty.

In the absence of track data, Ruskin Mobile searches for any automatic waypoints from instrument downloads and will sometimes be able to position some profiles from these and thus display some profile pins.

If track data is not available for the full deployment, some profile pins may be missing from the map. Refer to the information drawer to see how many profile locations could be determined.

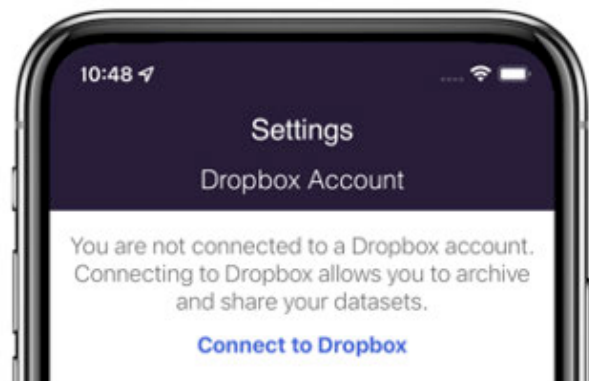
7 Adjust your settings

When connected to an instrument, the **Settings**  view allows you to manage your deployment preferences.

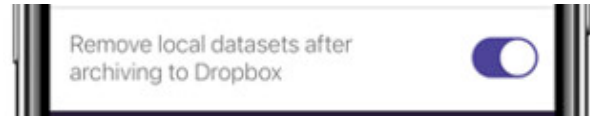


Dropbox

Sign in to Dropbox to enable Dropbox integration. Click on **Connect to Dropbox** and follow the prompts.

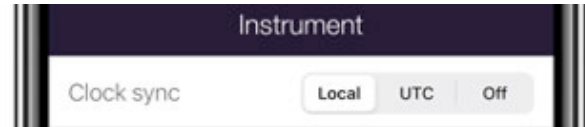


By default, the datasets will be automatically deleted from your device once they are uploaded to Dropbox. Use the toggle switch to change this preference.



Clock Sync

When you start a deployment, you can automatically set the instrument time from your phone or tablet.



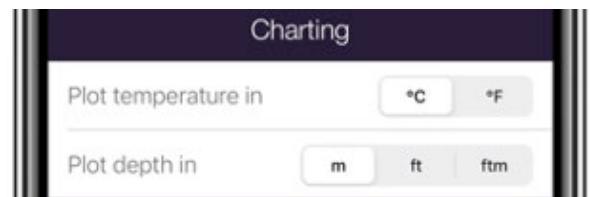
As the instrument has a clock but no concept of time zones, you can select **UTC** or **Local** time, or you may choose to set no time at all by selecting **Off**.

When you remove batteries from your instrument for more than a few seconds, the clock will reset (back to the epoch). Starting a new deployment with the **Clock sync** option enabled provides a convenient way to correct the clock.

Units of measurement

By default, your charts will plot temperature in Celsius and depth in metres.

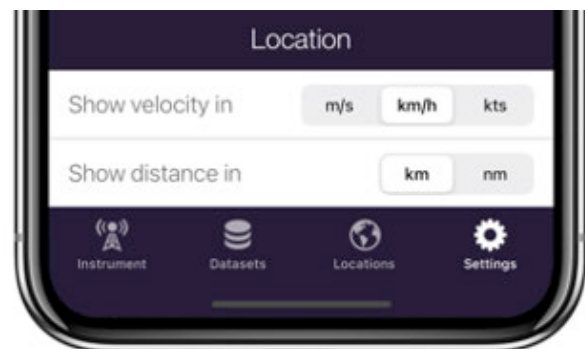
Change your viewing preferences to Fahrenheit for temperature and feet or fathoms by making your selections under **Charting**.



i Alternative units of measurement will allow you to view the charts in preferred format, but will not affect the units in which the data were originally captured in the datasets.

By default, your maps will use kilometres per hour for velocity and kilometres for distance.


Change your viewing preferences to metres per second or knots for velocity units and nautical miles for distance by making your selections under **Location**.



8 RSK files

The RSK file is a single file database based on SQLite that allows us to have large files with high-speed access to any part of the dataset. RSK files can be exported to Excel, OceanDataView®, or text files.

RSK files obtained using **Ruskin Mobile** allow charting and GPS tracking. They do not allow changes to calibration coefficients.

 The file extension is .rsk; it indicates the Ruskin file format and must not be edited. If you change it, your new file extension will become part of the dataset name, and the .rsk extension will be appended.

9 Revision history

Revision No.	Release Date	Notes
A	30-November-2022	Initial release

CE