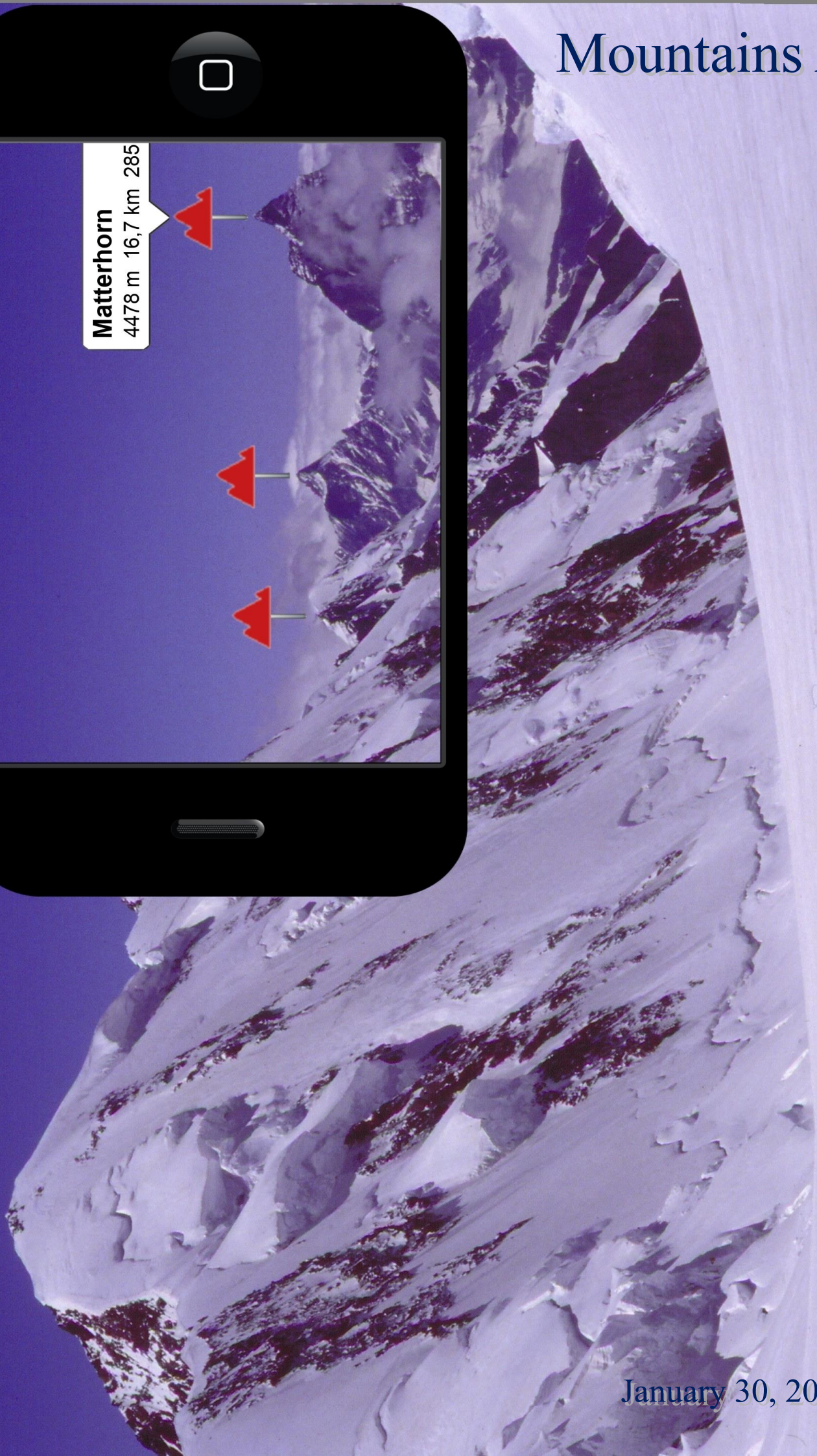


# Mountains AR



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## Introduction

### References

<b>Web site</b>	<a href="http://www.okmap.org">http://www.okmap.org</a>
<b>Forum</b>	<a href="http://www.okmap.org/forum">http://www.okmap.org/forum</a>
<b>Mountains AR</b>	<a href="https://itunes.apple.com/us/app/mountains-ar/id884969067">https://itunes.apple.com/us/app/mountains-ar/id884969067</a>
<b>This manual</b>	<a href="http://www.okmap.org/download/mountainsAR_en.pdf">http://www.okmap.org/download/mountainsAR_en.pdf</a>


### Other products for iOS

<b>OkMap Mobile</b>	An offroad GPS navigator with online and offline custom maps for your outdoor activities <a href="https://itunes.apple.com/it/app/mountains-ar/id949554920">https://itunes.apple.com/it/app/mountains-ar/id949554920</a>
<b>Touristic Italy</b>	The augmented reality to discover monuments, attractions and services <a href="https://itunes.apple.com/it/app/touristic-italy-augmented/id896425768">https://itunes.apple.com/it/app/touristic-italy-augmented/id896425768</a>

## Requirements

To get the fully functionality of the software you must activate:

- ▶ **Settings – Privacy – Location Services** => On  
Enable the use of geolocation. Disabling this option, the GPS cannot provide the current position.  
Check that this feature is also enabled in Mountains AR application, in the app list below.
- ▶ **Lock the screen orientation** => off  
Disable the lock to allow the display from rotating itself when a device has been physically turned onto its side.

**WARNING:** after the first app start you need to open the [Settings](#) page  to select the desired geographical area.

## Screen organization

The Mountains AR app is designed to be installed on both iPhone and iPad devices.

The app works in *landscape* mode (horizontal device), the most suitable feature for panoramas shooting.

Usually, on the right there is a vertical toolbar that contains the main features of the current page.

On the left, in some cases, you may see an additional toolbar with extra features.

## Augmented reality



During the startup of the app a cover is shown for a few seconds. During this time the files of the summits are loaded into memory.


Immediately, the page shown here on the left appears.

This is the main page of the app, used for the most important functions.


The page contains the following elements:



- ▶ [Central body](#) showing the framing camera.
- ▶ [Right vertical toolbar](#) used for the main functions.
- ▶ [Left vertical toolbar](#) used for setting the minimum and maximum distance (visible on request).
- ▶ [Status bar](#) at the bottom with the information detected by the GPS.
- ▶ [Here and Auto functional buttons](#) (visible if necessary).

## Central body

Overlapping the framing camera, red icons  are drawn on the summits.

Moving the camera, the software will try to keep the red icons above the summits allowing their identification. This operation is possible thanks to the use of the internal *gyroscope* that detects the device position on the three axes X, Y, Z.

To obtain the data of a particular summit it is enough to tap on the red icon ; a balloon appears containing:

- ▶ The name of the summit.
- ▶ The altitude of the summit.
- ▶ The distance of the summit from the user's current position (or the simulation position).
- ▶ The direction of the summit from the user's current position (or the simulation position).
- ▶ The icon  shows the summit on the [Map](#) page.
- ▶ The icon  displays the [Summit form](#) page.

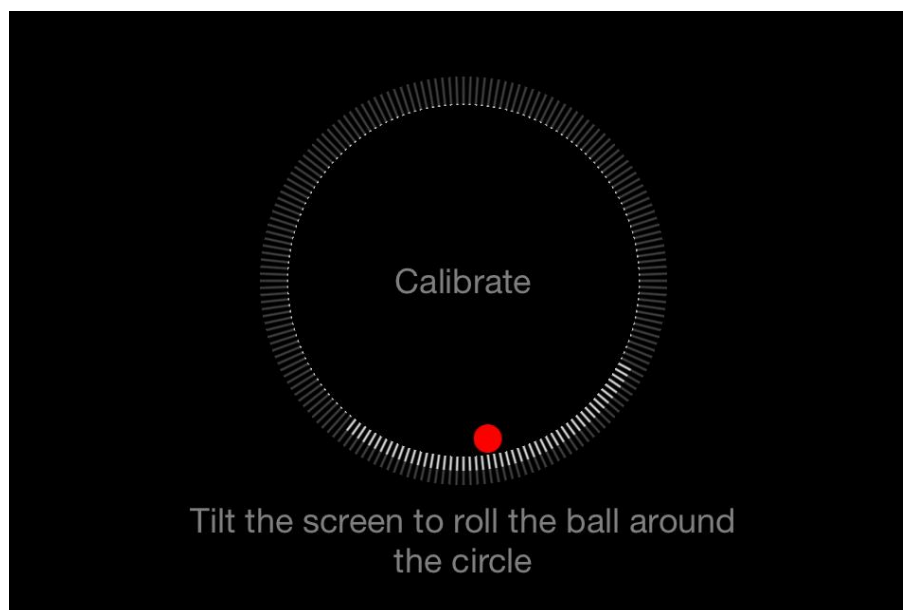
For better results it is recommended to periodically calibrate the gyroscope (see [Calibrating the gyroscope](#)).

Mountains AR has a manual alignment system to cancel any small errors of the gyroscope. It is enough to simply drag your finger on the background of the camera to align a known icon on the corresponding summit. Doing so the other icons will perfectly overlap to the corresponding summits.

After any manual alignment operation, appears the *Auto* button at the bottom left; pressing this button it will cancel the effects of the manual alignment.

## Calibrating the gyroscope

When the software has the need to calibrate the gyroscope, is shown a page, like the one below, which guide the calibration.



Tilt the device so to move the red ball along the circumference until the surrounding lines will be completely white.



It is advisable to periodically calibrate the gyroscope for better results.

To calibrate the gyroscope simply rotate the device as if it were visible the calibration page (rotate the device how to draw a picture of the shape of an eight).





The presence of metal objects usually makes less accurate the gyroscope, so an in-car use is not recommended.

## Right vertical toolbar


The right vertical toolbar allows the following functionality:

- ▶ It opens the [Map](#) page .
- ▶ It takes a photo  with icons superimposed. A page with a preview image of the picture is displayed (see figure below); by tapping on the image of the picture you return to the main page.



- ▶ It opens the [Summits list](#) page .
- ▶ It opens / closes the vertical toolbar on the left .
- ▶ It opens the [Settings](#) page .
- ▶ It opens the [Information](#) page .

## Left vertical toolbar

The vertical toolbar on the left is opened or closed using the icon  on the right toolbar.

This toolbar contains two wheels that allows you to calibrate the minimum and the maximum distance within which you want to see the summits.

This feature can be useful to avoid seeing distant summits that could be eclipsed by those closest.

This setting has an impact also on the number of the summits shown in the [Map](#) page.

## Status bar

This status bar contains the information detected by the GPS:

- ▶ Coordinates (latitude and longitude)
- ▶ Tolerance of GPS position (in brackets)
- ▶ Altitude
- ▶ Tolerance of GPS altitude (in brackets)
- ▶ Pointing direction in degrees
- ▶ Tolerance of the pointing direction (in brackets)

## Here and Auto functional buttons

These two buttons are displayed in the lower left if necessary.

*Here* button is displayed when the user simulates the current position in a different location from the real one (see [Settings](#)).

When simulating a position, the app displays the icons of the summits as if you were in the place of the simulation (position + altitude).

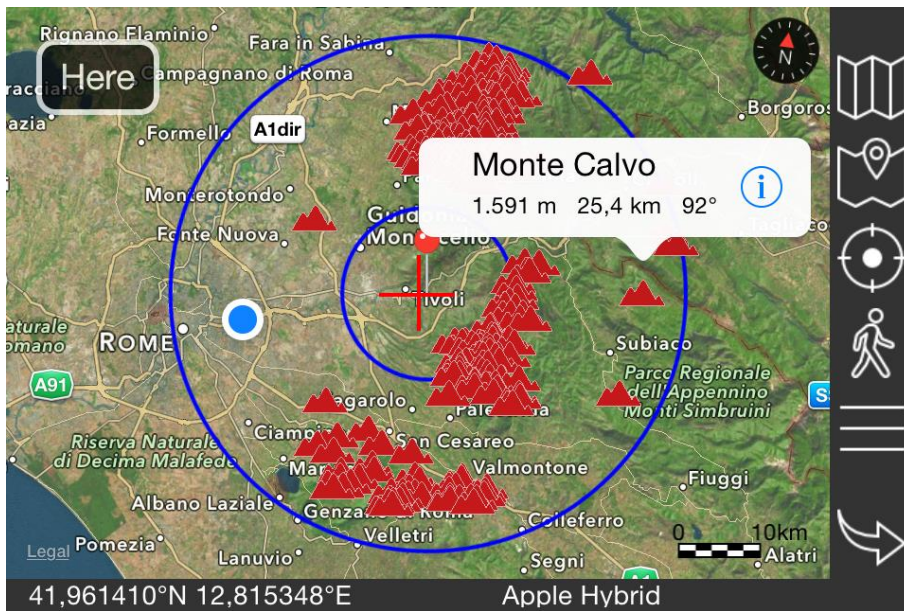
The *Here* button is used to end the simulation and return to the position detected by the GPS.

The *Auto* button has already been mentioned in the paragraph [Central body](#) regarding the manual alignment of the icons.

The *Auto* button is used to cancel the effects of manual alignment.



## Map




The page contains the following elements:

- ▶ [Central body](#) containing the map
- ▶ [Right vertical toolbar](#) with the main functions.
- ▶ [Status bar](#) at the bottom.
- ▶ [Here functional button](#) (visible if necessary).


### Central body


The main body of this page consists of a map on which are drawn:

- ▶ Red icons  corresponding to the summits in the area.
- ▶ A blue dot indicating the user's current location
- ▶ A pin red (if any) that specifies the location of the simulation
- ▶ A red viewfinder indicating the center of the map
- ▶ Two circles of blue color that indicates the minimum and the maximum distance chosen by the user on the page [Augmented reality – left vertical toolbar](#). These circles are centered on the user's current location or, if activated, on the position of the simulation.

The map can be enlarged or less using the *Pinch* gesture.

Similarly it can be moved in four directions by dragging it with your finger.







To obtain the characteristic data of a particular summit is enough to tap on the red icon  ; a balloon appears containing:

- ▶ The summit name.
- ▶ The altitude of the summit.
- ▶ The distance of the summit from the current position (or the simulation position).
- ▶ The direction of the summit from the current position (or the simulation position).
- ▶ The icon  to display the [Summit form](#).

Can be displayed a single summit at a time.

## Right vertical toolbar

The vertical toolbar on the right allows the following functionality:

- ▶ It opens / closes the page to choose the map type .
- ▶ It zooms on the blue circle that contains all the visible summits .
- ▶ It zooms on the user's current location .
- ▶ It simulates the user position on the point indicated by the red central viewfinder (the altitude simulation is set = 0 - sea level) .
- ▶ It opens a dropdown menu containing the menu items .
- ▶ It returns you to the [Augmented reality](#) page .

## Map menu

Menu items are marked with:

- ▶ **Green empty dot** => off option.
- ▶ **Green solid dot** => active option.
- ▶ **Green line** => function.

The map menu contains the following elements grouped into several sections (written in yellow):

- ▶ **Zoom**
  - ▶ **Zoom +**: Zoom in the map view.
  - ▶ **Zoom -**: Zoom out the map view.
- ▶ **Mode**
  - ▶ **3D Map**: Draw the map in perspective (3D mode).
  - ▶ **Follow user mode**: Automatically move the map where the user is located and orients the map in the direction of travel.
  - ▶ **Distance mode**: Allows you to calculate the distance from the point of activation to the central red viewfinder; the distance is shown in a special box.
- ▶ **Find**
  - ▶ **Find address**: Moves the map to the point corresponding to the entered address.
  - ▶ **Search geocaches**: Find geocaches on the [www.geocaching.com](http://www.geocaching.com) web site near the point indicated by the red viewfinder in the center of the map.
- ▶ **Viewfinder**
  - ▶ **Info coordinates**: Provides address information relative to the location indicated by the red viewfinder in the center of the map.
  - ▶ **Navigate with Apple Maps**: Opens the Apple Maps navigation function on the path created from the user current location to the point indicated by the red viewfinder in the center of the map.
- ▶ **Show**
  - ▶ **Show AR bounds**: Shows or not the circumferences of minimum and maximum distance of [Augmented reality](#) view.

## Status bar

This status bar contains the following information:

- ▶ Coordinates (latitude and longitude related to the red viewfinder in the center of the map)
- ▶ Map type

## Here functional button

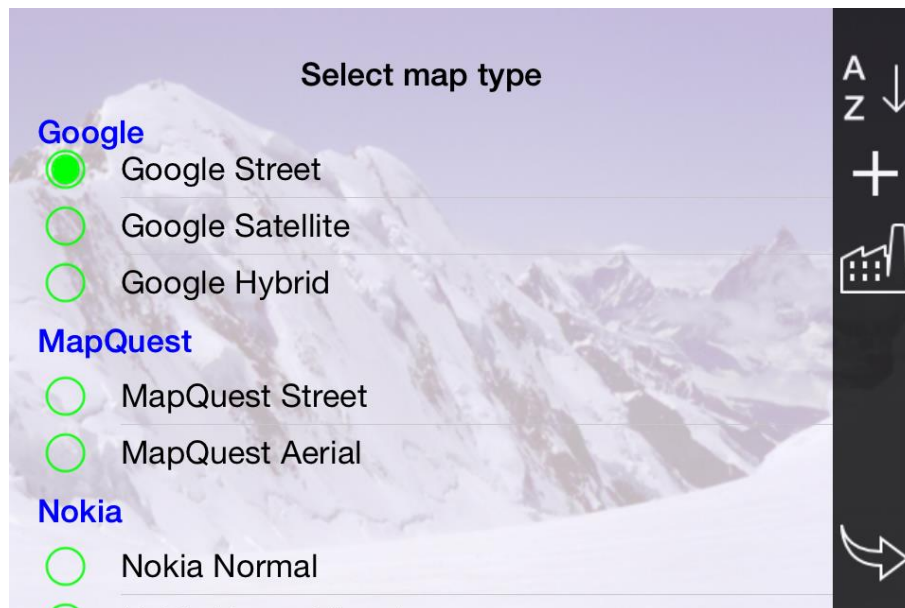
This button appears if necessary in the lower left.

The *Here* button is displayed when the user simulates the current position in a location different from the real one (see [Settings](#)).


When simulating a position it displays icons of the summits as if you were in the place of the simulation (position + altitude).

The *Here* button is used to end the simulation and return to the position detected by the GPS.

## Map choice



The map type can be changed according to the needs of the moment.

To change the map type it is enough to tap on the icon  in the page [Map](#).

The page shown here to the left appears; it contains the list of all available maps.


The map marked by a green solid dot is the currently selected one. To choose a different one it is enough to tap on the


appropriate line.


The list of the maps can be sorted by tapping on the icon ; possible sorts are by:

- ▶ Manufacturer.
- ▶ Type.

The yellow grouping sections change accordingly.

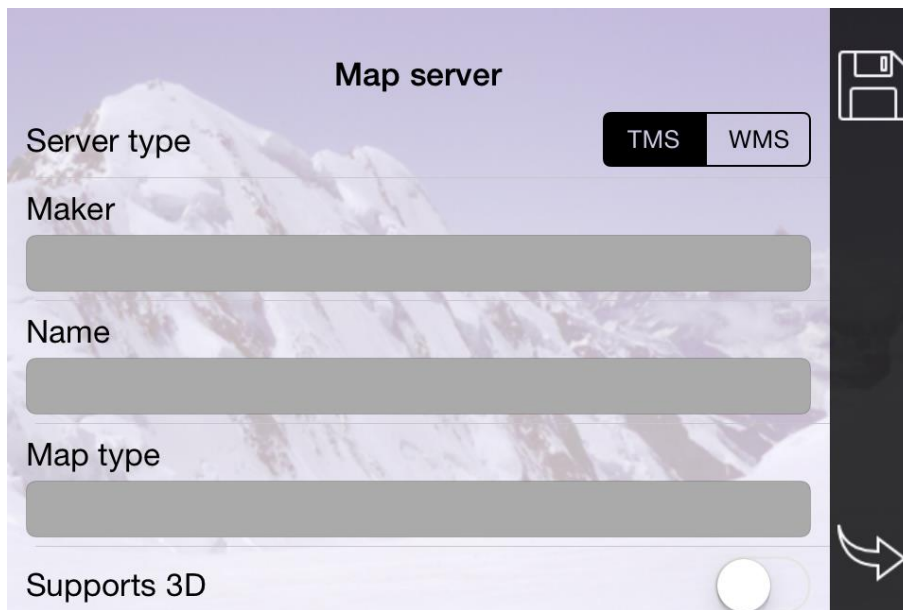
To add a new map tap on the icon .

To restore the factory settings, press the icon ; **attention** because the new server entered will be deleted.

To cancel the selection of a new map, tap on the icon .



## Add a new map



**Map server**

Server type TMS WMS

Maker

Name


Map type

Supports 3D ☐

In this page you can enter the characteristics of the new *map server*.

Must be specified:

- ▶ The map server type: TMS or WMS.
- ▶ The map provider.
- ▶ The map name.
- ▶ The map type (street, topographic, hybrid, etc..).
- ▶ If supports 3D visualization.
- ▶ If it is an additional overlay, i.e. if the underlying default vector map should however be drawn.
- ▶ The URL of the server (eg: "http://tile.openstreetmap.org/{z}/{x}/{y}.png").
- ▶ The description of the license to display on the map.

To confirm the information tap on the icon .

To cancel the insert of the new map, tap on the icon .

## Summits list


N. 188	<input type="text"/>	Annulla
<b>Ara di Palazzo</b>		
41,923684°N	12,945729°E	582 m 10,5 km 114° 
<b>Cima Casarene</b>		
42,167988°N	12,906006°E	1.181 m 23,8 km 15° 
<b>Cima Castiglione</b>		
42,178627°N	12,887338°E	693 m 24,6 km 11° 
<b>Cima Freddo</b>		
42,132720°N	12,901370°E	1.005 m 19,9 km 17° 
<b>Cima Molia Capetto</b>		
42,124611°N	12,907733°E	921 m 19,2 km 20° 
<b>Cima Rovara</b>		
42,180217°N	12,876051°E	656 m 24,6 km 9° 

This page displays a list of all the summits surrounding the user's current location (or the simulation position) within two radius (minimum and maximum) defined in the left toolbar of the page [Augmented reality](#).

Each element contains:

- ▶ Name of the summit
- ▶ Latitude
- ▶ Longitude
- ▶ Altitude
- ▶ Distance
- ▶ Direction


The distance and direction are related to the current position (or the simulation position).

On the right of each element is present the icon . By tapping this icon the corresponding [Summit form](#) is displayed.


On the right of the list there is a [vertical toolbar](#) that allows you to choose the list order criteria.

On the top there is a box where you can type a filter criteria to apply on the elements of the list (*filter function*).

### Right vertical toolbar

The vertical toolbar on the right allows you to determine the sort order of the list with the icon ; the criteria are:

- ▶ By name (ascending, A-Z).
- ▶ By altitude (descending, ie from highest to lowest).
- ▶ By distance (ascending, ie from closest to farthest).
- ▶ By direction (ascending).

The icon  returns you to the [Augmented reality](#) page.

### Filter function

In the upper left the number of the summits in the list is shown.

Immediately to the right there is a box where you can type a name (even partial) that will be used as a filter. The filter function is used to reduce the number of the summits in the list, reporting only those that contain in the name the value typed in the filter box.

To cancel the filter, tap on the adjacent field *Cancel*.

## Summit form



This page shows the data of a given summit.






They are:

- ▶ Name of the summit
- ▶ Longitude
- ▶ Latitude
- ▶ Altitude
- ▶ Distance
- ▶ Direction

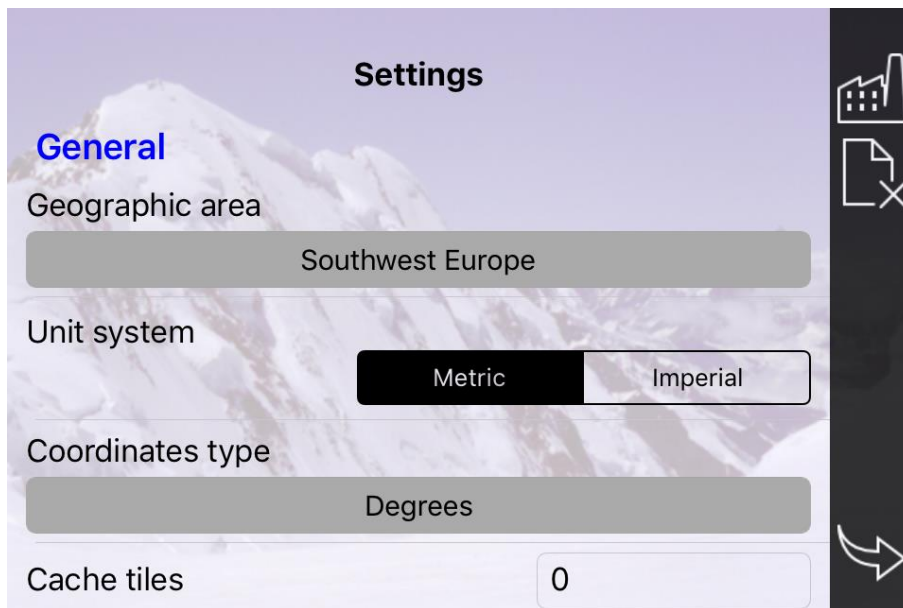
On the right there is a vertical toolbar.

### Right vertical toolbar

The vertical toolbar on the right provides some utility functions on the displayed summit; they are:

- ▶ Search on the internet for information regarding the summit via Google .
- ▶ It stores the summit to be displayed in the [Augmented reality](#) page with the balloon opened .
- ▶ It stores the summit to be displayed in the [Map](#) page with the balloon opened .
- ▶ It simulates the user's position at the top of the summit .
- ▶ It returns you to the [Summit list](#) page .

## Settings




This page allows you to change the settings of the app:

- ▶ Zone (geographical area); press on the button to select your area; make sure it is selected the desired one or you cannot view any summit.
- ▶ Units of measurement (metric or imperial).
- ▶ Coordinates type (degrees, deg-min, deg-min-sec).
- ▶ Show (on/off) the AR bounds on the map.
- ▶ Enabling or not the simulation of the user's location; If enabled, you can specify:
  - ▶ Latitude
  - ▶ Longitude
  - ▶ Altitude

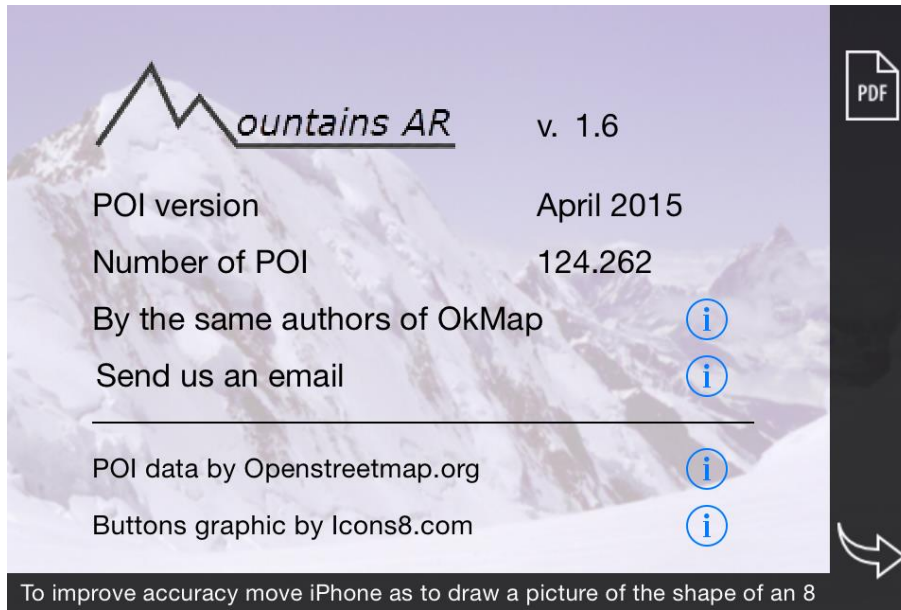
The simulation position can also be changed in the [Map](#) page and the [Summit form](#) page. Unlike the other pages, in the Map page is not possible to indicate the altitude of the place.

Use the icon  to restore factory settings.

Use the icon  to delete all downloaded map tiles and create new space. This will make slower the maps viewing.




## Information



This page shows some utility information:

- ▶ Name and version of the app.
- ▶ File version of the summits.
- ▶ Number of summits in the database.
- ▶ Links to useful sites.

Then icon  displays this User manual in PDF format.

The icon  returns you to the [Augmented reality](#) page.