2007

Basic settings of LR-software

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1. Table of contents

2. Preface

This manual is used to make basic settings and to have a start point for adjusting your LR system. Be careful, LR is very extensive and most settings can lead to a wrong result.
Only general functions can be explained here. For an exact tuning you need a remote station and that needs time and patience.
Basic software settings in this manual can be used step by step.
Because Histogram software is also partly shown directory views can be different. Histogramm is an additional software made by Daniel Verschueren!
Thanks to Gerald Ihninger who helped me writing this manual.

I wish you the best of luck.

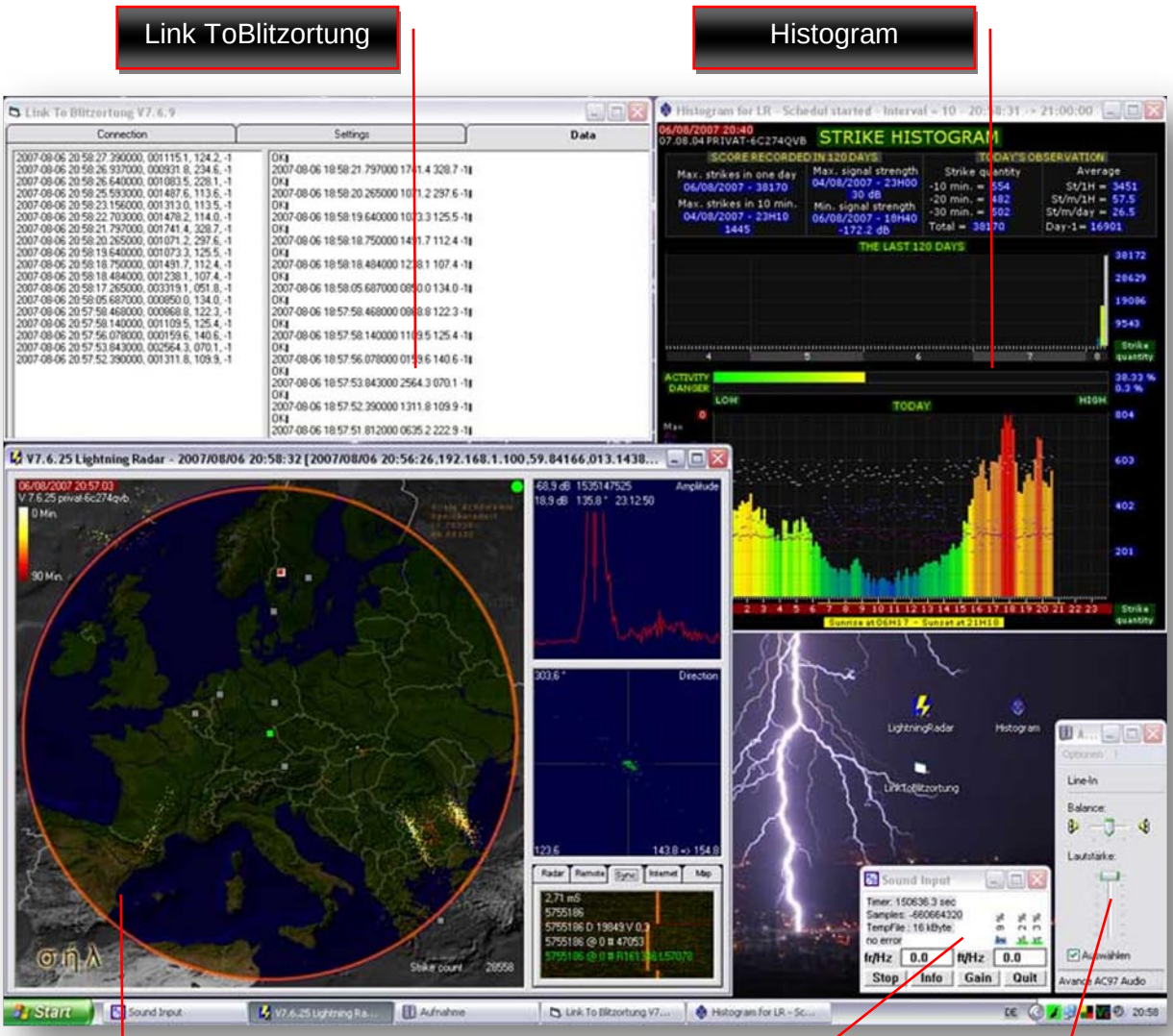
3. Software remarks

Download LR software from Frank Kooiman (older setup file) from
http://members.home.nl/fkooiman/lightning/index.htm#5
and e-mail Frank for the latest version fkooiman@home.nl
LR software: version 7.6.25
LinkToBlitzortung software: version 7.6.9

Run the setup program for LR and then replace the .exe with the newest version. Start LR and under the “MAP” menu enter your coordinates as the “local station” either as a decimal or as degrees / minutes / seconds. If the software is closed settings are saved.

Internet settings: TCP ports 4711 and 4712 must be accessible (firewall, hardware firewall). One port is needed to connect to other LR users and the second port to connect to Blitzortung.org.

4. General view of LR

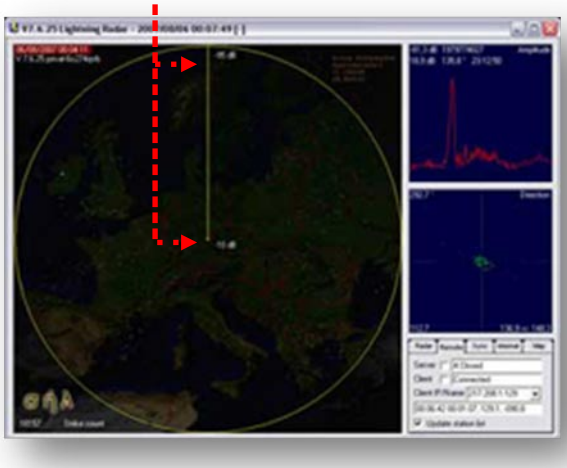


5. Software views of LR

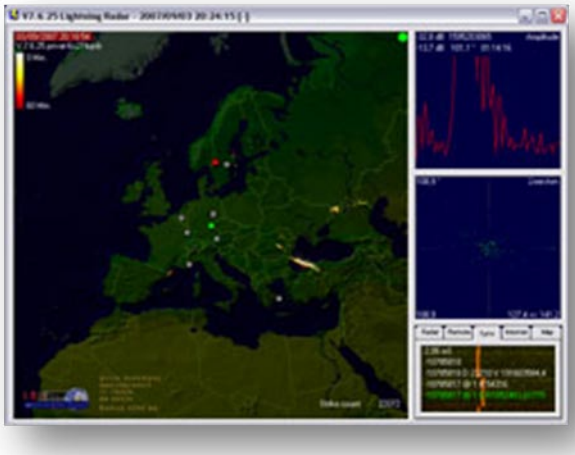
LR starts always in the radar view (picture 1). Click on the map with the left mouse button to go from the radar map to the strike map (picture 2) which shows the position of lightning strikes if you are connected to another LR user. Click on the map with the left mouse button to go from strike map to the histogram map (picture 3).

To see the calibration view (picture 4) you must select the strike map and choose setup-calib. To leave this click setup or gain.

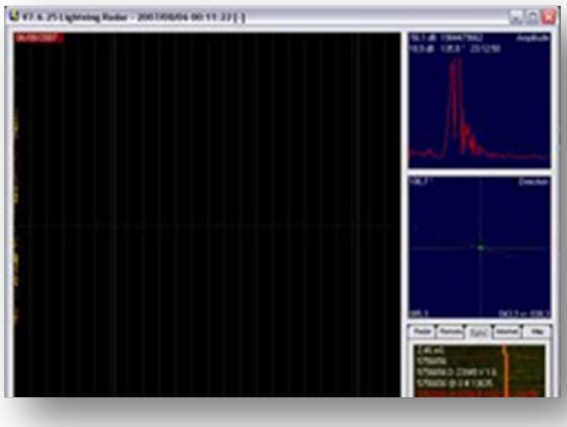
Picture1:	Radar map (here the values can be also changed)
Picture2:	Strike map
Picture3:	Histogramm view
Picture4:	Calibration view



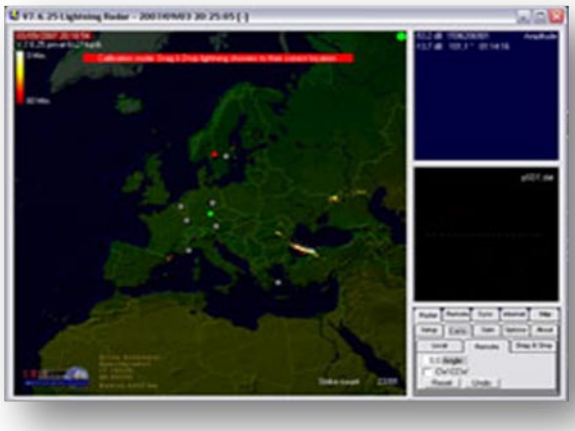
Picture 1



Picture 2

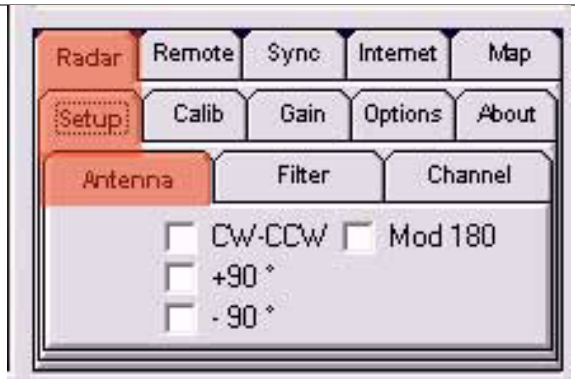
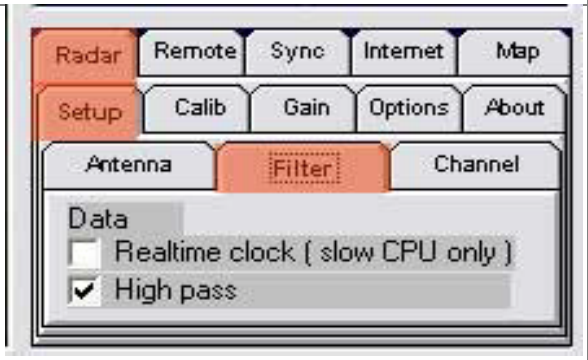
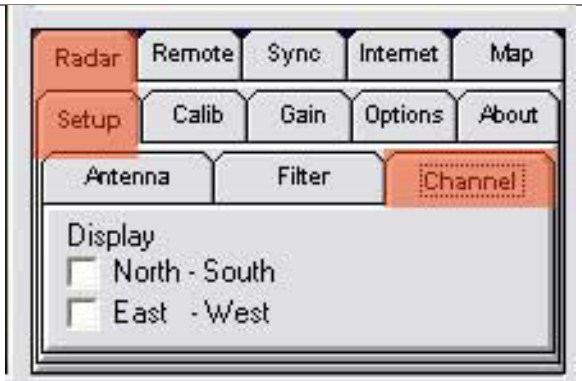
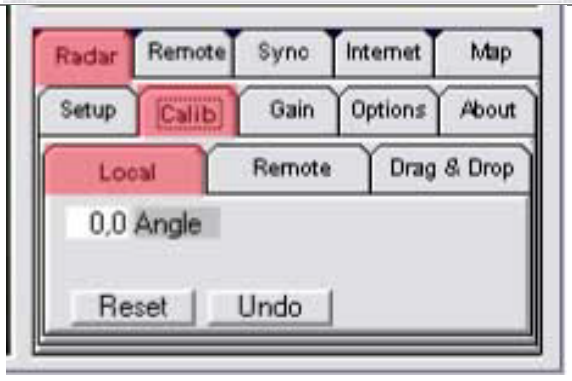


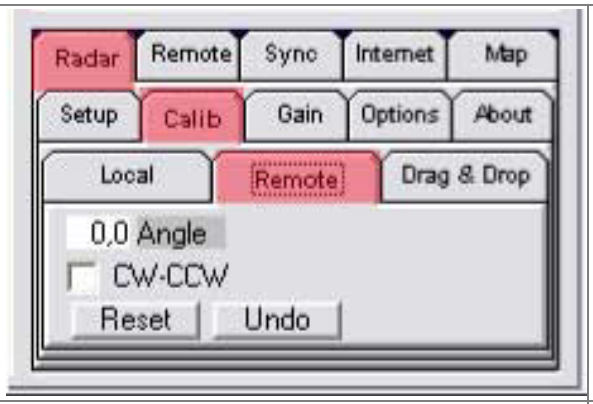
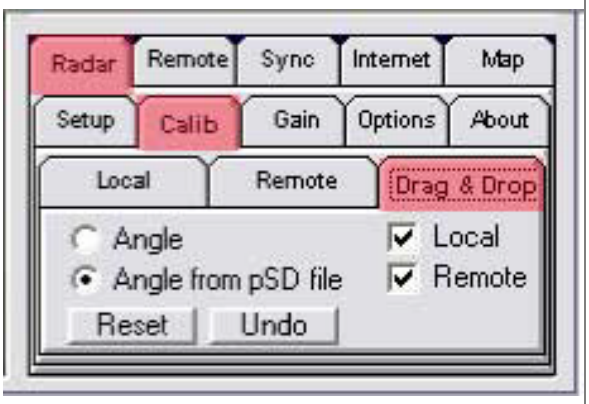
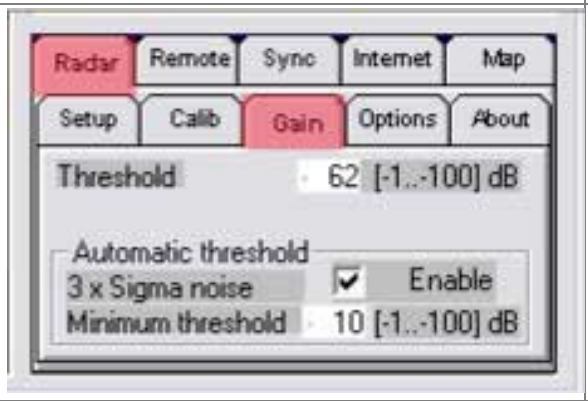
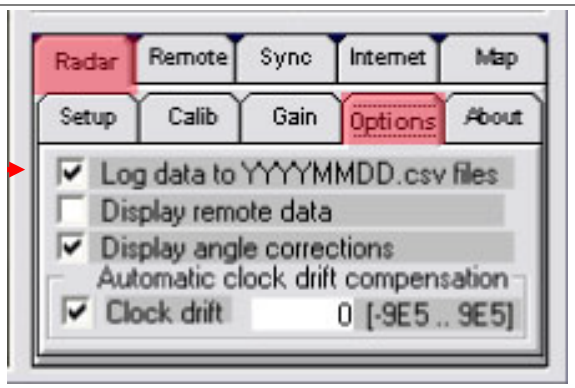
Picture 3



Picture 4

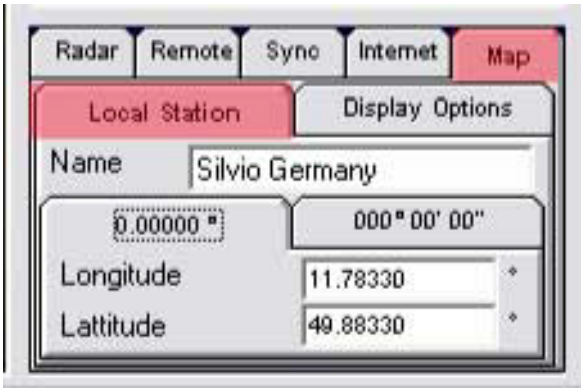
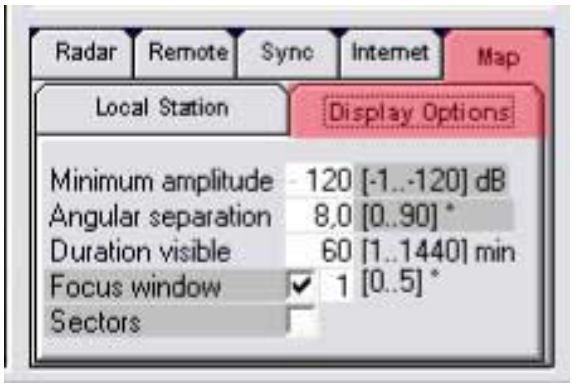
6. Basic settings of LR

Menü	Bild	Erläuterung
Radar **Setup** **Antenna**		**Select here:** No selection (System must built according to construction manual)
Radar **Setup** **Filter**		**Select here:** High pass
Radar **Setup** **Channel**		**Select here:** No selection
Radar **Calib** **Lokal**		**Select here:** No selection

Radar **Calib** **Remote**		**Select here:** No selection
Radar **Calib** **Darag&Drop**		**Select here:** Angel from pSD file Local Remote
Radar **Gain**		**Select here:** Threshold = **-** 62 Adjust value during operation! **Automatic is without function!!** **CPU load!!**
Radar **Options**		**Select here:** Log data to .csv file Display angle corrections Clock drift

Not necessary to check this option.

This option active the log file corrxxxxxxS.cvs where all CORRELATION are saved.
The XXXXXXXn.cvs are alway saved on the DATA folder !!! and all strike detected by the system are saved into this file - file used by HP !

Map **Local Station**		**Select here:** Enter your station name Coordinates with dot (.) e.g. **11.78330**
Map **Display Options**		**Select here:** Min amplitude = value(-120) Angular = value (8) Duration = value (60) Focus = value (1)

Map location. It must containe 5 decimals !

Now you have your basic settings of LR. Next step is detection of correct direction.

It is necessary to explane that the harware setings (chanel inversion and orientation) is very nice when all setings are good.
BTW, bad configuration can be adjusted by software into the RADAR-SETUP-ANTENNA and LOCAL ANGLE, but this correction is only applied in local use.

Data send to another user by the server are not rectified... and this can also made confusion and stress by other user that will use the local station.
Because, First it is necessary to find the correction angle of the station, and also see is the CW-CCW (chanel inversion) must be applied or not !
Thus, best is to setup the hardawre nicely to share the data proprely :-)

7. Understanding

7.1 Views and strike position

For your understanding!

Here you can see the detection view! I call it radar map.
Only the strike **direction** is shown here, not **the exact position!!**

This view is shown as single station!

Picture 5

Here you can see that a thunderstorm with lightning is in NW or SE direction. **See arrows!!**
An exact position of lightning can only be calculated with a remote station (second station)!!

To see this strike picture click into the radar picture!

In the radar map we have determined the direction, NW or SE. With the second station it is now possible to calculate exact position in the NE and show it in the strike map.

Picture 6

Another tip. In the strike map of LR each remote station is shown as square. The saved map or uploaded map shows the remote station as circle. Picture 4 shows squares and picture 6 is our saved picture with circles!

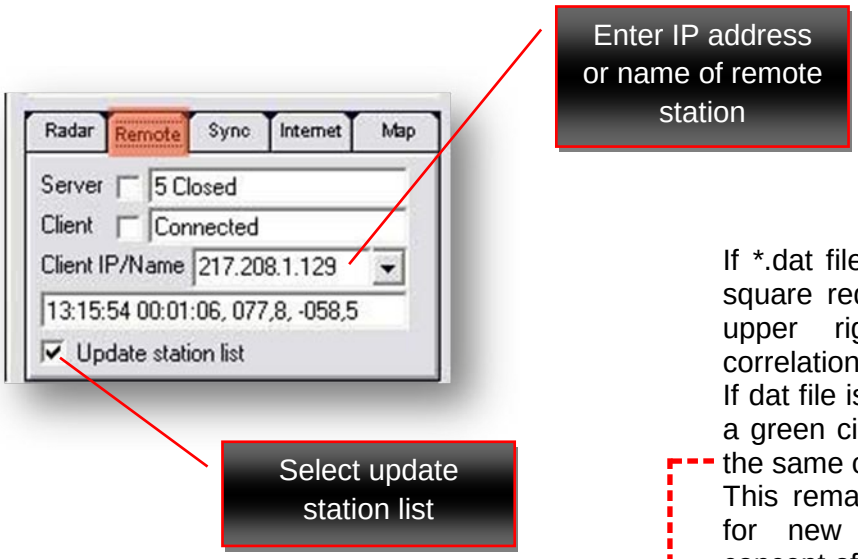
Picture 7

8. Accurate tuning of strike position

It is important to know that LR isn't a plug&play system. You need time and patience. After basic settings select one remote station and try to connect to it. Check if recording line-in of your soundcard is at maximum level.

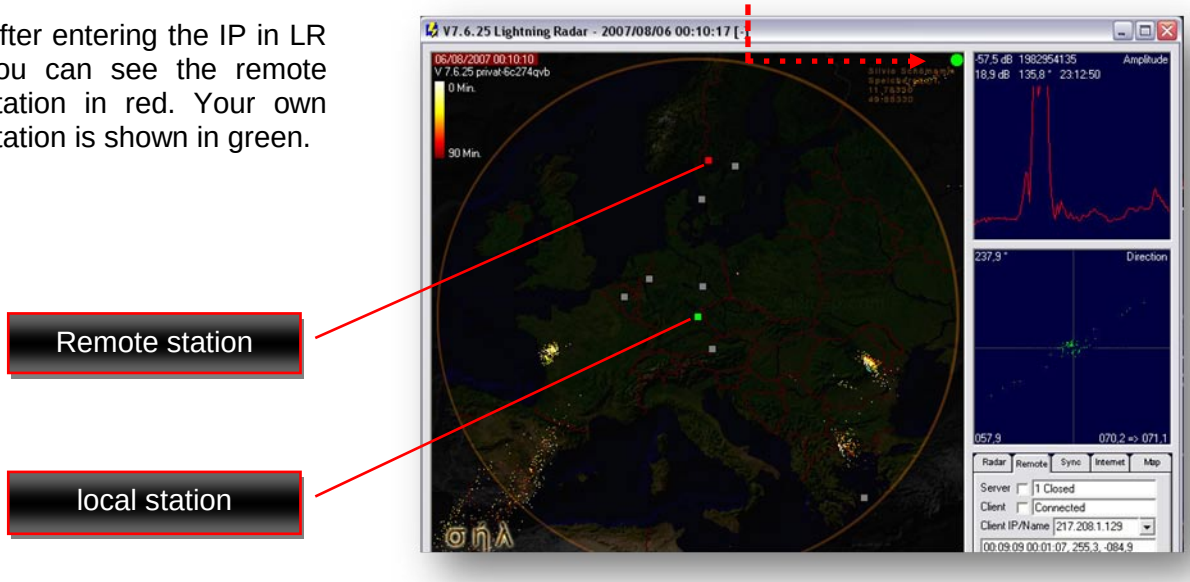
8.1 Connection to remote station

To connect to a remote station you have to know its IP address. Either you ask per e-mail for it or you are using the stationlist.dat from another LR user. Copy and paste IP from stationlist.dat and use it in LR under Remote->ClientIP/Name. In the stationlist.dat it is possible to save more than 20 remote stations and maximal 6 users can connect to the same remote station at same time.



If *.dat file is missign or bad, a square red icon is show at the upper right corner of the correlation map.
If dat file is good and/or present, a green circle icon is showed at the same corner.
This remark is very interresting for new user, because the concept of this process help new user to understand the mecanism to made a good map.

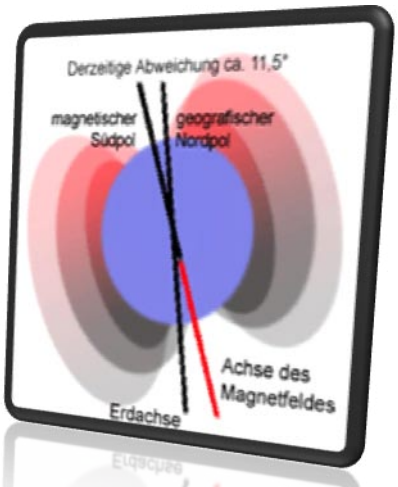
After entering the IP in LR you can see the remote station in red. Your own station is shown in green.



8.2 Antenna alignment with compass

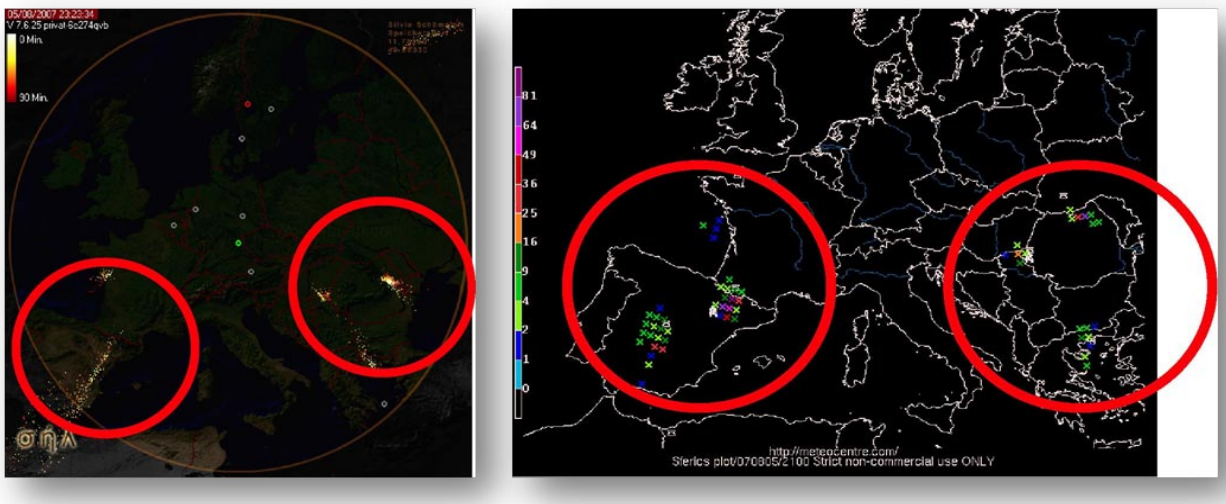
If you have built your antenna as shown in construction manual then adjust it. Do this with a compass and don't forget that magnetic north isn't geographical north.

The magnetic field of the earth isn't static, it is changing. Your compass shows to magnetic north and therefore there is a deviation. Currently, deviation between magnetic and geographical pole is about 0 to +2 degrees in Europe. This deviation angle is calles declination.



8.3 Reference map

If you have used the correct declination angle and your antenna shows to north then you can compare your strike map with a reference map.

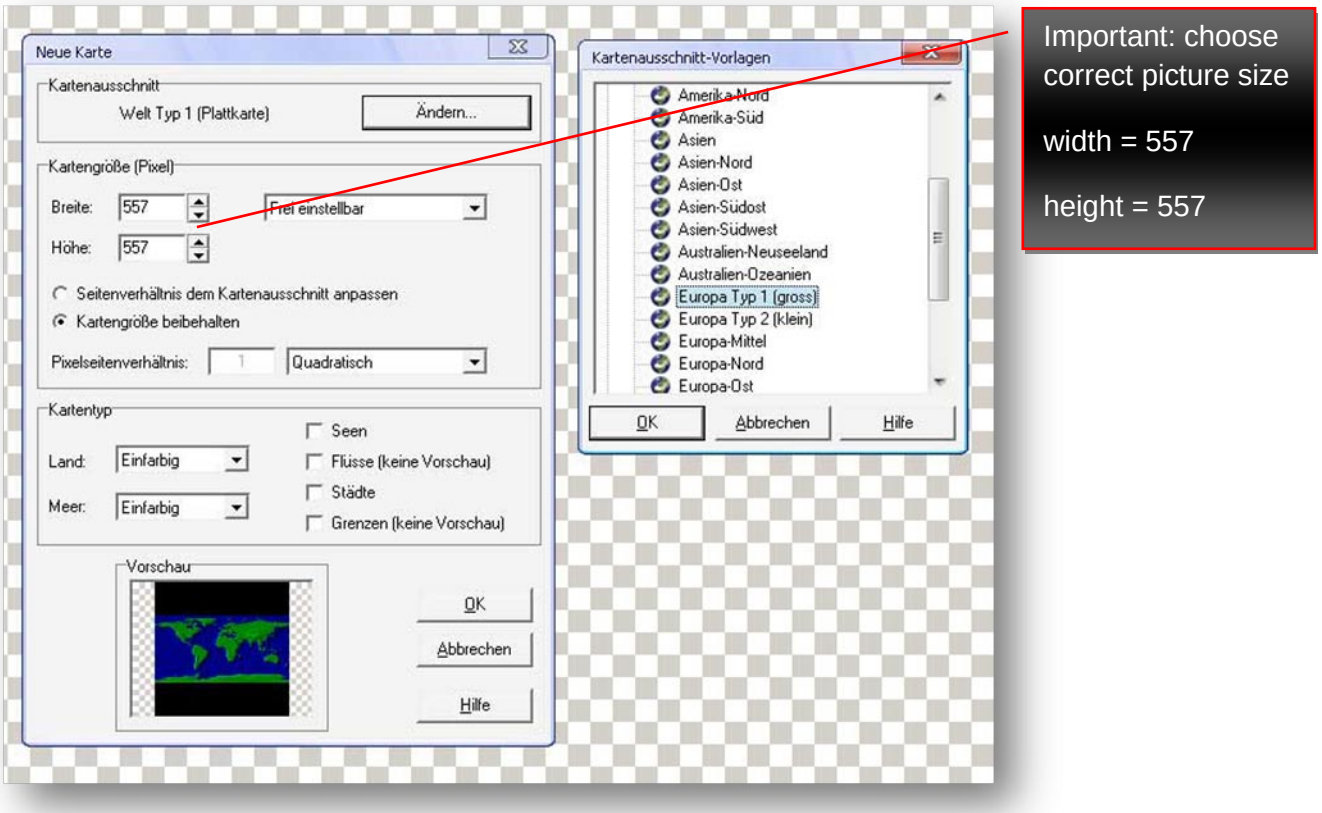


Referenzkarte: http://meteocentre.com/lightning/map_sfuk.php?time=0&lang=en&map=Europe

9. Build a map

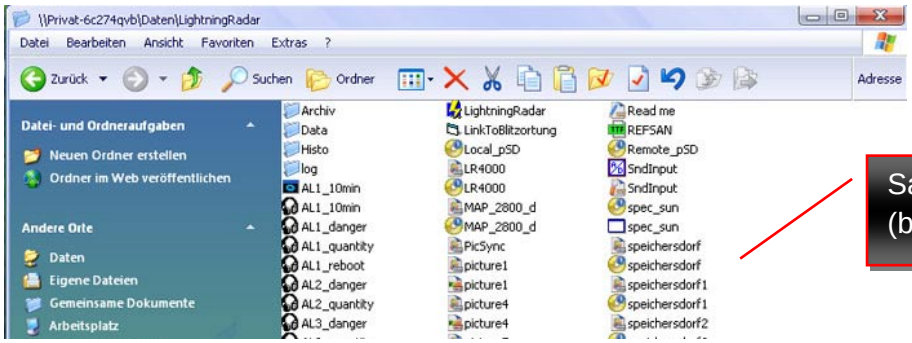
Create a map with MapCreator2. There is also a free version available.

MapCrator2: http://www.primap.com/de/index.html

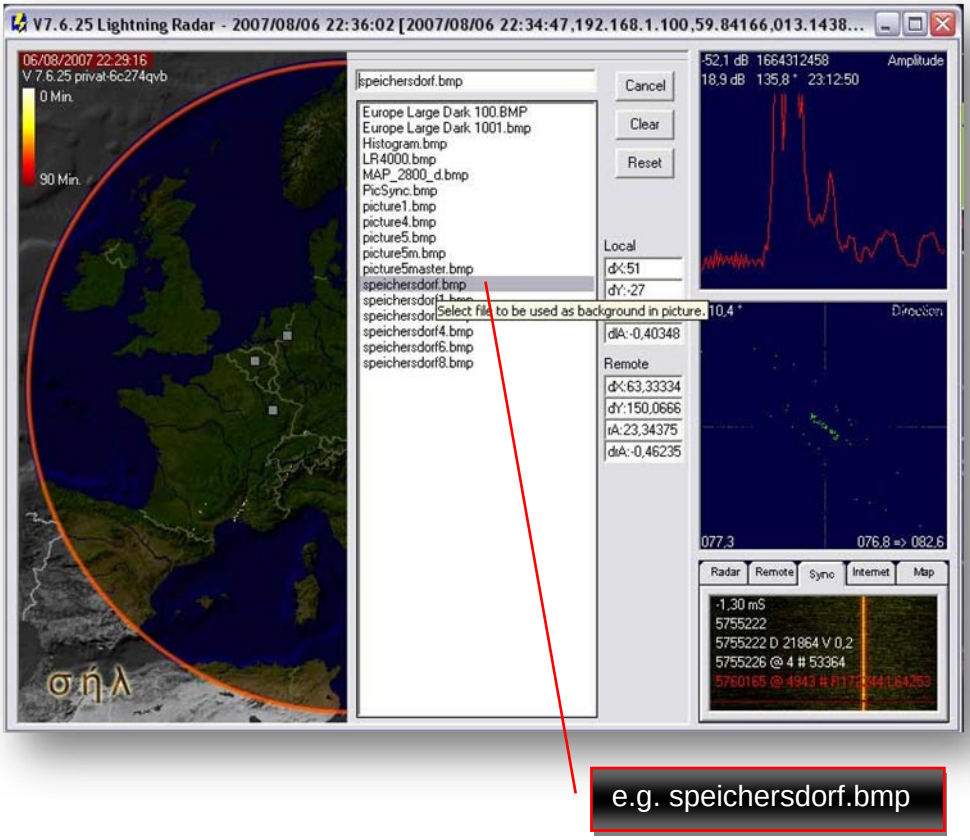


Don't forget to create the mapname.dat file. Do this with your editor and save it as .dat.

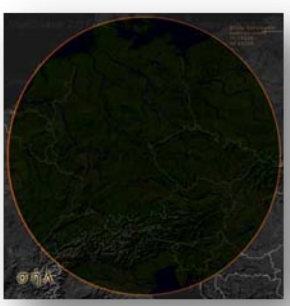
Your map and .dat file must have same filename!



To use different maps in LR click with right mouse button into your strike map and select any map.

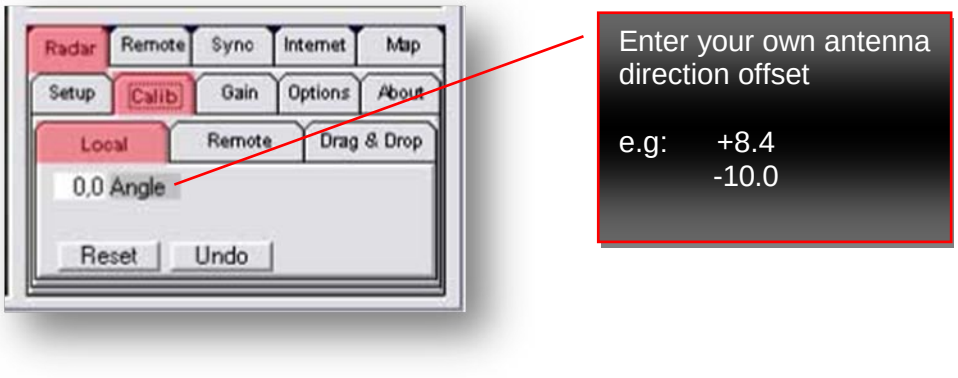


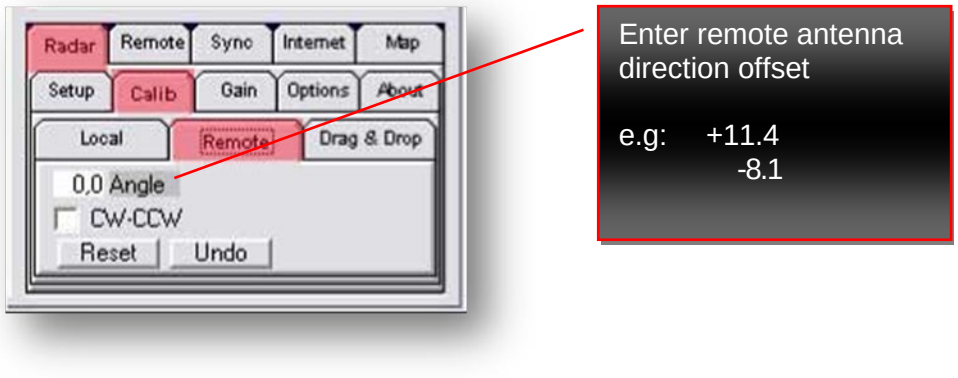
It is also possible to create several maps with different scale. Don't forget to create the .dat file!



9.1 Accurate strike tuning with remote station

If your strike is not showed at the correct position then try to change the remote antenna offset angle and your local antenna offset angle until the strikes are equal with your reference map.



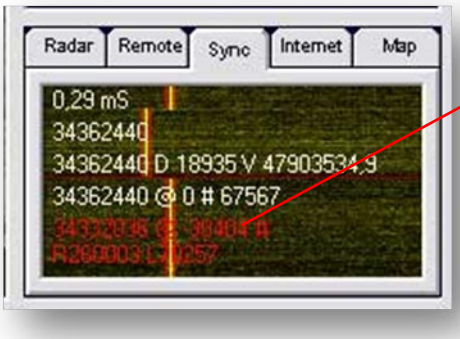


Select CCW setting only if remote station (antenna, soundcard) isn't correctly cabled! Ask the remote station user.

To find these settings can take some time. So please be patient! Ask other LR users about best fine tuning settings.

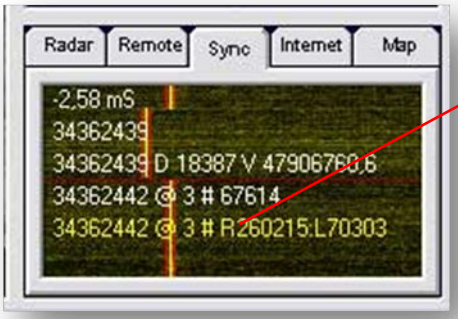
10. Further explanations

10.1 Sync



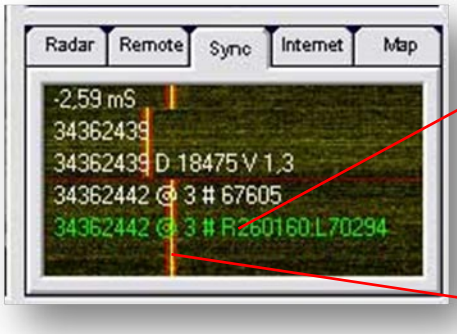
red:

strike is detected by the local or remote station



yellow:

strike is detected by local and remote station but not time synchronous



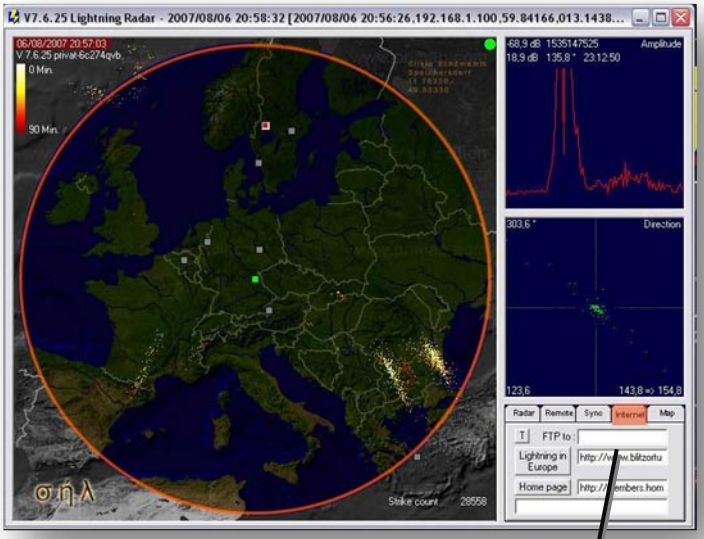
green:

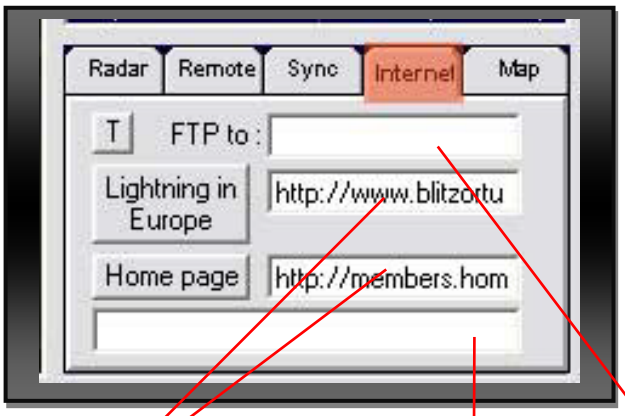
bothe stations have detected a strike within same time

vertical red-yellow-red line:

Synchronisation of clock drift, line should exact vertically und therefore select under Radar->Options „Clock drift“ for automatic setting

10.2 Internet





Enter an internet page of your choice to have fast access to it

Enter the name of your host to upload your data. If it is filled there is an automatic upload every 10 minutes using at first publish.bat and then publish.cmd.

In last field enter a text of your choice. This text is visible in your strike map (on top).

10.3 publish.bat und publish.cmd

If the field "ftp to" is filled with an address then every 10 minutes LR calls automatically publish.bat and after that publish.cmd (both files are in same directory as LR). If bpm2png.exe is also available in LR directory then bpm2png.exe converts your images into png before starting publish.cmd (radar map, strike map, histogram).

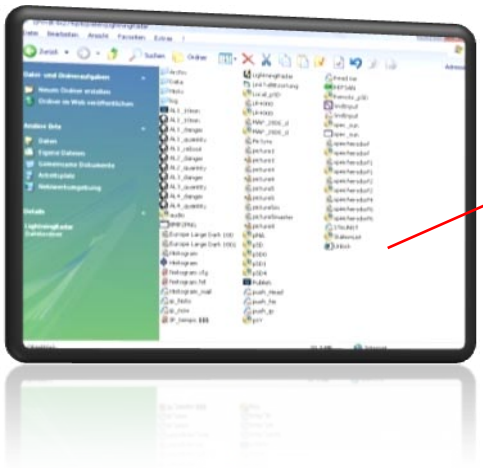
Content of publish.cmd

```
user                (User for your server)
password            (Password for your server)
binary
put "picture4.jpg"  (Pictures which should uploaded)
bye
```

publish.bat can be used to automate any processes before data upload.

Example publish.cmd: Start freeware graphic program IrfanView and convert picture4.bmp to picture.jpg with a qualityt of 70%. This reduces upload traffic to 10%.

start C:\Programme\IrfanView\i_view32.exe C:\Programme\LightningRadar\picture4.bmp /jpgq=70 /convert=C:\Programme\LightningRadar\picture4.jpg



publish.cmd and publish.bat should be in LR directory

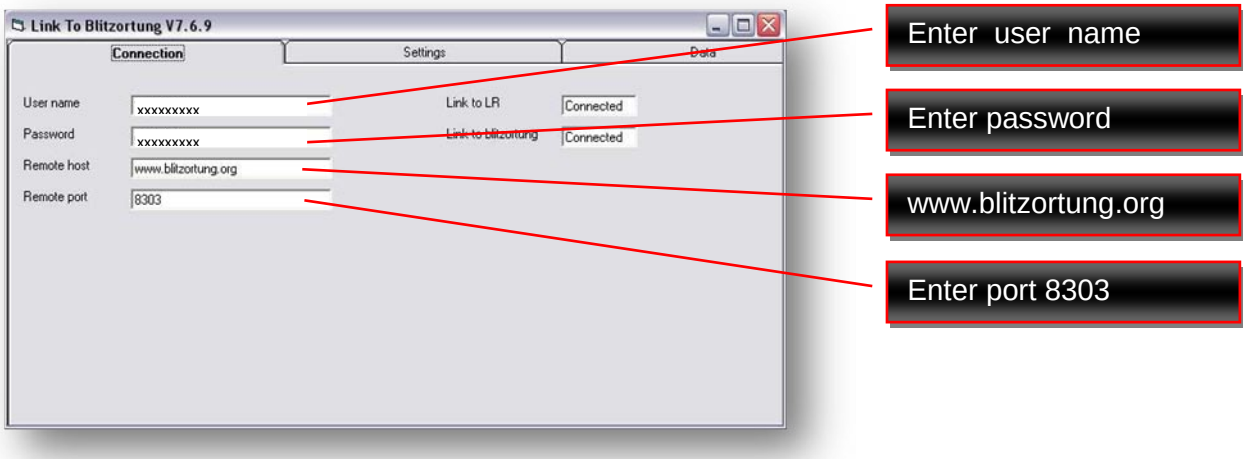
This path is only an example!

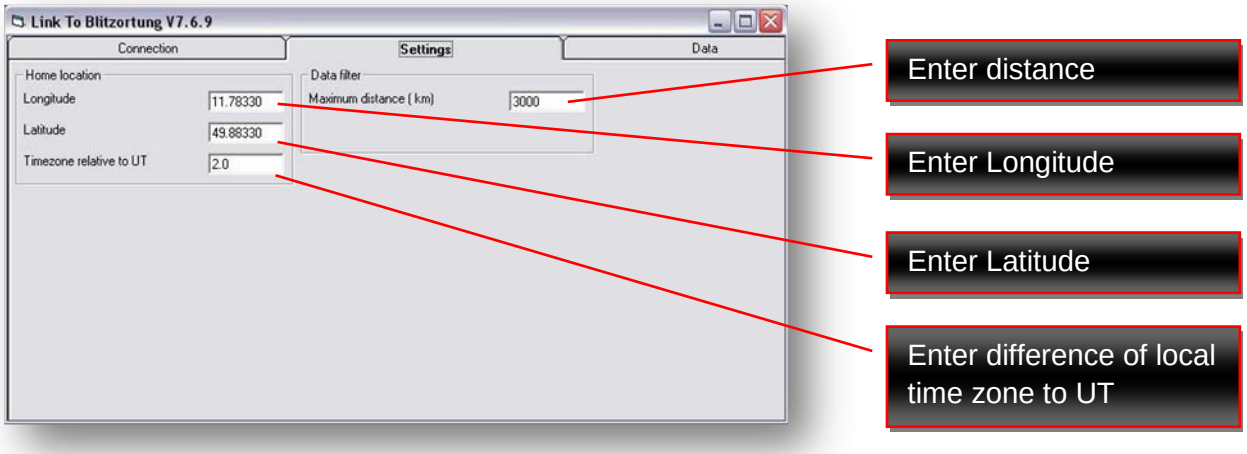
10.4 Link To Blitzortung

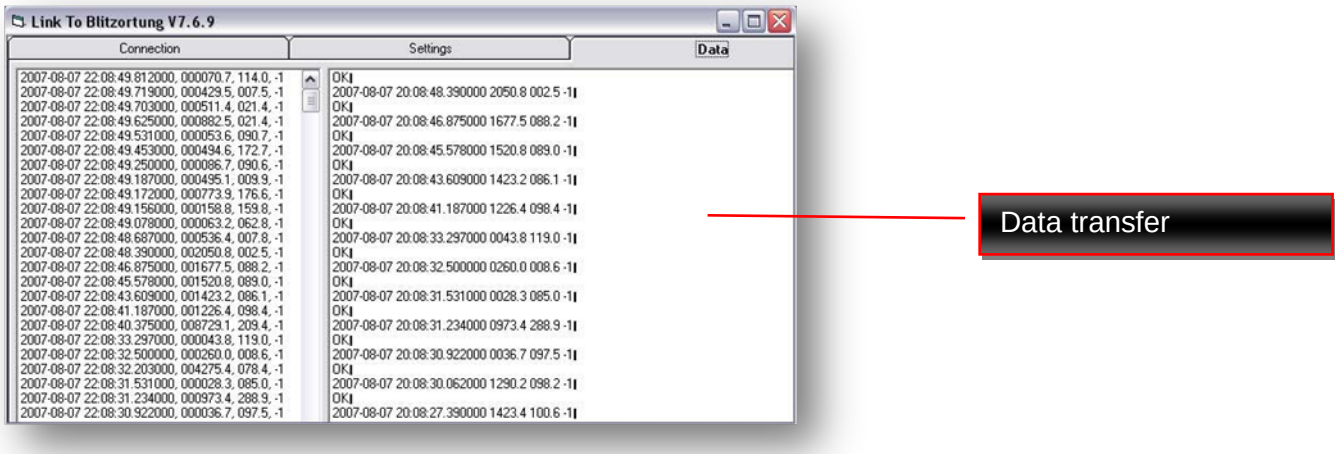
Acquire a username and password for Blitzortung from Egon Wank blitzortung@gmx.org

Install LinkToBlitzortung and enter your username and password under “settings”. The coordinates should be automatically completed from the values in LR. Enter difference between UTC and local time. If the software is closed settings are saved.

Download latest program from your personal login page of Blitzortung.org







11. Links

Frank Kooiman:

Web: http://members.home.nl/fkooiman/lightning/index.htm

Mail: fkooiman@home.nl

Daniel Verschueren:

Web: http://users.edpnet.be/DanielV37/Detecteur3/

Mail: DanielV37@edpnet.be

Gerald Ihninger (wettersat):

Web: http://members.inode.at/576265/

Mail: Gerald.Ihninger@inode.at

Building description (with images) of Lightning Radar is here available !

LR Forum:

Web: http://foudre.chasseurs-orages.com/index.php

Blitzortung:

Web: http://www.blitzortung.org/

Egon Wanke:

Web: blitzortung@gmx.org

Lightningviewer

Web: http://www.blitzortung.org/index.php?station=2&mode=4&map=9&lang=e

Boltek:

Web: http://www.boltek.com/

Silvio Schömann

Web: http://vollkugel.vo.funpic.de/

Mail: silvio.schoemann-fla@gmx.de