

MT-SATELLITE RADAR Manual

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I Installing the System

I.1 System components

MT-Satellite Radar requires the following components

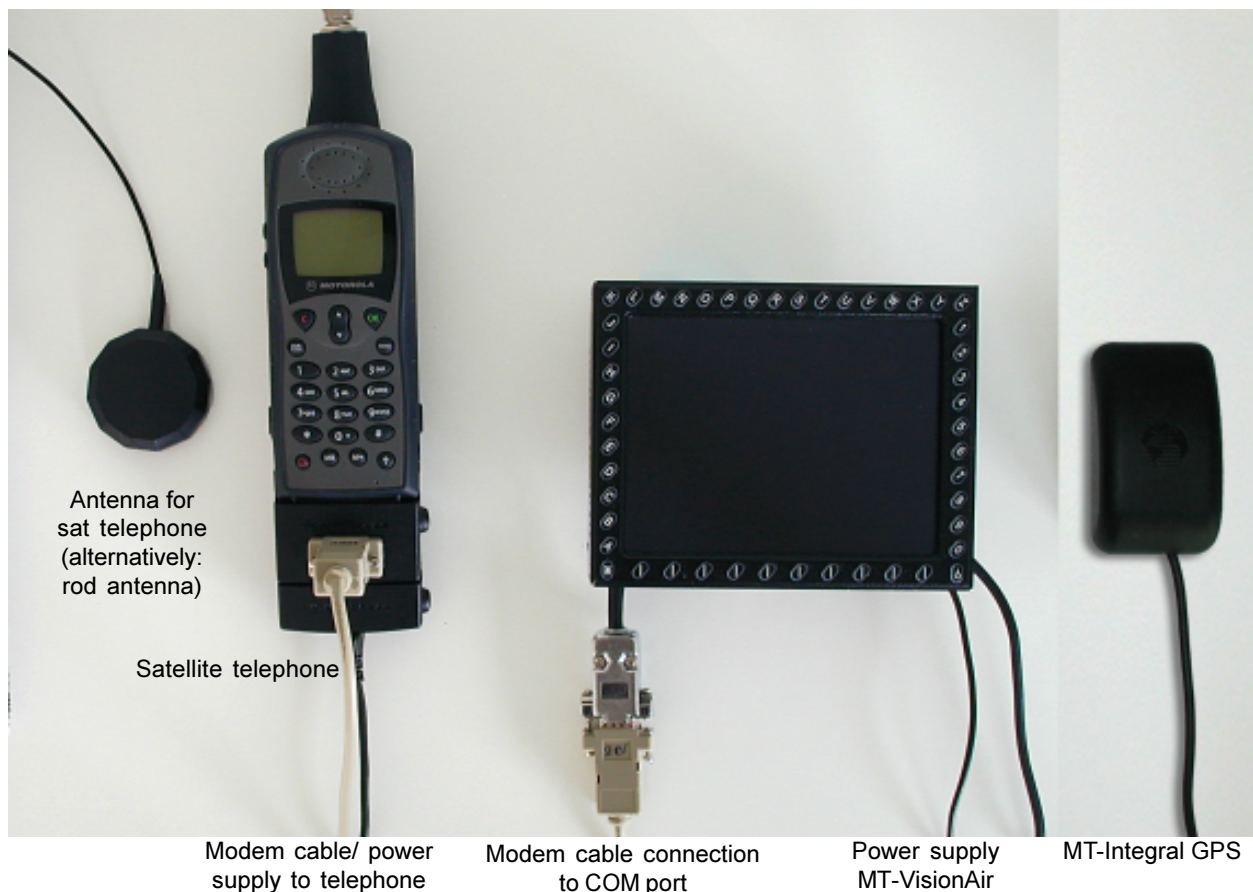
Hardware

- MT VisionAir with ComPort for data transmission
- GPS receiver (recommended MT Integral GPS) with antenna
- Satellite telephone with modem kit, data transmission cable and antenna

Software

- MT-Satellite Radar presentation software
- Access to DWD weather data (PCMET access)

Block diagram



The system components must be correctly assembled:

For connecting power and GPS to MT-VisionAir, please refer to the main manual. For connecting the antenna, modem kit and power supply to the satellite telephone, see the respective instruction manuals.

Use the standard modem cable as provided to connect the modem to the intended and thus marked COM port on the MT-VisionAir device.

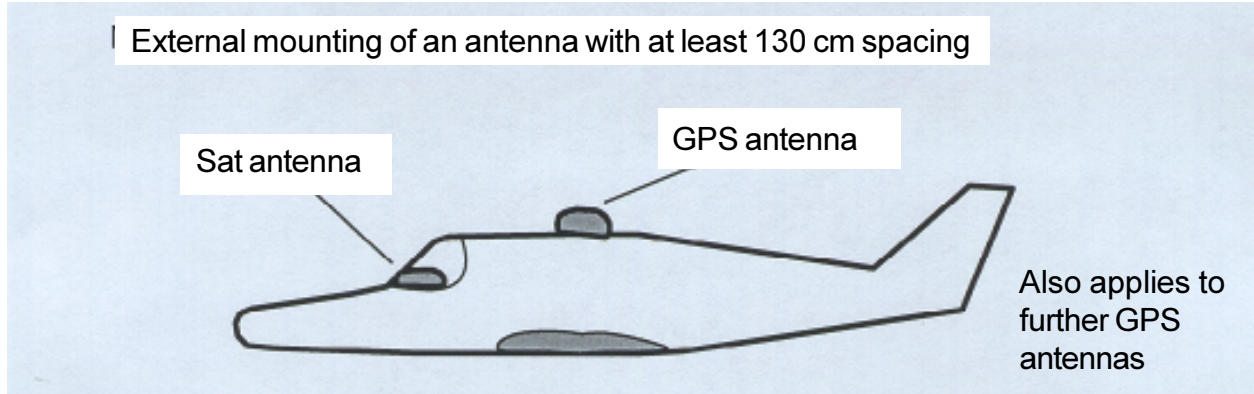
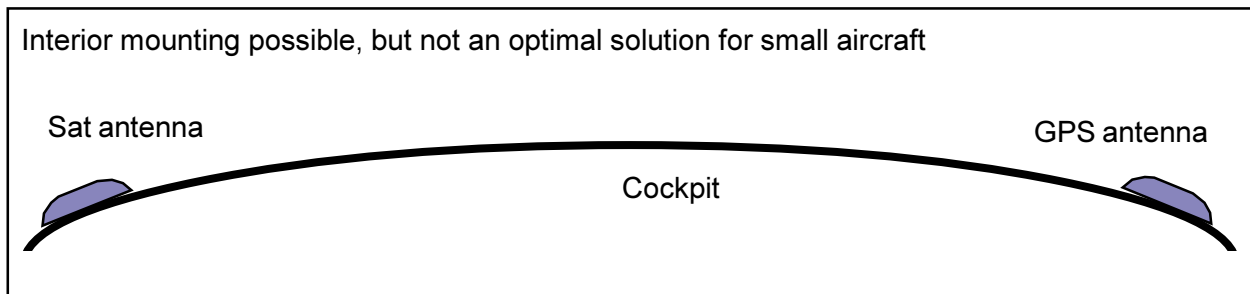
I.2 Antenna configuration for interference-free operation

The antenna of the satellite telephone must be mounted at least 110 cm from a GPS antenna. Since this transmitter-receiver operates in the same bandwidth, interference would otherwise be caused. Most commonly, if the antennas are too close together GPS reception will be lost during the download phase.

Test values:

Spacing	40 cm	100 cm	130 cm
Reception	Permanent interference of GPS during download	Temporary GPS interference during download: e.g. Sat falls from 7 to 4 or occ. below 4 (no pos.)	Virtually no interference. Occasional but rare GPS malfunction possible

Examples of arrangement with minimum spacing:



Another solution:

Mount one antenna on the dashboard, the other – if applicable – at the top of the rear window (Cessna). This method of installation achieves a minimum spacing of 130 cm.

Note: At this point it should be emphasised that interference to GPS reception or other on-board electronic devices due to a satellite telephone cannot be fully ruled out (see also AC-20-138). Conversely, the board electronics may impair the use of the satellite telephone. We therefore recommend testing critical electronic devices when the satellite telephone is switched on, both on the ground and in a test flight.

I.3 Operating the satellite telephone

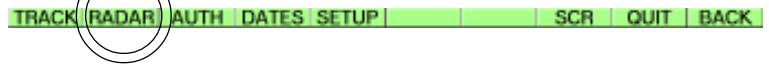
Please connect the telephone and MT-VisionAir by means of the modem cable. Make sure there is a power supply to the telephone (aircraft electrical system).

Disabling the PIN code

In the case of standard satellite telephones (e.g. iridium) the security code can be disabled, so that you merely need to switch on the telephone. No further input is necessary.

I.4 Authorization for downloading weather data

1. Switch the device on and confirm with
 ✓ **AGREE**
2. Select
 ✓ **AUX**
3. Access MT-Satellite weather radar with
 ✓ **RADAR**



Before you can download radar data from the German Weather Service (DWD) you must obtain **authorization**.

✓ **AUTH**

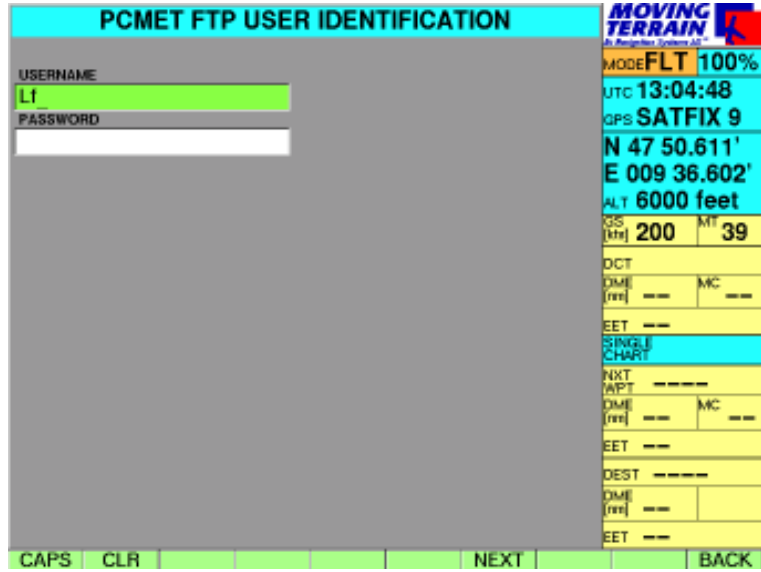


This will take you to the **PCMET FTP Authorization page**, where you can enter your access data, i.e. **user name** (starting with **Lf**) and **password**. These will be assigned by the DWD (upon application). It is important to distinguish between **capital and small letters**.

To enter a **capital letter** press
 ✓ **CAPS**
 and **then** respective **letter key**.

Press
 ✓ **CLR**
 to **delete** the last letter you entered.

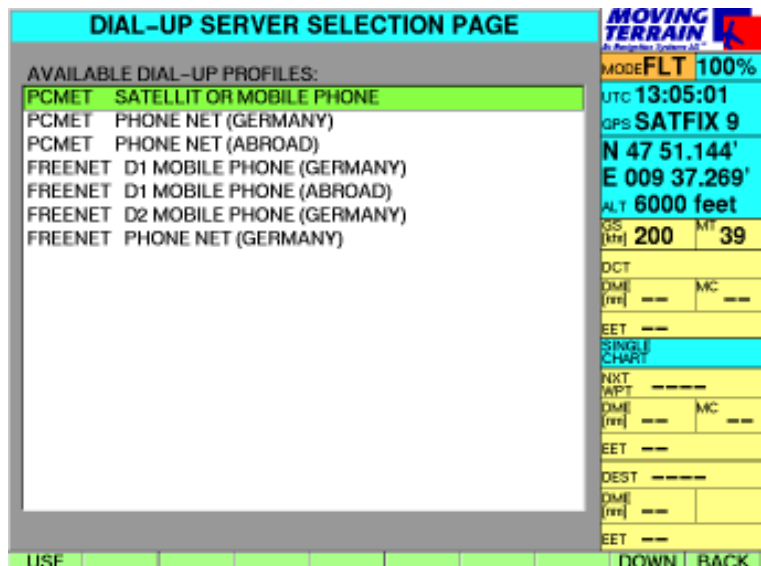
Press
 ✓ **NEXT**
 to alternate between the USERNAME and PASSWORD boxes.



When you leave this page with
 ✓ **BACK** both entries will be saved automatically.
 You will not need to enter them in future.

The ✓ **AUTH** ley will only appear if the DWD rejects your **authorization** and you must correct your **data**.

I.4 Selecting an ISP

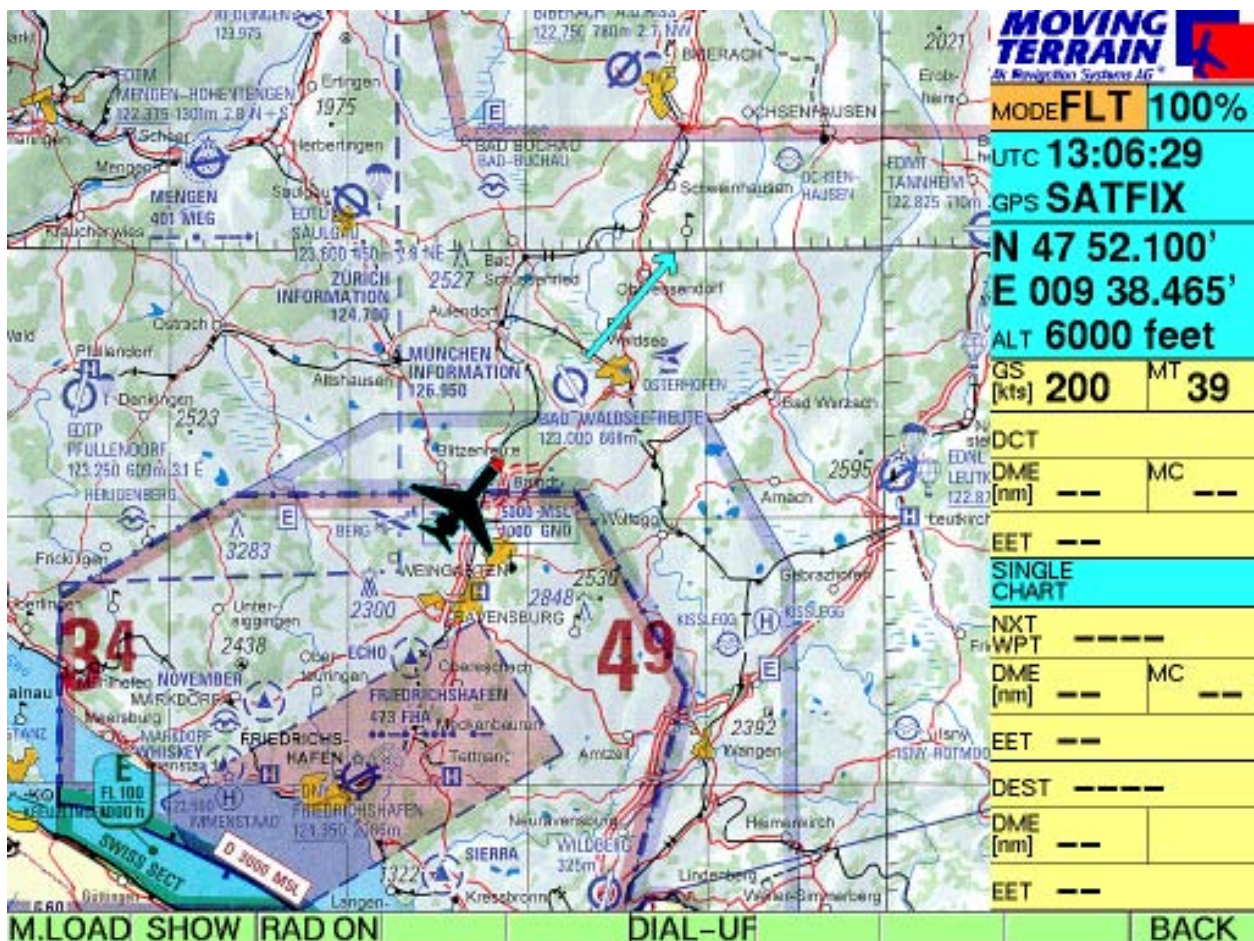


Back in the radar menu, the respective dial-up number can be entered with the DIAL-UP key. By default the DIAL-UP number of the DWD is set for satellite telephones or GSM cell phones. Should you wish to obtain the data from the fixed network by means of a modem, use the UP/DOWN key to select the dial-up number to PHONE NET (GERMANY) and confirm with USE. The FREENET entries function only with the respective networks on GSM cell phones.

II Mode of Operation of MT-Satellite Radar

II.1 Switching to radar mode

- Switch on the device and confirm with
 - ✓ **AGREE**
- Select
 - ✓ **AUX**
- Access MT-Satellite weather radar with
 - ✓ **RADAR**



- ✓ **M.LOAD** Manual download of radar data
- ✓ **SHOW** Displays radar data that has already been downloaded (see History). Press the same key again, now
 - ✓ **HIDE** to hide weather layer
- ✓ **RAD ON** enables the automatic download procedure every 15 minutes Press the same key again, now
 - ✓ **RAD OFF** to disable automatic download.
- ✓ **SHOW** Displays weather radar data you have already loaded on your MT-VisionAir

Please note:

The keys are marked with the respective **function** to be performed.
 The **status** is shown in the small green window at the bottom left of the screen.

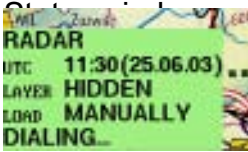
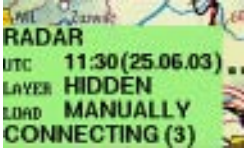
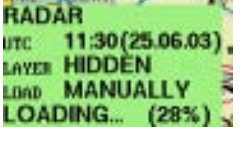
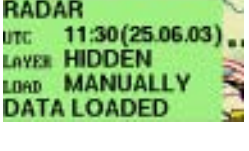
II.2 Download

II.2.1 Manual mode

Enables an immediate one-time download of weather data, e.g. at the start of the weather briefing.

✓ **M.LOAD** **no further input required thereafter!**

The download process in detail:

Dial-up		Time and date of data
Connection		Figure in brackets relates to specific connection mode
FTP logged in Connected to server		
Loading Data being downloaded		% progress in brackets
Data download complete		

The download has been successful and all data will be displayed on the chart.
 The connection will be automatically released!



If no precipitation information is displayed, there are two possible reasons:

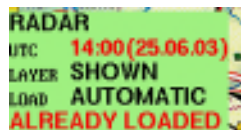
1. Layer is still hidden (Status: HIDDEN). Solution: press ✓ **SHOW**.
2. No precipitation was recorded for the area covered by the chart (Check the status indicator: Layer SHOWN)



Download economy:

A time check of the data ensures that the same data record is not downloaded from the Internet twice. Not only does this produce unadulterated results (compare “History”), it also saves costs.

The time and date the data was downloaded is shown in the status window (UTC). If an attempt is made to load data that already exists on your hard drive, the time and date will appear red in the status window, together with the message ALREADY LOADED.



Note: Should the current data not yet be available on the server due to delays by the DWD, the connection to the server will be maintained for 30 seconds in order to avoid wasting time and money for a new dial-up.

II.2.1 Automatic mode (this mode is recommended by MT !)

Enables automatic download of weather data every 15 minutes without further input.

- ✓ **RAD ON**

The download process is the same as for manual download. The mode is shown in the status window under LOAD.



Important: The dial-up and selection process are both automatic. Telephone costs are thus incurred only for the actual download.

The automatic download can be aborted by

- ✓ **RAD OFF** (even if the status window remains visible).

II.3 Display

II.3.1 Precipitation intensity in the MT color scale

The traffic light colors enable clear recognition of hazard situations.

- green = in the clouds: coarse droplets of condensed moisture
beneath the clouds: little rain
- yellow = medium precipitation intensity
- red = strong precipitation, possible CBs
- blue = very strong precipitation, very active CBs, hail

II.3.2 Dedicated mode

The chart can be hidden for the purpose of viewing the radar without the chart:

- ✓ **VIEW (in basic map menu)**
- ✓ **MFD**

Fundamentals:

In-flight display is always TrackUP: The course is shown in light blue at the top.

Compass rose and (half) range shown on inner ring.

FMS information shown:

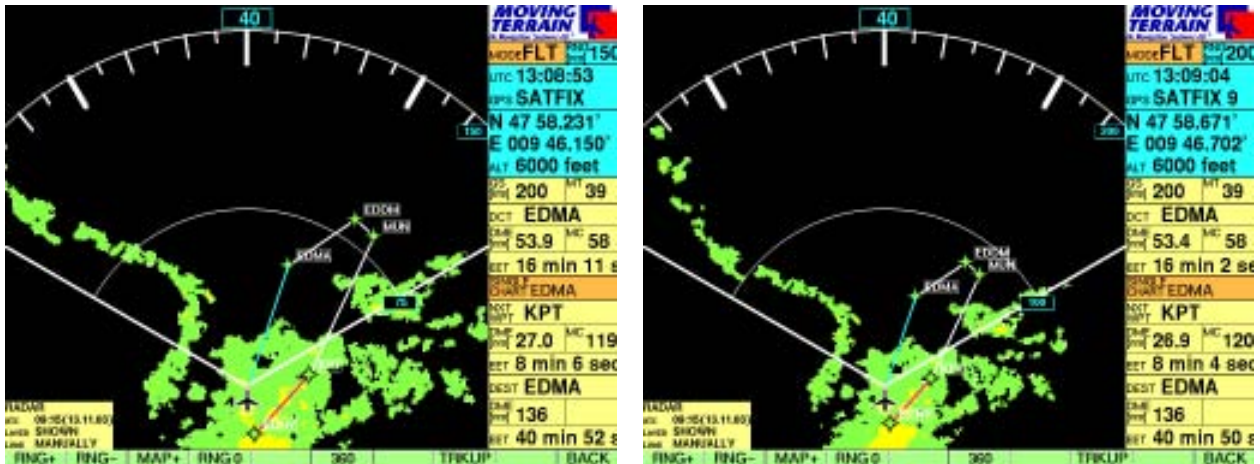
- Direct light blue
- Route white with waypoint idents
- Active leg magenta

Arc mode



75 nm -----> 100 nm

- ✓ **ARC** Displays off center. Advantage: improved forward view

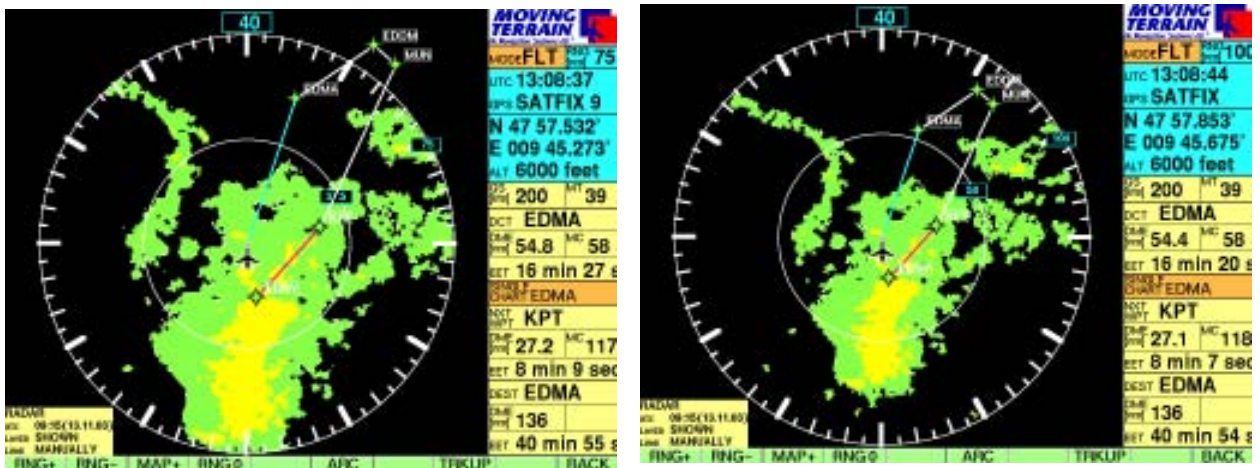


150 nm -----> 200 nm

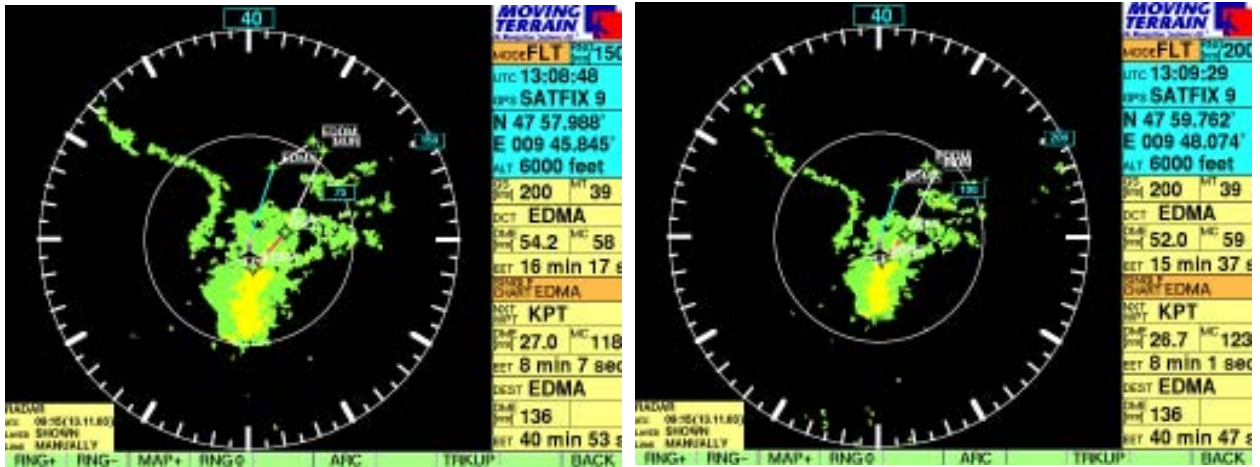
- ✓ **RNG +** Increases the range of data displayed
- ✓ **RNG -** Returns to the detailed display setting
- ✓ **RNG 0** Returns to the standard 100 nm setting
- ✓ **MAP +** Returns to the display with chart
- ✓ **BACK** Retrieves further functions, e.g. NAV page for flight planning, VIEW etc.

Center mode

- ✓ **360** Centered display: panoramic view + summary of surrounding weather conditions



75 nm -----> 100 nm



150 nm -----> 200 nm

II.3.3 Non-dedicated mode

Rainfall information is superimposed on the terrain chart:

✓ **MAP +**

Fundamentals:

Functions on all charts at various scales

=> both on base charts and single charts.

Weather data is displayed as a semi-transparent layer

=> chart information beneath it is still legible.

The weather layer can be hidden at the touch of a button (✓ **HIDE**) so that the full information can be read from the chart at any time.

Example:

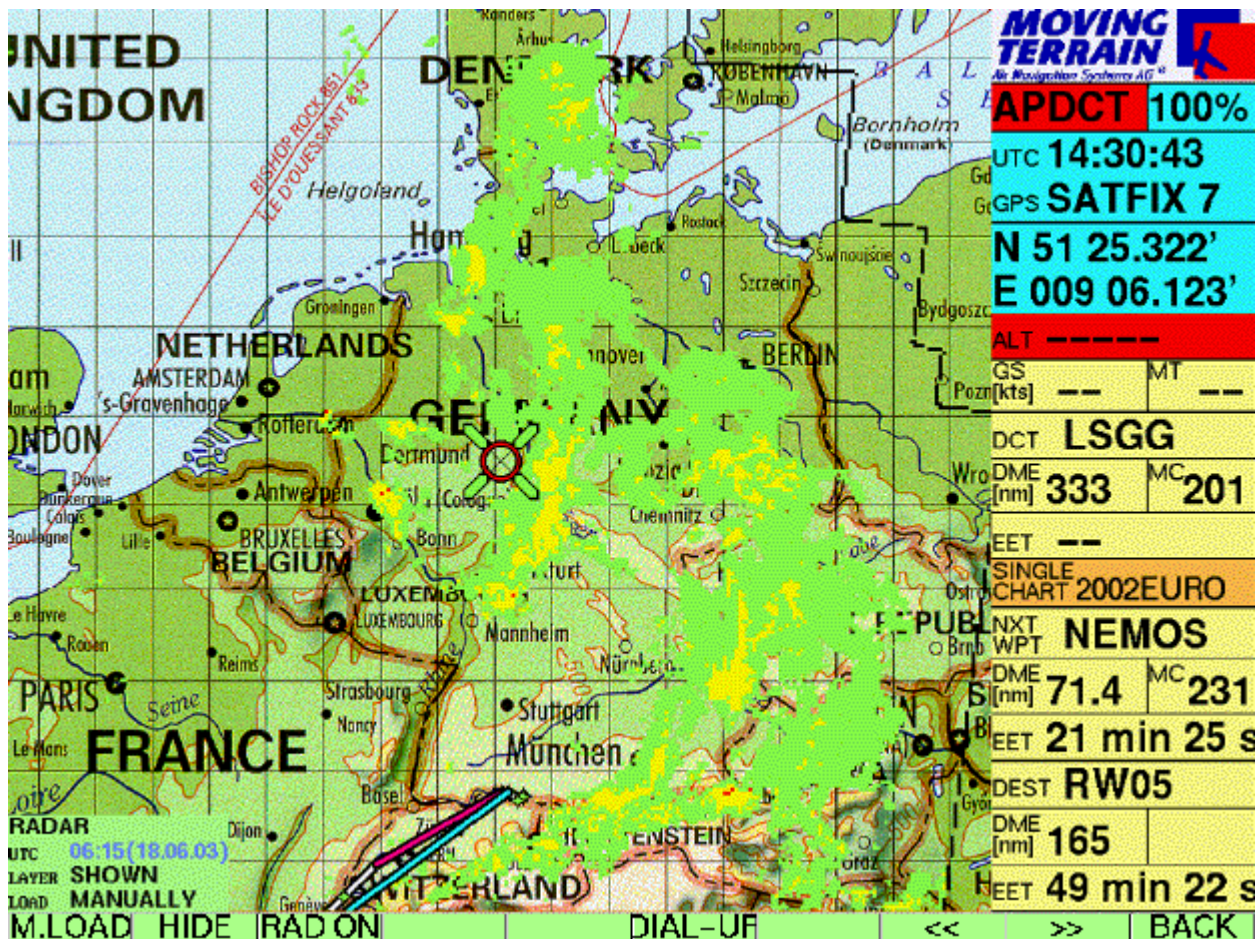
Weather layer superimposed on a chart at a scale of 1: 500 000. Data is displayed at an extremely high level of resolution and precision.



II.3.4 General weather situation on the European map

To obtain an overall view of the weather situation we recommend switching over to the general map of Europe (available on all systems at no additional charge).

- ✓ **BACK** Returns to the basic functions
- ✓ **CHART**
- ✓ **SIN.CHA** Press the same key to retrieve the single chart selection
Select the chart 2003EURO
- ✓ **ACT** Activate
- ✓ **BACK**



Now you can gain an overall impression of the current weather and display it in relationship to your own route planning or direct vector.

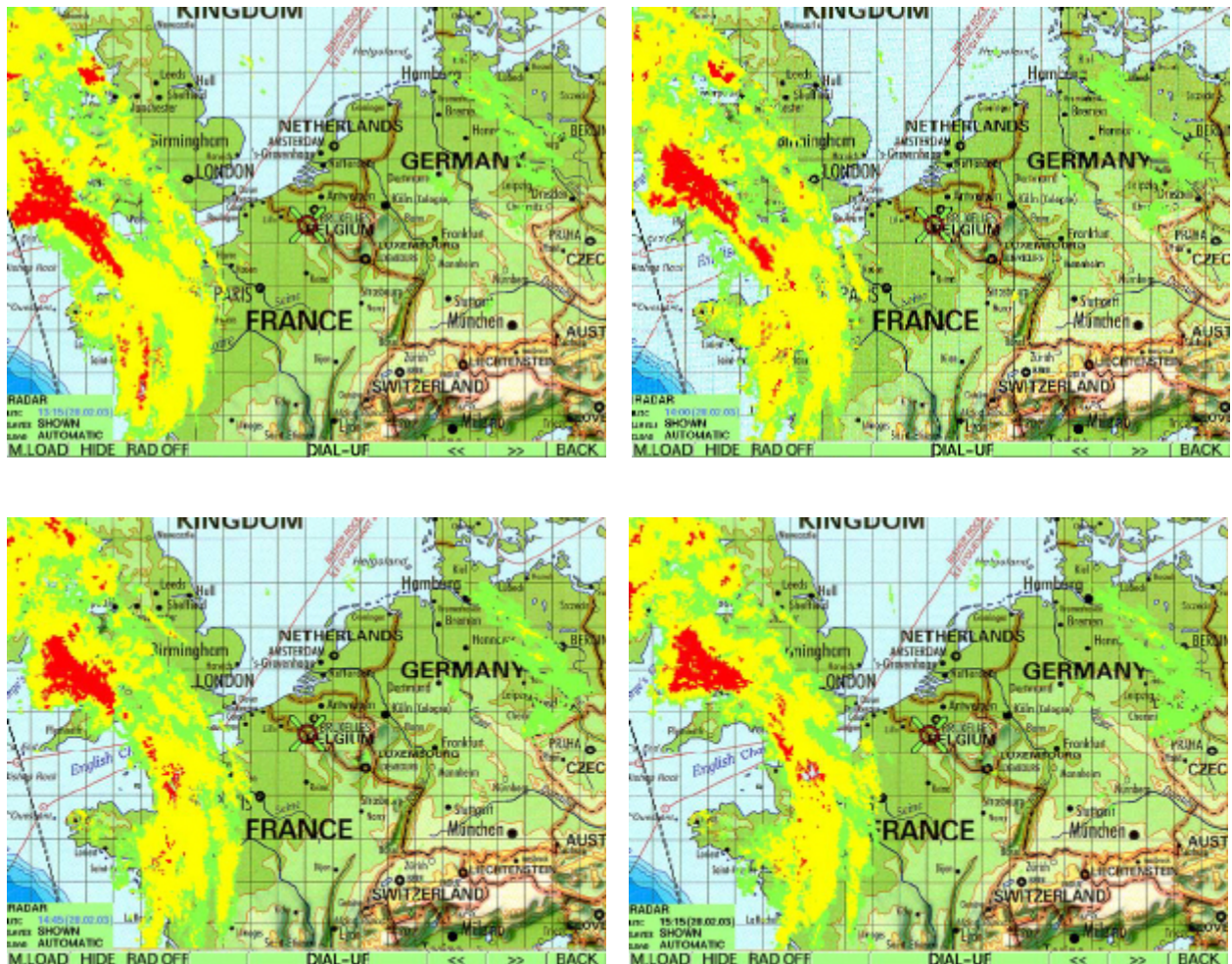
II.3.5 History

If you have already downloaded several sets of data, you can scroll through your **history** with the following keys:

- ✓ <<
- ✓ >>

This enables you to observe weather conditions over an extended period and predict general weather trends.

Example: Progress of a weather front across Western Europe on 28 February 2003



The time and date of the latest weather situation are shown in black in the status window, the time and date of weather layers from your history are shown in blue.

II.4 Quitting the MT-Satellite Radar mode

Quit the radar mode by pressing

✓ **RAD OFF**

The status window will remain visible as long as weather data is displayed. It will not disappear until the radar mode is switched off and the weather layer is hidden

✓ **HIDE**

.....
: **Important:** Never quit the radar mode during the dial-up procedure (“DIALING“ in :
: status window). Should this nevertheless occur, please hang up the :
: satellite telephone manually, otherwise connection charges will :
: continue to be incurred unnoticed! :
:
: