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**GEN 3.5 METEOROLOGICAL SERVICES**

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**1 RESPONSIBLE SERVICE****1.1 KNMI Aviation Services**

The Royal Netherlands Meteorological Institute (KNMI) is designated as the meteorological authority for the provision of meteorological service for (international) air navigation in the Netherlands.

KNMI Aviation Services is the subdivision of the Institute charged with the provision of meteorological information.

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**Note:** consult paragraph 4.2.5 for requests by telephone concerning aeronautical meteorological information.

**1.2 Applicable ICAO documents**

The international Standards, Recommended Practices and Procedures contained in the following ICAO documents are applicable:

Annex 3	Meteorological Service for International Air Navigation
DOC 7030 Part EUR	Regional Supplementary Procedures
Air Navigation Plan	EUR ANP, Volume 1, Part V-MET EUR ANP, Volume 2, Part V-MET
	<ul style="list-style-type: none"><li>• Table MET II-1 - Meteorological Watch Offices</li><li>• Table MET II-2 - Aerodrome Meteorological Offices</li><li>• Table MET II-3 - VHS VOLMET Broadcasts</li><li>• Table MET II-EUR-1 - Offshore Structures</li></ul>

Differences to these provisions are detailed in GEN 1.7.

**2 AREA OF RESPONSIBILITY**

KNMI Aviation Services at De Bilt is the meteorological watch office (MWO, tel: +31 (0)30 220 6581, watch only) designated to maintain the meteorological watch in the flight information region Amsterdam (see ENR 6-3.1).

### 3 METEOROLOGICAL OBSERVATIONS AND REPORTS

Name of station Location indicator	Type & frequency of observation/ automatic ob- serving system	Types of MET re- ports & supple- mentary informa- tion included	Observation system & sites	Hours of op- era- tion	Climatolo- gical in- formation
1	2	3	4	5	6
AMSTERDAM/ Schiphol EHAM	Half-hourly, plus special observa- tions.	<ul style="list-style-type: none"> <li>METAR, includ- ing WS and TREND.</li> <li>Local routine re- port and local special report, including WS, LLTI and TREND.</li> </ul>	<ul style="list-style-type: none"> <li>Cup anemometers and wind vanes: 105 M FM centre line near TDZ RWY 06, 18C, 18R, 27, 36C, 36L and 36R; 105 M FM centre line and 100 M FM TDZ RWY 22.</li> </ul> <p><b>Note:</b> Due to environmental influences the wind report for RWY 36R is not representative for the wind conditions at TDZ; wind speed from sector 080-120 DEG is underestimated up to 15 percent.</p> <ul style="list-style-type: none"> <li>Forward-scatter meters: 120 M FM centre line near TDZ, MID and END of RWY 06, 18C, 36C and 36R; 105 M FM centre line for RWY 27. Forward-scatter meters RWY 18R 120 M FM centre line near TDZ east, TDZ west, MID 1, MID 2 and END</li> </ul> <p><b>Note:</b> TDZ east and TDZ west shall be compared and the lowest value shall be the TDZ reading, MID 1 and MID 2 shall be compared and the lowest value shall be the MID read- ing.</p> <p>Forward-scatter meter RWY 22 120 M FM centre line and 100 M FM TDZ.</p> <ul style="list-style-type: none"> <li>Ceilometers: 3850 M FM THR RWY 24; 3800 M FM THR RWY 09; 3050 M FM THR RWY 36C; 4400 M FM THR RWY 36L.</li> <li>Thermometers: 120 M FM centre line near THR RWY 18R; 300 M FM centre line near THR RWY 27.</li> <li>Barometers: 105 M FM centre line near TDZ RWY 18R; 300 M FM centre line near TDZ RWY 27.</li> <li>Video cameras: 105 M FM centre line near TDZ RWY 18R; height 2 and 9 M.</li> </ul>	H24	AVBL <sup>1)</sup>
GRONINGEN/ Eelde EHGG	Half-hourly, plus special observa- tions.	<ul style="list-style-type: none"> <li>AUTO METAR including WS and TREND.<sup>2)</sup></li> <li>AUTO local routine report and AUTO local special report, including WS, LLTI and TREND.<sup>2)</sup></li> </ul>	<ul style="list-style-type: none"> <li>Cup anemometers and wind vanes: 430 M FM THR, along RWY 05, at 105 M FM centre line near TDZ; 360 M FM THR, along RWY 23, at 105 M FM centre line near TDZ.</li> <li>Forward-scatter meters: 440 M FM THR, along RWY 05, at 105 M FM centre line near TDZ; 350 M FM THR, along RWY 23, at 105 M FM centre line near TDZ.</li> <li>Ceilometers: 360 M FM THR, along RWY 23, at 155 M FM centre line near TDZ.</li> <li>Thermometers: 360 M FM THR, along RWY 23, at 155 M FM centre line near TDZ; 450 M FM THR, along RWY 05, at 115 M FM centre line near TDZ.</li> <li>Barometers: 360 M FM THR, along RWY 23, at 105 M FM centre line near TDZ; 430 M FM THR, along RWY 05, at 105 M FM centre line near TDZ.</li> <li>Video cameras: 120 M FM TDZ, along RWY 05, at 120 M FM centre line, height 2 and 9 M; 120 M FM TDZ, along RWY 23, at 120 M FM centre line, height 2 and 9 M.</li> </ul>	H24	AVBL <sup>1)</sup>

<sup>1)</sup> Aeronautical climatological information for aerodromes mentioned above is available on request (costs may be charged).

<sup>2)</sup> TREND available only during AD OPR HR.

Name of station Location indicator	Type & frequency of observation/ automatic ob- serving system	Types of MET re- ports & supple- mentary informa- tion included	Observation system & sites	Hours of op- eration	Climatolo- gical in- formation
1	2	3	4	5	6
LELYSTAD/ Lelystad EHLE	Half-hourly, plus special observa- tions.	<ul style="list-style-type: none"> <li>AUTO METAR including WS and TREND.<sup>2)</sup></li> <li>AUTO local routine report and AUTO local special report, including WS, LLTI and TREND.<sup>2)</sup></li> </ul>	<ul style="list-style-type: none"> <li>Cup anemometers and wind vanes: 105 M FM centre line near TDZ RWY 05 and TDZ RWY 23.</li> <li>Forward-scatter meters: 105 M FM centre line near TDZ RWY 05 and RWY 23.</li> <li>Ceilometers: 235 M FM centre line near TDZ RWY 05.</li> <li>Thermometers: 235 M FM centre line near TDZ RWY 05; 105 M FM centre line near TDZ RWY 23.</li> <li>Barometers: 105 M FM centre line near TDZ RWY 05 and TDZ RWY 23.</li> <li>Video cameras: 105 M FM centre line near TDZ RWY 05 and TDZ RWY 23, height 2 and 9 M.</li> </ul>	H24	AVBL <sup>1)</sup>
MAASTRICHT/ Maastricht Aachen EHBK	Half-hourly, plus special observa- tions.	<ul style="list-style-type: none"> <li>AUTO METAR including WS and TREND.<sup>2)</sup></li> <li>AUTO local routine report and AUTO local special report, including WS, LLTI and TREND.<sup>2)</sup></li> </ul>	<ul style="list-style-type: none"> <li>Cup anemometers and wind vanes: 370 M FM THR, along RWY 03, at 105 M FM centre line near TDZ; 355 M FM THR, along RWY 21, at 112 M FM centre line near TDZ.</li> <li>Forward-scatter meters: 380 M FM THR, along RWY 03, at 125 M FM centre line near TDZ; 365 M FM THR, along RWY 21, at 135 M FM centre line near TDZ.</li> <li>Ceilometers: 385 M FM THR, along RWY 03, at 105 M FM centre line near TDZ.</li> <li>Thermometers: 395 M FM THR, along RWY 03, at 105 M FM centre line near TDZ; 360 M FM THR, along RWY 21, at 120 M FM centre line near TDZ.</li> <li>Barometers: 370 M FM THR, along RWY 03, at 105 M FM centre line near TDZ; 355 M FM THR, along RWY 21, at 112 M FM centre line near TDZ.</li> <li>Video cameras: 105 M FM centre line near TDZ RWY 03 and TDZ RWY 21, height 2 and 9 M.</li> </ul>	H24	AVBL <sup>1)</sup>
ROTTERDAM/ Rotterdam EHRD	Half-hourly, plus special observa- tions.	<ul style="list-style-type: none"> <li>AUTO METAR including WS and TREND.<sup>2)</sup></li> <li>AUTO local routine report and AUTO local special report, including WS, LLTI and TREND.<sup>2)</sup></li> </ul>	<ul style="list-style-type: none"> <li>Cup anemometers and wind vanes: 375 M FM THR, along RWY 06, at 105 M FM centre line near TDZ; 365 M FM THR, along RWY 24, at 105 M FM centre line near TDZ.</li> </ul> <p><b>Note:</b> Due to environmental influences the wind report for RWY 24 is not representative for the wind conditions at TDZ;</p> <p><sup>1)</sup> Wind speed from sector 290-010 DEG is underestimated up to 17 percent,  <sup>2)</sup> Wind speed from sector 130-170 DEG overestimated up to 12 percent.</p> <ul style="list-style-type: none"> <li>Forward-scatter meters: 260 M FM THR, along RWY 06, at 120 M FM centre line near TDZ; 365 M FM THR, along RWY 24, at 120 M FM centre line near TDZ.</li> <li>Ceilometers: 700 M FM THR, along RWY 24, at 155 M FM centre line near TDZ.</li> <li>Thermometers: 700 M FM THR RWY 24; 350 M FM THR RWY 06.</li> <li>Barometers: 105 M FM centre line near TDZ RWY 06; 105 M FM centre line near TDZ RWY 24, 375 M FM THR.</li> <li>Video cameras: 105 M FM centre line near TDZ RWY 24, height 2 and 9 M.</li> </ul>	H24	AVBL <sup>1)</sup>
<sup>1)</sup> Aeronautical climatological information for aerodromes mentioned above is available on request (costs may be charged). <sup>2)</sup> TREND available only during AD OPR HR.					

**Note:** <sup>1)</sup> The interval of issuance of TREND for (AUTO) METAR and (AUTO) local routine report is every 30 minutes.  
<sup>2)</sup> The interval of issuance of TREND for (AUTO) local special report is maximum 30 minutes.

- <sup>3)</sup> (AUTO) local routine report and (AUTO) local special report are available on local display and are broadcast on ATIS.  
<sup>4)</sup> AUTO METARs are available for approximately 15 offshore structures in the North Sea. Several of them include sea temperature and significant wave height.

### 3.1 Observing systems and operating procedures

Surface wind speed is measured by cup anemometers and wind direction by wind vanes at 33 FT/10 M above ground. The unit knot (KT) is used to indicate surface wind speeds.

Reported visibility is lowest visibility. In METAR, TREND and TAF prevailing visibility is also available.

Runway visual range (RVR) assessments are made by using forward-scatter meters. Forward-scatter meters measure the back scatter of the atmosphere in terms of a back scatter factor for a distinct volume of air. The back scatter factor is converted to runway visual range taking into account background luminance and intensity of runway lights. The forward-scatter meters are calibrated using a standard transmissometer set. The background luminance is determined by measurements; the intensity setting of the runway lights is assumed to be 100 percent.

The reporting scale consists of increments of 25 M for RVR up to 400 M, increments of 50 M for RVR from 400 M up to 800 M and increments of 100 M for RVR above 800 M. For all main landing runways at AMSTERDAM/Schiphol, RVR readings from three locations along the runway are available. For each landing (take-off) runway the RVR values are designated A, B and C in accordance with the direction of landing (take-off). RVR values are provided in alphabetical order; A for touchdown and take-off area (TDZ), B for the midpoint (MID) and C for the stop-end or lift-off area of the runway (END). For RWY 18R, the A reflects the TDZ reading, the B reflects the MID and C reflects the END area of the runway. TDZ east and TDZ west will be compared and the lowest value shall be the TDZ reading, MID 1 and MID 2 will be compared and the lowest value shall be the MID reading.

Remote reading thermometers (thermistors) are used to measure the air temperature at 5 FT/1.50 M above the ground. Height of cloud base and cloud cover are obtained by measurement (ceilometers) and at AMSTERDAM/Schiphol also by visual estimation. The instruments are located in such way as to obtain observations that are representative for the take-off and landing areas (see paragraph 3).

## 4 TYPES OF SERVICE

MWO De Bilt provides landing forecasts, aerodrome forecasts, forecasts for take-off and aerodrome warnings. Briefing and consultation may be obtained on request (after self-briefing) from MWO De Bilt (all flights).

The meteorological office at the international airport AMSTERDAM/Schiphol only provides the required meteorological information for AMSTERDAM/Schiphol (routine and special observations).

Particulars of the aeronautical meteorological offices and the meteorological information available are given in GEN 3.5, paragraph 3 and 7 and in Part 3 - Aerodromes, AD 2.11.

### 4.1 Information for pre-flight planning

#### 4.1.1 Aerodromes

Meteorological information for flights from aerodromes in the Netherlands is supplied to operators and flight crew according to the following:

##### *Domestic flights*

- Internet self-briefing with GLLFC (see paragraph 4.2.2), weather bulletin (Dutch only, see paragraph 4.2.3), aerodrome reports and/or aerodrome forecasts for aerodrome of departure, destination and alternates.
- Briefing and consultation (on request) from MWO De Bilt (see paragraph 4.1.2 for telephone numbers).

##### *International flights*

- Internet self-briefing with:
  - significant weather chart (SWC)
  - prognostic upper air charts
  - aerodrome reports and/or aerodrome forecasts for aerodrome of departure, destination and alternates.
- Briefing and consultation (on request) from MWO De Bilt (see paragraph 4.1.2 for telephone numbers). In order to compile data and prepare further analysis, briefing requests should preferably be done at least 1 HR prior to requested briefing time.

#### 4.1.2 Briefing and consultation (on request) from MWO De Bilt

For flights from aerodromes in the Netherlands, the required meteorological information shall initially be obtained via internet self-briefing (see paragraph 9.1), or by using 'Teletext' (see paragraph 9.2). Consultation with MWO De Bilt by telephone is advisable when reduced conditions are expected along any route to be flown:

Tel: 0900 202 3341	Briefing low-level flights (IFR/VFR).
Tel: 0900 202 3343	Briefing IFR flights above FL 100.
Tel: 0900 202 3340	Briefing balloon flights within Amsterdam FIR.

**Note:** charge for telephone briefings and consultations is € 0,50/min.

### 4.2 Meteorological information for general aviation

#### 4.2.1 General

Pre-flight planning shall always be started by collecting the required meteorological information via internet self-briefing (see paragraph 9). When a flight has been delayed, or when a long interval occurs between pre-flight planning and departure, it should be checked that the meteorological data used for the planning is still valid.

Especially when weather conditions are marginal, or when details of the forecasted flight conditions are doubtful, the pilot shall contact MWO De Bilt as close to the departure time as possible.

For flights from locations outside the Netherlands the necessary briefing and consultation shall be obtained from the national Air Navigation Service Provider (ANSP) for aeronautical meteorological information in the state of departure. Details of these services can be found in the respective AIPs.

#### 4.2.2 GA forecast: graphical low-level forecast (GLLFC)

For the entire FIR, including North Sea area Amsterdam and North Sea area V, a GLLFC is produced and made available via internet self-briefing at [www.aviationweather.nl](http://www.aviationweather.nl) (see paragraph 9).

The validity periods are 03-12 UTC, 09-18 UTC and 15-24 UTC. The GLLFC is available approximately one hour before the start of the validity period.

The GLLFC will be amended when significant changes occur or are forecast.

#### 4.2.3 GA forecast: weerbulletin (Dutch only)

A weather bulletin (text, Dutch only) covering the Amsterdam FIR land area up to FL 100 will be produced and made available via internet self-briefing at [www.aviationweather.nl](http://www.aviationweather.nl) (see paragraph 9).

The weather bulletin will be amended when significant changes occur or are forecast.

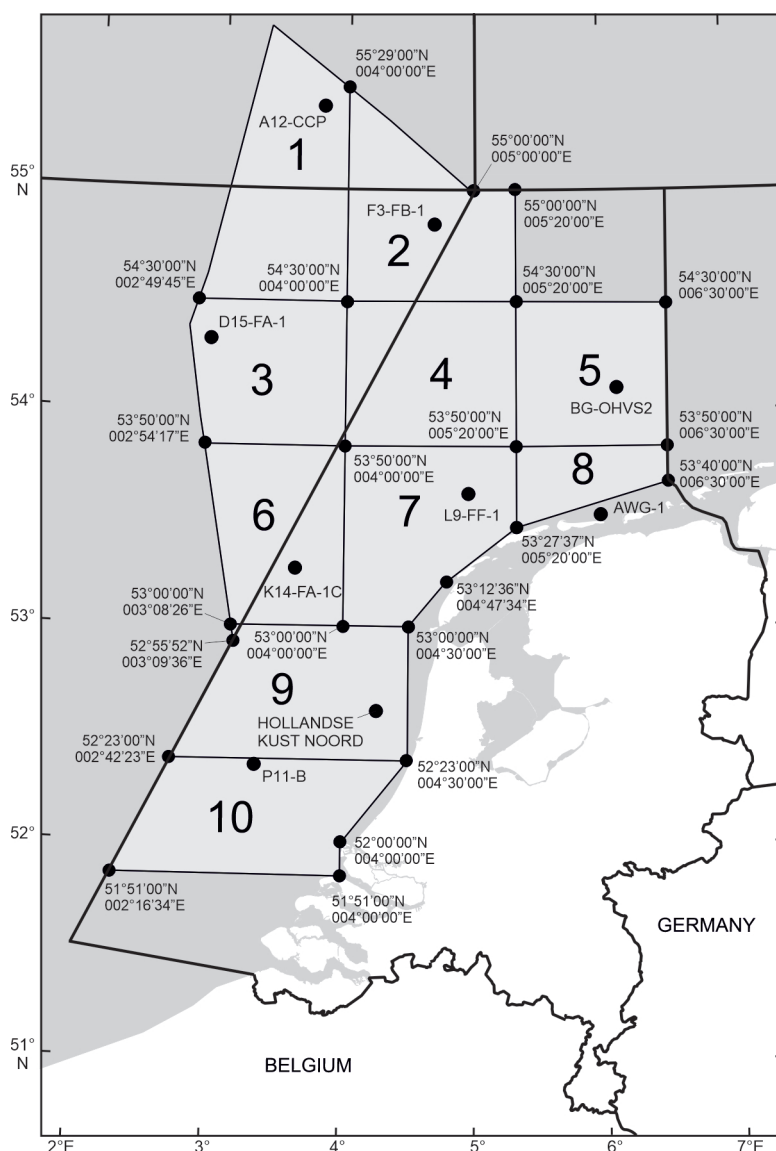
#### 4.2.4 GA forecast: North Sea Area Forecast (NAF)

A NAF contains a forecast of the predominant weather in a specific area over the North Sea. The NAF area in the forecast is identified by the ICAO 4-letter location indicator of the offshore platform on which the automatic weather station is installed.

Location indicator	NAF area	Platform
EHAK	1	A12-CPP
EHFD	2	F3-FB-1
EHDV	3	D15-FA-1
-	4	-
EHHW	5	BG-OHVS2
EHKV	6	K14-FA-1C
EHMG	7	L9-FF-1
EHMA	8	AWG-1
EHQN	9	HKN
EHGP	10	P11-B

NAFs are published daily 0600-2000 (0500-1900) UTC, for the 10 NAF areas. The number of NAFs can differ during the forecast period, based on the available observations. NAFs are valid for a 9-hour period and are scheduled every three hours.

A NAF has the same layout out as a TAF, but has an additional remark field (RMK) that can be used to describe local weather in the NAF area in abbreviated plain language. The NAF contains more detailed information than the graphical low-level forecast (GLLFC).



#### 4.2.5 Meteorological pre-flight planning

Detailed information for pre-flight planning is available via internet self-briefing at [www.aviationweather.nl](http://www.aviationweather.nl) (see paragraph 9). Briefing by telephone (after self-briefing) can be obtained from MWO De Bilt (see paragraph 4.1.1 and 4.1.2).

#### 4.2.6 Special meteorological warnings for flights below FL 100

See paragraph 8.3 AIRMET.

### 5 NOTIFICATION REQUIRED FROM OPERATORS

Normally, meteorological information and flight documentation will be available for non-regular flights when notification has been received at least 1 hour prior to the expected time of briefing. Notification shall comprise the following:

- required aerodrome(s)
- expected time of departure
- planned route to be flown.

## 6 AIRCRAFT REPORTS

MWO De Bilt should be informed as soon as possible through the appropriate ATS unit when the following weather phenomena are encountered during the climb-out, en-route or approach phases of the flight:

- severe icing
- moderate and severe turbulence
- hail and/or thunderstorms, if not previously forecasted
- strong low-level windshear
- other hazardous phenomena markedly deviating from the forecasted weather.

## 7 VOLMET SERVICE

Name of station	CALL SIGN Identification (EM)	Channel	Broadcast period	Hours of service	Aerodromes	Contents & format of REP and FCST	Remarks
1	2	3	4	5	6	7	8
AMSTERDAM	Amsterdam MET Broadcast (A3E)	126.200	H24	CONS	Amsterdam	MET report & QNH & TREND <sup>1)</sup>	Weather reports may be obtained on request on the ATC FREQS. <sup>1)</sup> TREND if AVBL.
					Rotterdam	MET report & TREND <sup>1)</sup>	
					Brussels	MET report & TREND <sup>1)</sup>	
					Düsseldorf	MET report & TREND <sup>1)</sup>	
					Paris/Charles de Gaulle	MET report & TREND <sup>1)</sup>	
					London/Heathrow	MET report & TREND <sup>1)</sup>	
					London/Gatwick	MET report & TREND <sup>1)</sup>	
					Copenhagen	MET report & TREND <sup>1)</sup>	
					Hamburg	MET report & TREND <sup>1)</sup>	

## 8 SIGMET AND AIRMET SERVICE

### 8.1 General

The issuance of meteorological warnings such as SIGMET or AIRMET within the Amsterdam FIR is provided H24 by MWO De Bilt (EHDB).

### 8.2 SIGMET

A meteorological warning (SIGMET) will be issued by MWO De Bilt when the following weather phenomena are occurring, or expected to occur, in the Amsterdam FIR:

- obscured or embedded thunderstorms (with or without heavy hail)
- frequent thunderstorms (with or without heavy hail)
- thunderstorms in squall line (with or without heavy hail)
- severe turbulence
- severe icing
- freezing rain
- volcanic ash
- radioactive cloud.

The period of validity of a SIGMET message is no more than 4 HR, or no more than 6 HR for SIGMET messages issued in case of volcanic ash clouds. SIGMETs are relayed to aircraft in flight by the appropriate ATS units in the Amsterdam FIR.

### 8.3 AIRMET

An AIRMET will be issued by MWO De Bilt when a sudden deterioration in the meteorological conditions occurs that could endanger the safety of flights below FL 100 as well as those conducted by visual reference to the ground. An AIRMET is only issued when the sudden deterioration is not present, or forecasted in the GLLFC (see paragraph 4.2.2).

AIRMETs are broadcast or supplied by direct transmission to aircraft in flight by the Flight Information Centre Amsterdam (callsign 'Amsterdam Information' on 119.175, 124.300 and 128.500). These warnings are provided in the English language and will be identified as 'AIRMET'.

## 9 OTHER AUTOMATED METEOROLOGICAL SERVICES

### 9.1 Internet

A dedicated web site ([www.aviationweather.nl](http://www.aviationweather.nl)) is available for subscribed aeronautical users, requiring username and password. These can be obtained from the following user organisations: AOPA Netherlands, DARPAS, KNVvL and VNV (Dutch ALPA). Professional users residing in the Netherlands may contact KNMI (preferably through their employer) on [aviation@knmi.nl](mailto:aviation@knmi.nl).

The website ([www.aviationweather.nl](http://www.aviationweather.nl)) contains all relevant and available meteorological products, information and services for aeronautical stakeholders, including pre-departure self-briefing information.

This website contains the following information:

- OPMET ((AUTO) METAR, TAF, AIRMET, SIGMET and advisories)
- Weather radar
- Satellite
- SIGWX charts
- Upper wind and upper-air temperature (UWT) charts
- Surface (Europe)
- Time series
- Temp profile
- AMSTERDAM/Schiphol Airport:
  - a. Probability forecast Schiphol;
  - b. Take-off forecast Schiphol;
  - c. 5-Day weather forecast Schiphol.

The website furthermore offers dedicated areas with information for North Sea operations, general aviation, ballooning and hang gliding. This includes a weather bulletin (Dutch only) and Graphical Low-Level Forecast (GLLFC).

## 9.2 Teletekst

For low-level flights (including VFR) over the Netherlands, MWO De Bilt issues daily 5 or 6 weather bulletins in Dutch, with (AUTO) METARs of various reporting stations in the Netherlands.

The weather bulletins and (AUTO) METARs are made available via the Dutch public television teletext system ('Teletekst'), page 707. The teletext pages are also accessible via Internet (<https://nos.nl/teletekst>).

The bulletin contains a concise description of the most important weather systems affecting flight conditions over the Netherlands and information about the following elements:

- significant weather (incl. icing and turbulence except when occurring in convective clouds);
- clouds;
- thermals;
- height of the zero degree Celsius level if lower than 10 000 FT;
- surface wind;
- upper winds and temperatures at 500, 1500, 3000, 5000 FT or FL 050 (depending on the transition level) and FL 100.

An amended weather bulletin will be issued if significant changes in the weather conditions occur.

