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NATS

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USE OF AUTOMATED MET OBSERVATIONS AT SELECTED AIRPORTS

1 Introduction

- 1.1 Advancements in technology have led to the gradual introduction of automatic weather reporting at airports around the world with the use of AUTO METAR and automated MET reports on ATIS.
- 1.2 In the UK, automated observations have been produced at certain airfields for limited periods overnight, and since 2012, during the daytime with oversight from the airport meteorological observer.
- 1.3 MET observations are distributed as local met reports via ATIS and through ATC, and internationally in the (AUTO) METAR format.
- 1.4 A 6 month operational trial of the use of automated observations 24 hours a day was conducted at Cardiff and Glasgow airports during autumn/winter 2014, involving input from airlines, airport operators, air traffic services, CAA and the UK Met Office.
- 1.5 Following this trial from October 2015, Cardiff and Glasgow will commence operational use of automated observations, and an operational trial will be introduced at Bristol, Edinburgh, Heathrow and Stansted airports.
- 1.6 Aerodromes which have been granted permission to issue AUTO METARs and Automated Local Reports on an H24 basis will continue to ensure that a certificated Met Observer will be on duty. The automated reports will be overseen by a certificated Met Observer, and if at any point that the visibility, cloud or present weather reports which are being produced by the system are not representative of the weather conditions at the aerodrome and may cause a hazard or impact the operation of the aerodrome, the weather report will be amended manually by the certificated observer.

2 Characteristics of Automated Reports

2.1 Information in Manually Compiled and Automated Reports

- 2.1.1 At aerodromes with semi-automatic Met observing systems, some, or all, of the following values are already provided automatically:
 - Surface Wind Speed and Direction (including gusts and wind variations);
 - Surface Pressure (QNH);
 - Air Temperature & Dewpoint;
 - IRVR;
 - Guidance on suggested Cloud Amount, Base and Visibility.
- 2.1.2 When the Met Observing system is providing fully automated reports it will also automatically report:
 - Visibility;
 - Cloud Amount, Base and Type (CB and TCU);
 - Present & Recent weather, including Thunderstorms / Thunderstorms in vicinity.
- 2.1.3 METARs which are created solely from automated sensors are prefaced by the word AUTO. Automated local weather reports when provided on ATIS are preceded by the word "Automatic". In the event that the observer has amended the report manually, the terms 'AUTO' and 'Automatic' will not be used.
- 2.1.4 Users should be aware of the limitations of the sensors used for providing observations of cloud height and amount (ceilometers), visibility (visiometers) and present weather sensors. Since these are located at spot locations on an aerodrome, the values that are reported are representative of the location of the sensor(s) and may not be completely representative of the aerodrome as a whole or its vicinity.
- 2.2 **Differences between Manually and Automated Reports**
 - 2.2.1 **Visibility**

Visibility in AUTO METAR is derived from measurements at specific points on the airfield consequently only a prevailing visibility will be provided automatically. Where visibility is not uniform across the airfield, and a minimum visibility is required the accredited observer will provide a manual observation. IRVR information will continue to be reported by ATC and, where appropriate, included in the AUTO METAR.

2.2.2 **Cloud**

Cloud height is typically measured by a laser ceilometer usually located adjacent to the runway touchdown zone. Since the cloud cover is derived from cloud passing over the sensor for a 30 minute period the cloud amount (FEW,BKN,SCT,OVC) detected may differ from that which would be observed by a human observer. Cloud type (CB or TCU) is included based on information from the national weather radar and lightning detection networks.

2.2.3 **Present Weather**

AUTO METAR reports contain the range of present weather codes required by ICAO: RA, DZ, SN, FZRA, FZDZ, BR, FG, HZ, FZFG, TS, VCTS, including intensity of precipitation.

The following weather phenomena will not be reported in AUTO observations : FC (Funnel Cloud), SS (Sand Storm) , DS (Dust Storm) , PO (Dust Whirls), SA (Sand), VA (Volcanic Ash), MIFG (Shallow Fog), BCFG (Fog Patches), PRFG (Partial Fog) , DR (Drifting) and BL (Blowing)

The present weather is measured by sensors at fixed locations on the airfield. Only weather occurring at that location would be included in the AUTO report. Present weather in the vicinity of the aerodrome (except Thunderstorms) will not be reported automatically. Where present weather in the vicinity of the aerodrome is required to be reported the accredited observer will provide a manual observation.

Thunderstorms and Thunderstorms in Vicinity are reported when lightning is detected by within specific distance from the aerodrome by the national lightning detection network.

3 Coding Practises in Automated Reports

3.1 Codes not provided in automated observation reports:

- FC, SS, DS, PO, SA, DU, FU, VA, MI, BC, PR, DR and BL;
- VC (Vicinity) – except VCTS;
- CAVOK: clouds and visibility OK.

3.2 Codes used in automated observation reports only:

- AUTO: indicating an automated report;
- NCD: no clouds detected. When the sensor does not detect clouds and no CB/TCU are detected, the code NCD is reported due to the point measurement principle.

3.3 Codes used in manual and automated MET observation reports

- NSC: no significant clouds. When no clouds of operational significance (cloud base 5000 ft or more and no CB/TCU are observed, the abbreviation 'NSC' is used.

4 Contact

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