

Met Services



ICAO set up the **World Meteorological Organisation (WMO)** to standardise weather reporting and data dissemination throughout member states. Initially data was collected manually so was not highly accurate.

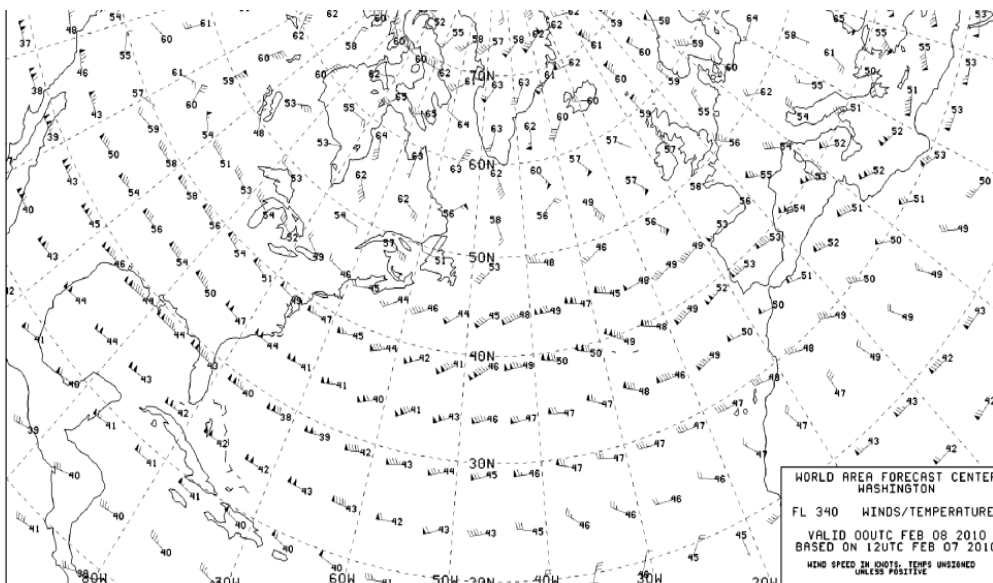
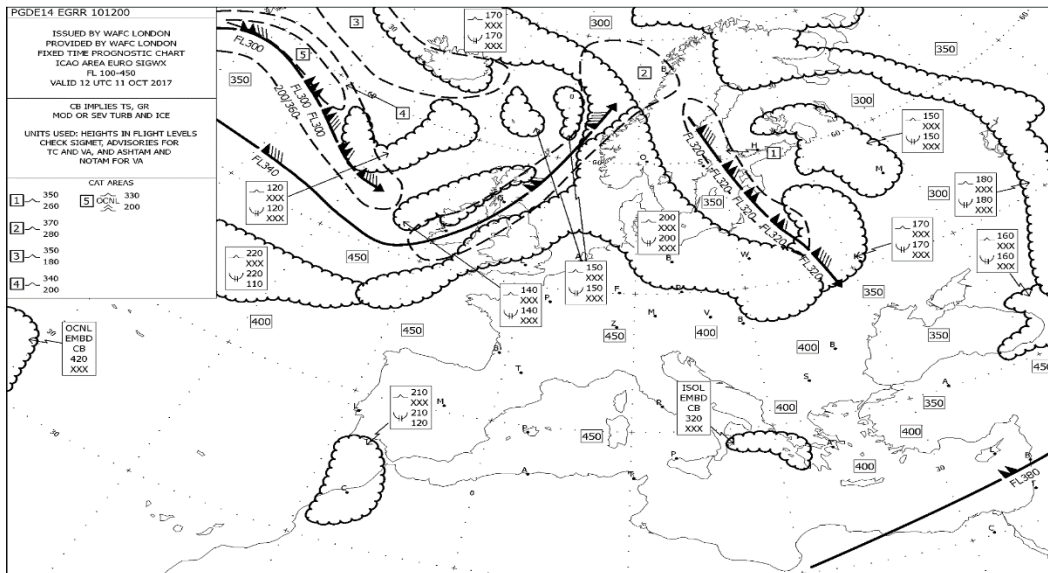
In 1982 ICAO established the World Area Forecast System (WAFS) to produce digitalised reports and forecasts on worldwide meteorological conditions to be utilised across the world.

The following Information Source Organisations are within the WAFS:

World Area Forecast Centres (upper air SIGWX)

Based at London and Washington report on:

- Upper winds/temp/humidity
- Tropopause height/temp
- Significant weather



Meteorological offices (TAF, GAMET)

- State Organisations located all over world responsible for terminal areas forecasts (TAF)

MWO - Meteorological Watch Offices (SIGMET)

- Weather warnings (SIGMET, AIRMET)

Meteorological Stations (METAR)

- Aerodrome based (METAR, SPECI, TREND/Landing Forecast)

Volcanic Ash advisory centre (VAAC)

- The International Civil Aviation Organization (ICAO) and other Aviation concerns recognized the need to keep aviators informed of volcanic hazards. To that end, nine Volcanic Ash Advisory Centres were created. These centres are tasked with **monitoring Volcanic Ash plumes** within their assigned airspace

Tropical Cyclone advisory centre (TCAC)

- A meteorological centre designated by regional air navigation agreement to **provide advisory information to meteorological watch offices, world area forecast centres and international OPMET data banks** regarding the position, forecast direction and speed of movement, central pressure and maximum surface wind of tropical cyclones

AMDAR system (from aircraft in flight)

(Aircraft Meteorological Data Relay system)

- Information from aircraft sensors transmitted via ACARS Datalink to Airline and passed to national Met Office and then WMO as required.

Pre-flight information

Reports:

- METAR: Issued every 30 or 60 mins or if a significant change occurs.
- Landing forecast/Trend: issued as required and added to METAR
- SPECI: Issued as required if there's a change of operational significance.

Forecasts:

- TAF: Valid 9 – 36 hours. 9 hour TAF issued every 3 hours; otherwise every 6 hours.
- SIGWX charts: Issued every 6 hrs, conditions in upper levels.
- GAMET: Low-level forecast in text form. Validity period optional.

En-route information

- (D)-VOLMET : reports for up to 10 aerodromes. Information taken from METAR, SPECI, TREND. Wind reported in degrees **True**. VHF – continuous broadcast. HF – scheduled broadcast which also draws from TAF and SIGMET.
- (D)-ATIS: automated report relating to one aerodrome. Includes runway info. Wind reported in degrees **Magnetic**.
- Weather Warnings (SIGMET/AIRMET)

Weather Warnings

Issued by WMOs using abbreviated plain language. MTW/INTSF/MOV/WKN

SIGNificant METeorological Information SIGMET

SIGMETs warn of severe wx affecting route 500nm or 2 hrs ahead and are valid for 4 hours (6 if volcanic ash or TC) and are numbered sequentially (1,2,3 etc) *Annex 3 7.1.3.*

Conditions warranting the issue of a SIGMET include (*Annex 3 App 6 1.1.4*)

- Severe Turbulence and icing
- TS (OBSC/EMBD/FRQ)
- Severe squall lines
- Tropical Cyclone (wind 34kts or more)
- Severe Mountain wave
- Heavy Sand or dust storms
- Volcanic ash clouds
- Radioactive cloud

e.g. SIGMET E.G: EGPX SIGMET 01 VALID 280900/281300 EGRR - SCOTTISH FIR SEV TURB FCST BLW FL070 S OF A LINE N5800 W01000 TO N5700 W00500 TO N5500 E00000 MOV NNE AT 35KT NC

AIRMET (Weather Advisory, valid 4 hrs) Annex 3 7.2.3

AIRMET warns of potentially hazardous conditions below FL100 (FL150 in mountainous areas), within a specified FIR, or sub-area thereof.

Conditions for AIRMET include (*Annex 3 App 6 2.1.4*):

- Surface wind greater than 30kts (15 m/s)
- Surface Vis if less than 5000m
- TS – ISOL/OCNL with/without hail
- Mountains obscured MT OBSC
- Cloud ceiling below 1000ft (300m)
- CB – ISOL/OCNL/FRQ
- TCU – ISOL/OCNL/FRQ
- Mod Icing
- Mod Turb
- Mod MTW

e.g. AIRMET E.G: LSAS AIRMET 2 VALID 061000/061400 LSZH-SWITZERLAND FIR MOD TURB OBS AND FCST NORTH OF ALPS ABV FL100 MOV E WKN

Special Air Report (PIREP)

ICAO DOC 4444 – PANS-ATM 4.12.3

Expectation that pilots will report any meteorological conditions that could affect flight safety. **Sigmat/Airmet** may be issued as a consequence.