

# WAFC requirements and the linkage to NextGen



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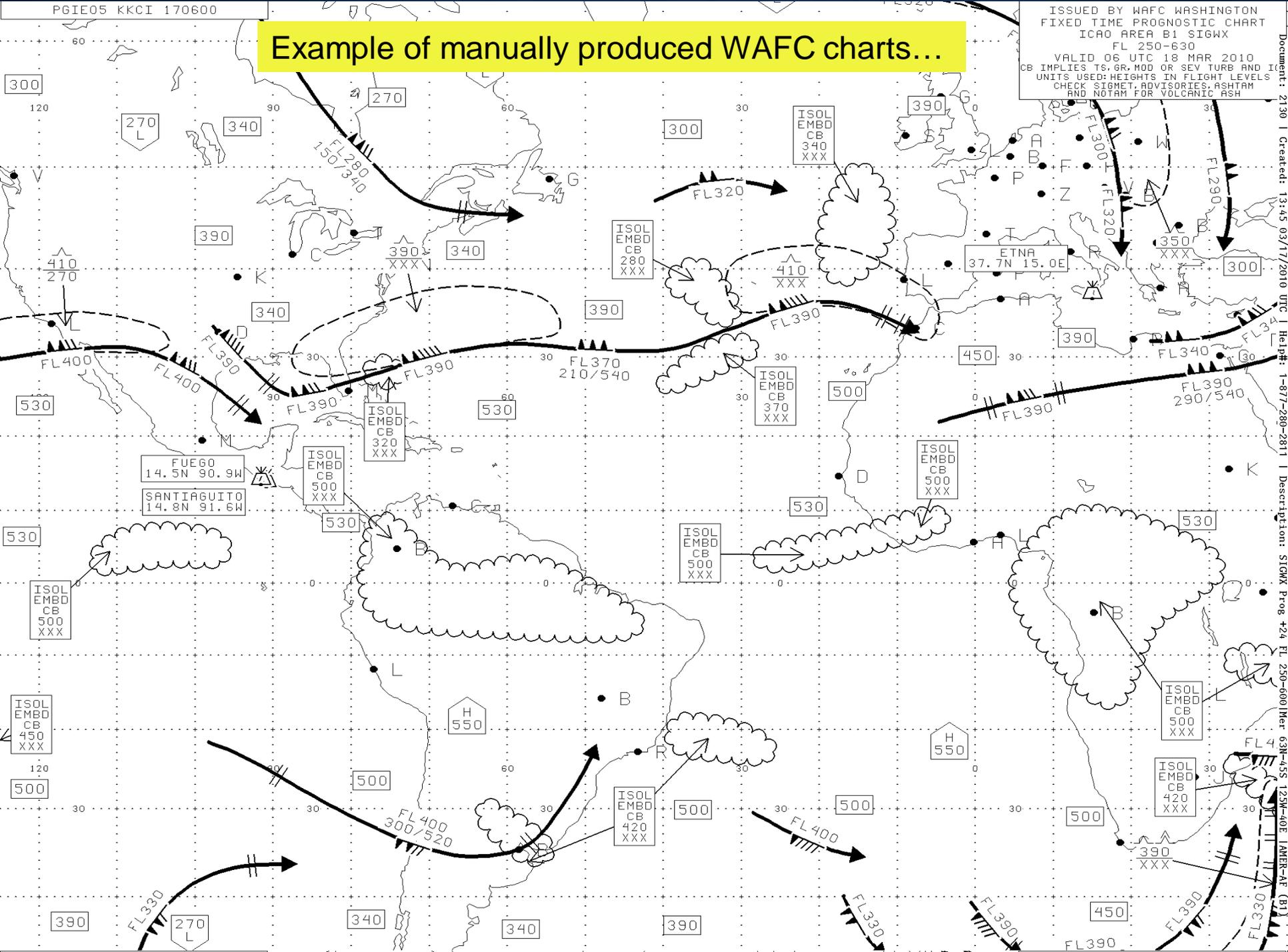
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# What is a WAFC? World Area Forecast Center

- In 1982, it was unanimously agreed that two States/Members would accept responsibility for operation of a World Area Forecast System (WAFS) that provides global aviation products in support of flight planning.
- Better than having 150+ Met Watch Offices doing their own thing
- The United States (U.S.) known as WAFC Washington and the UK MET office in Exeter known as WAFC London. These products and services are govern via the International Civilian Aviation Organization (ICAO) Annex 3 Amendment 74
- The Aviation Weather Center in Kansas City produces manually generated global hazard charts
- <http://aviationweather.gov/iffdp/sgwx.php>

# Example of manually produced WAFC charts...

ISSUED BY WAFC WASHINGTON  
 FIXED TIME PROGNOSTIC CHART  
 ICAO AREA B1 SIGWX  
 FL 250-630  
 VALID 06 UTC 18 MAR 2010  
 CB IMPLIES TS, GR, MOD OR SEV TURB AND I  
 UNITS USED: HEIGHTS IN FLIGHT LEVELS  
 CHECK SIGMET, ADVISORIES, ASHTAM  
 AND NOTAM FOR VOLCANIC ASH



# Algorithms used to produce automated experimental WAFC Icing/Turb/CB global grids

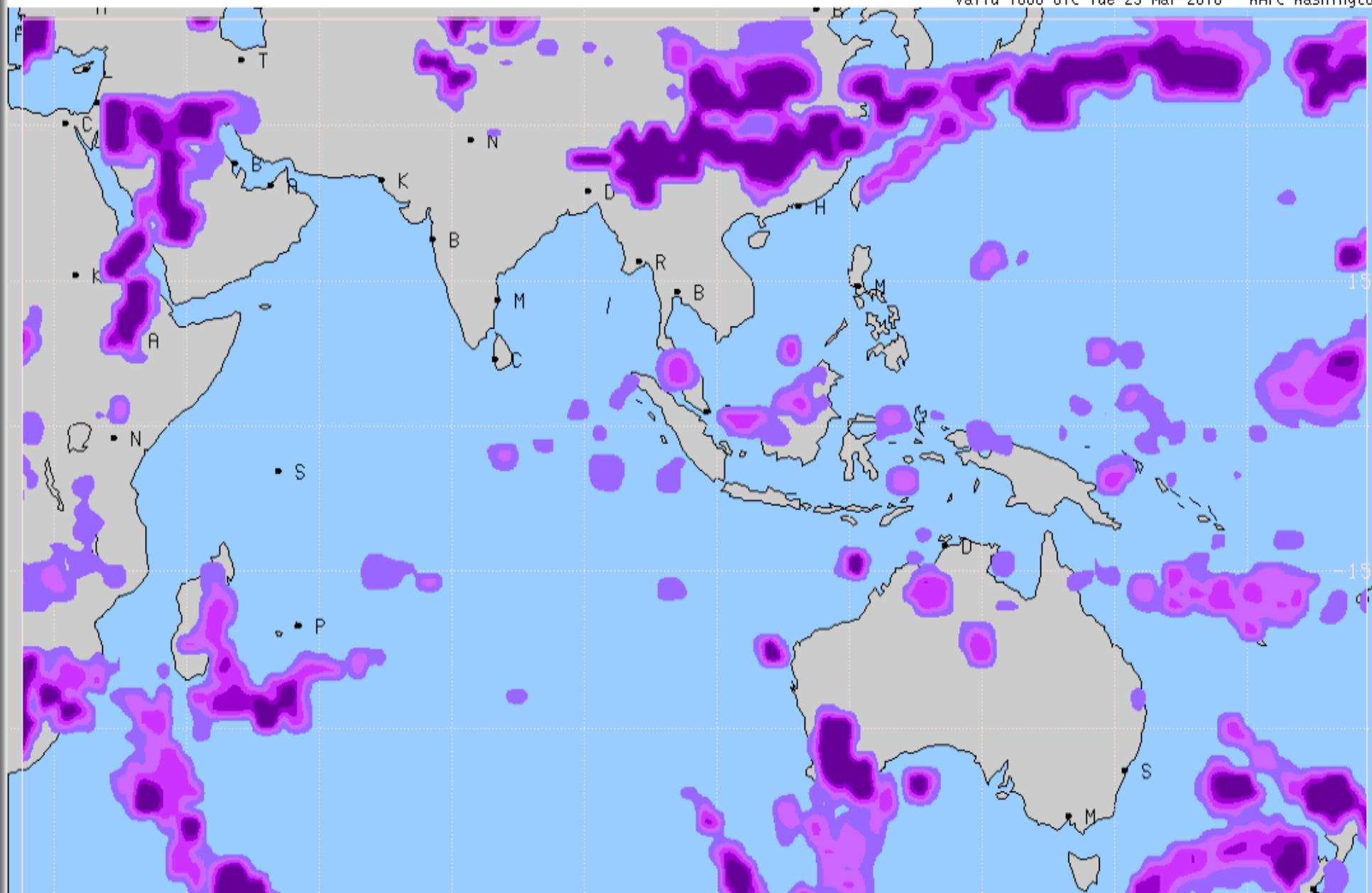
- The UK and US will begin to produce these grids in GRIB2 late this year...currently available in GRIB1 at AWC testbed and on the WAFC Internet File Server (WIFS)
- Icing...London WAFC uses 70% RH and less than 0c to determine icing grids. Washington WAFC uses a psuedo Forecast Icing Severity (FIS)
- Turbulence...Both London and Washington WAFCs use Ellrod algorithm TI1 (Ellrod and Knapp, 1992)
- CB...convective rainfall rate is used (a) to predict expected rainfall, and (b) to diagnose latent heating
  - *base prediction of Cb severity on convective rainfall rate*

Forecast: 06 |< < play stop > >|  
Area: icao\_e | Product: Icing Max | Level: FL 140 | up dn

Example of automated icing WAFC charts...using a portion of FIS

600 hPa Max Icing Plot

valid 1800 UTC Tue 23 Mar 2010 ~ WAFC Washington



# US algorithms for WAFC can compliment future NextGen challenges

- Need more involvement from research...for the global environment. Can't we do better than Elrod in 2010? Need research to focus globally...The timeline for these WAFC global grids is sometime after 2013.
- Problems with the “goodness” of future automated grids generated by algorithms is a major stumbling block that the WAFCs are encountering now...and thus Algorithm development will be a NextGen issue as well



# Questions?

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