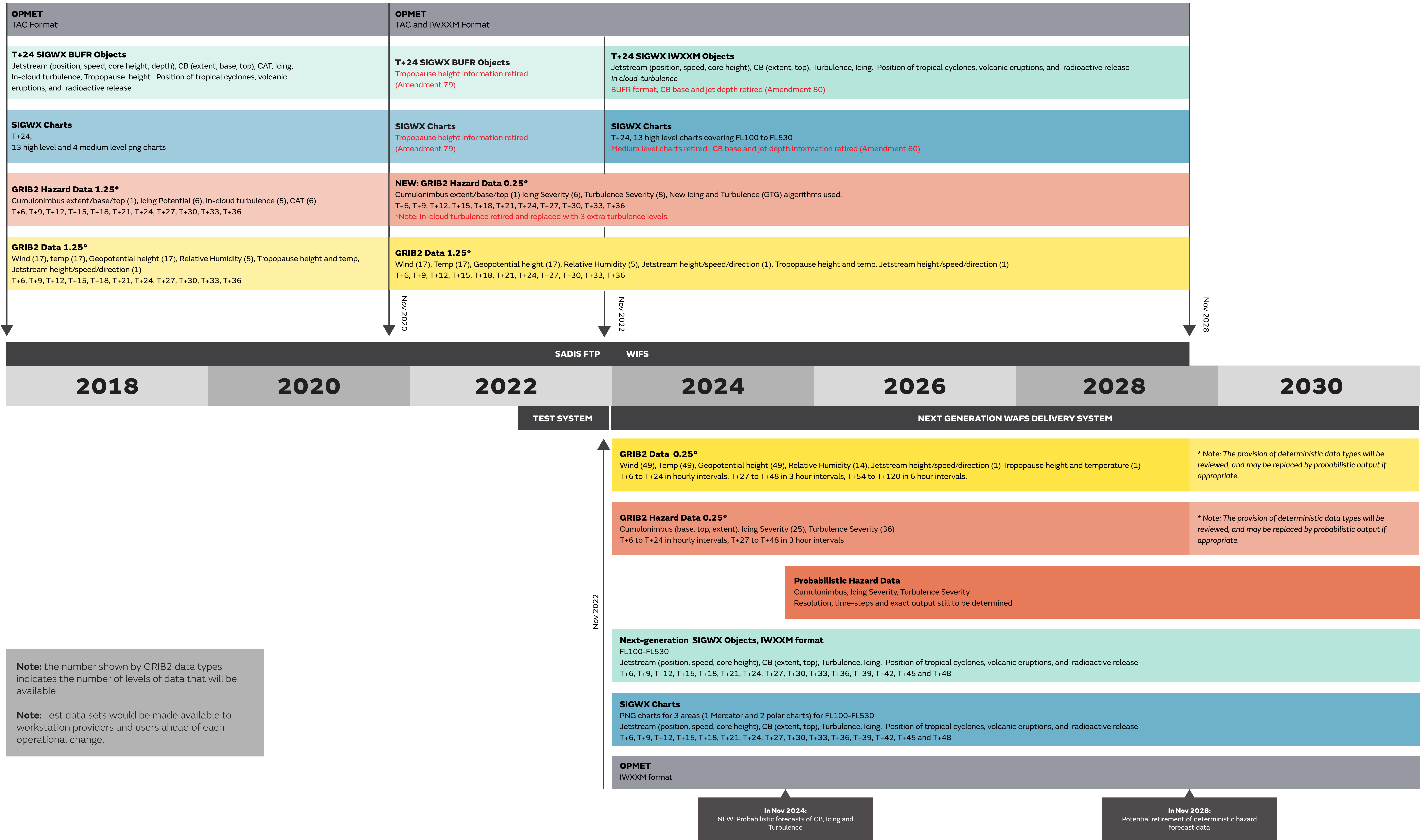


In Nov 2020:
 NEW 0.25° Icing, Turbulence and CB gridded data
 NEW Improved Icing and Turbulence algorithms
 NEW OPMET data in IWXXM format
 Retired: SIGWX Tropopause height information
 Retired: In cloud turbulence gridded data

In Nov 2022:
 Retired: Medium level SIGWX charts
 Retired: In cloud turbulence SIGWX objects
 Retired: BUFR format SIGWX objects.
 NEW: SIGWX in IWXXM format
 Adjustments to the high level SIGWX charts introduced for Annex 3 Amendment 80.

In Nov 2028:
 Latest date for the retirement of legacy systems.

WAFS 10 YEAR PLAN



Note: the number shown by GRIB2 data types indicates the number of levels of data that will be available

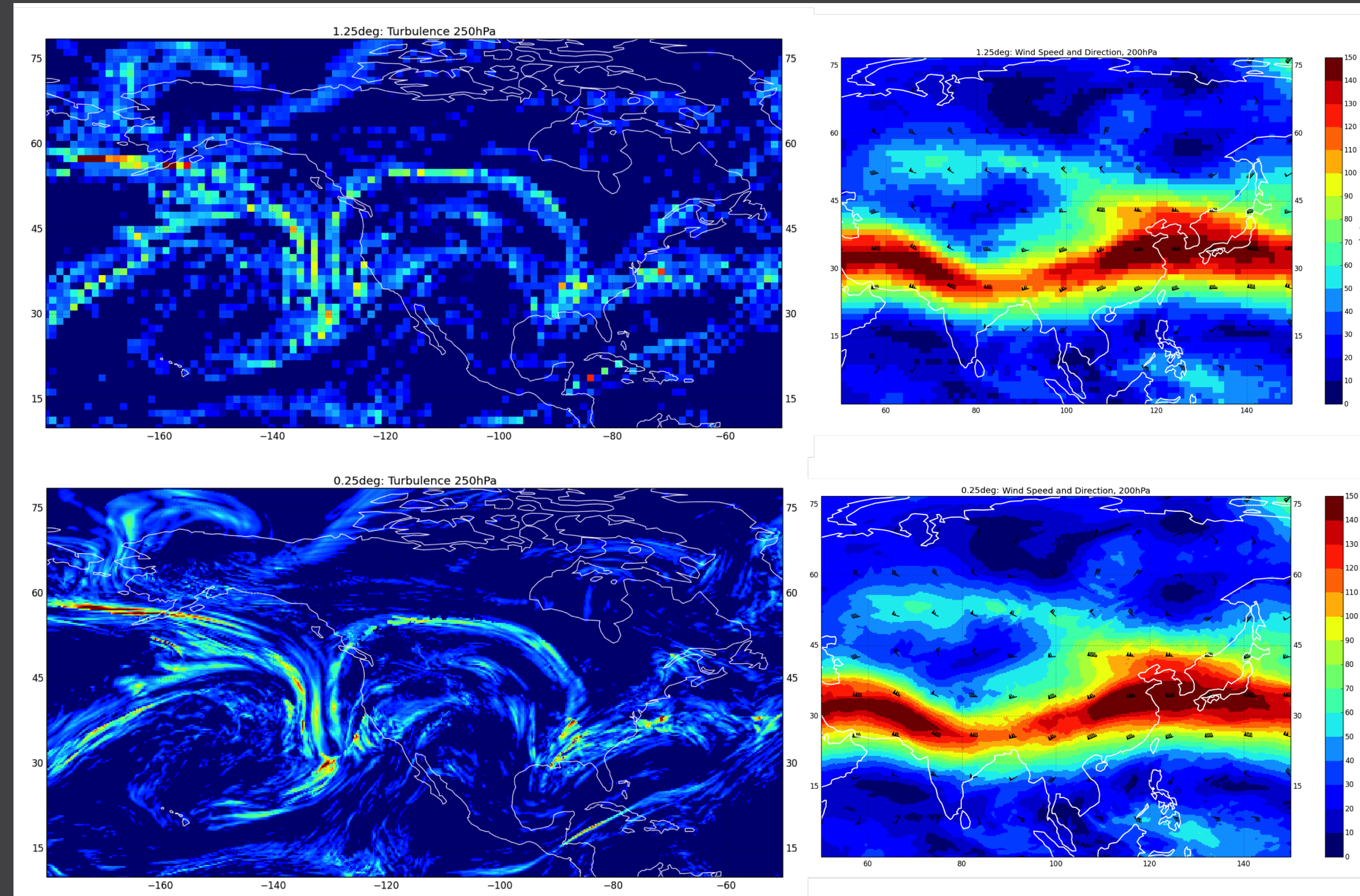
Note: Test data sets would be made available to workstation providers and users ahead of each operational change.

Vision:

to provide high resolution gridded data, multiple time step SIGWX forecasts, and OPMET data to global aviation activities including; trajectory based operations, free route operations, continuous descent operations, and improved air traffic flow management.

Gridded Data

Higher horizontal resolution
Gridded data will be provided at 0.25 degree resolution

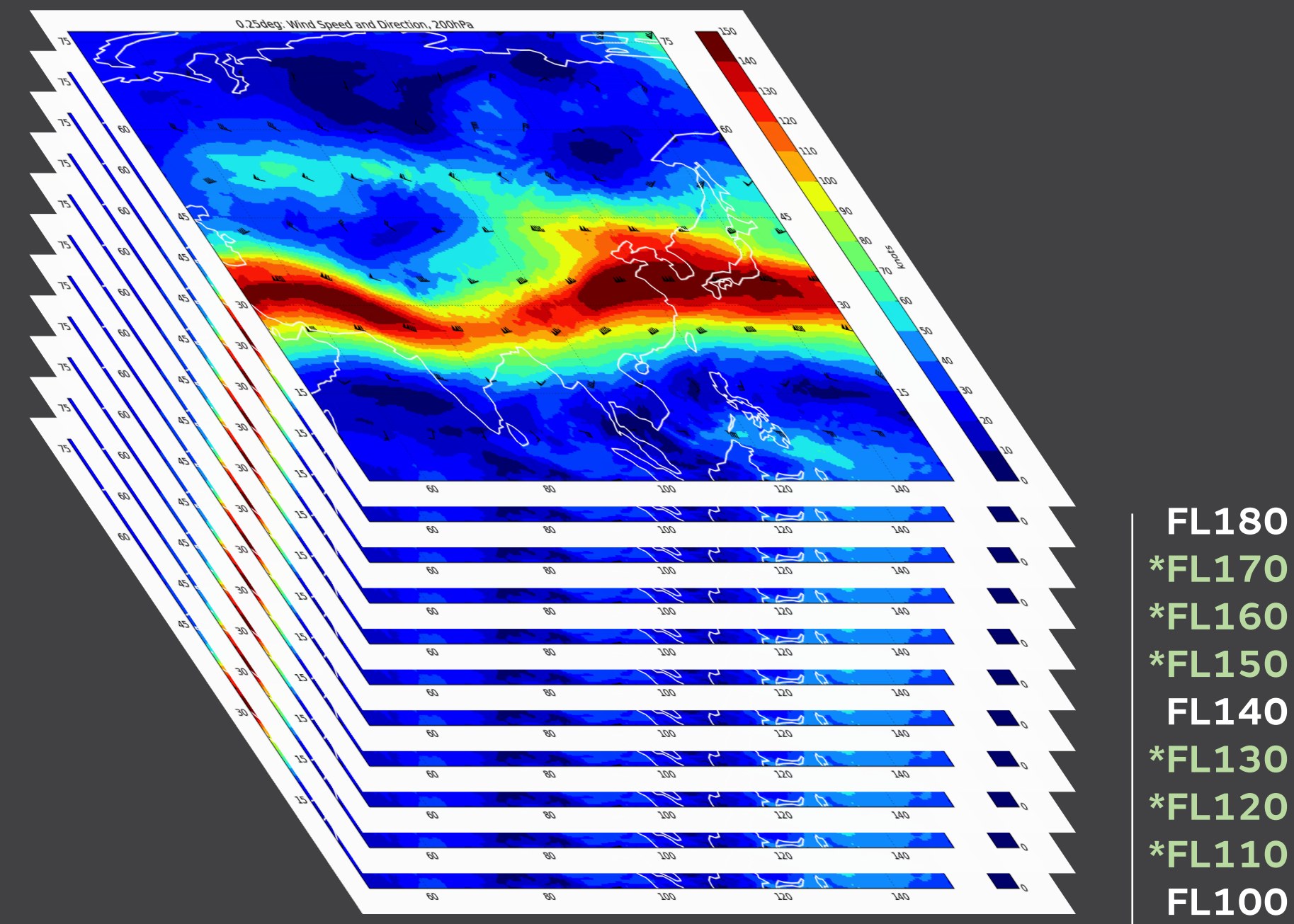


What does this mean: For an aircraft flying at 450 knots
0.25deg – 2 mins flying time
1.25deg – 10 mins flying time.

Better temporal resolution

T+6	T+7	T+8	T+9	T+10	T+11	T+12	T+13	T+14	T+15	T+16	T+17	T+18	T+19	T+20	T+21	T+22	T+23	T+24	T+27
T+30	T+33	T+36	T+39	T+42	T+45	T+48	T+54	T+60	T+66	T+72	T+78	T+84	T+90	T+96	T+102	T+108	T+104	T+120	

Data every 1000ft



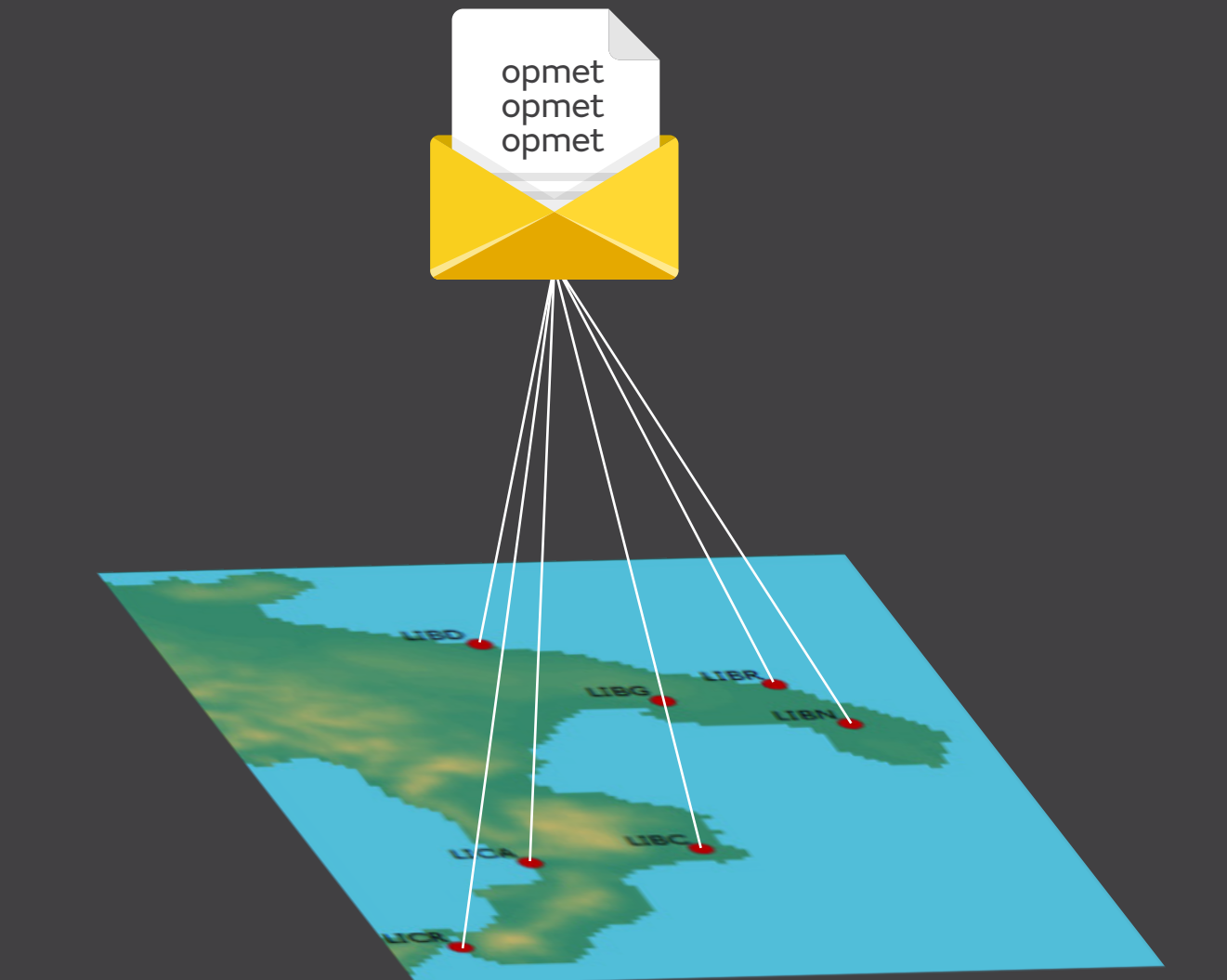
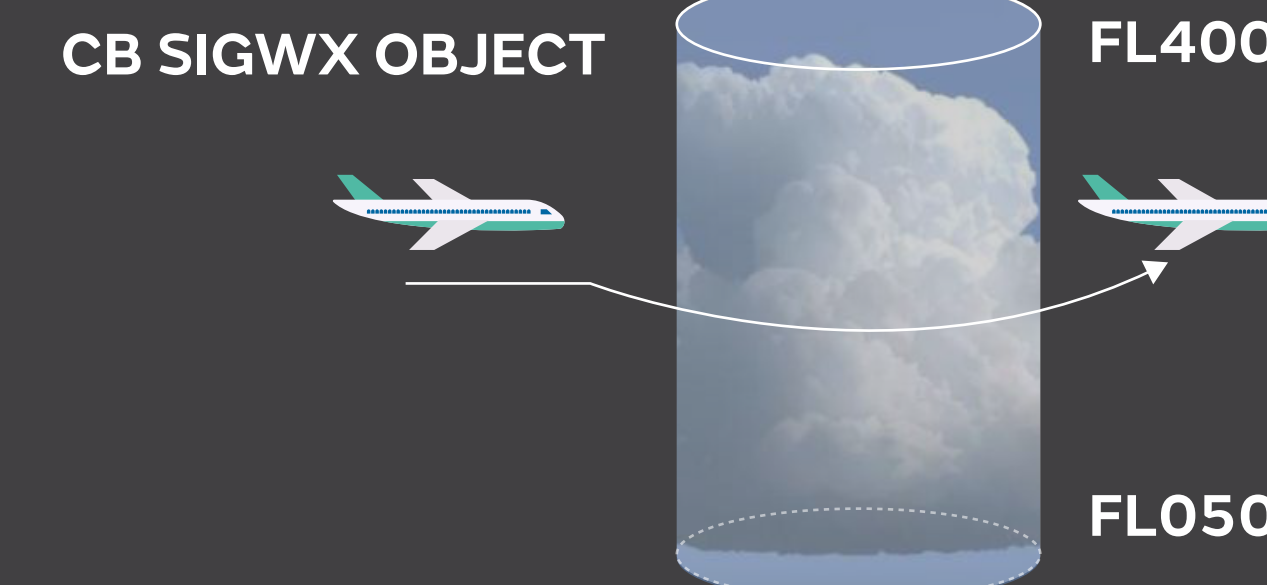
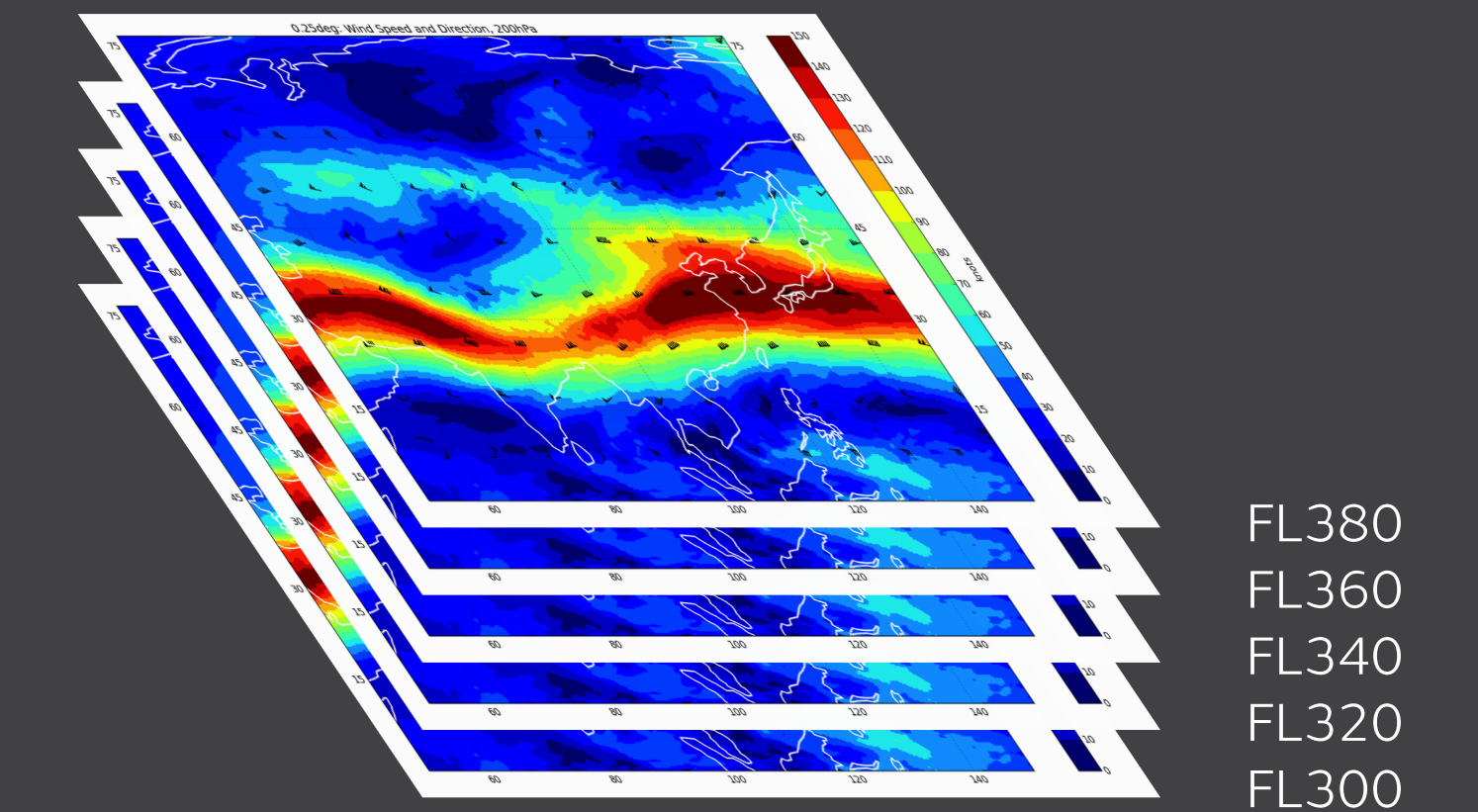
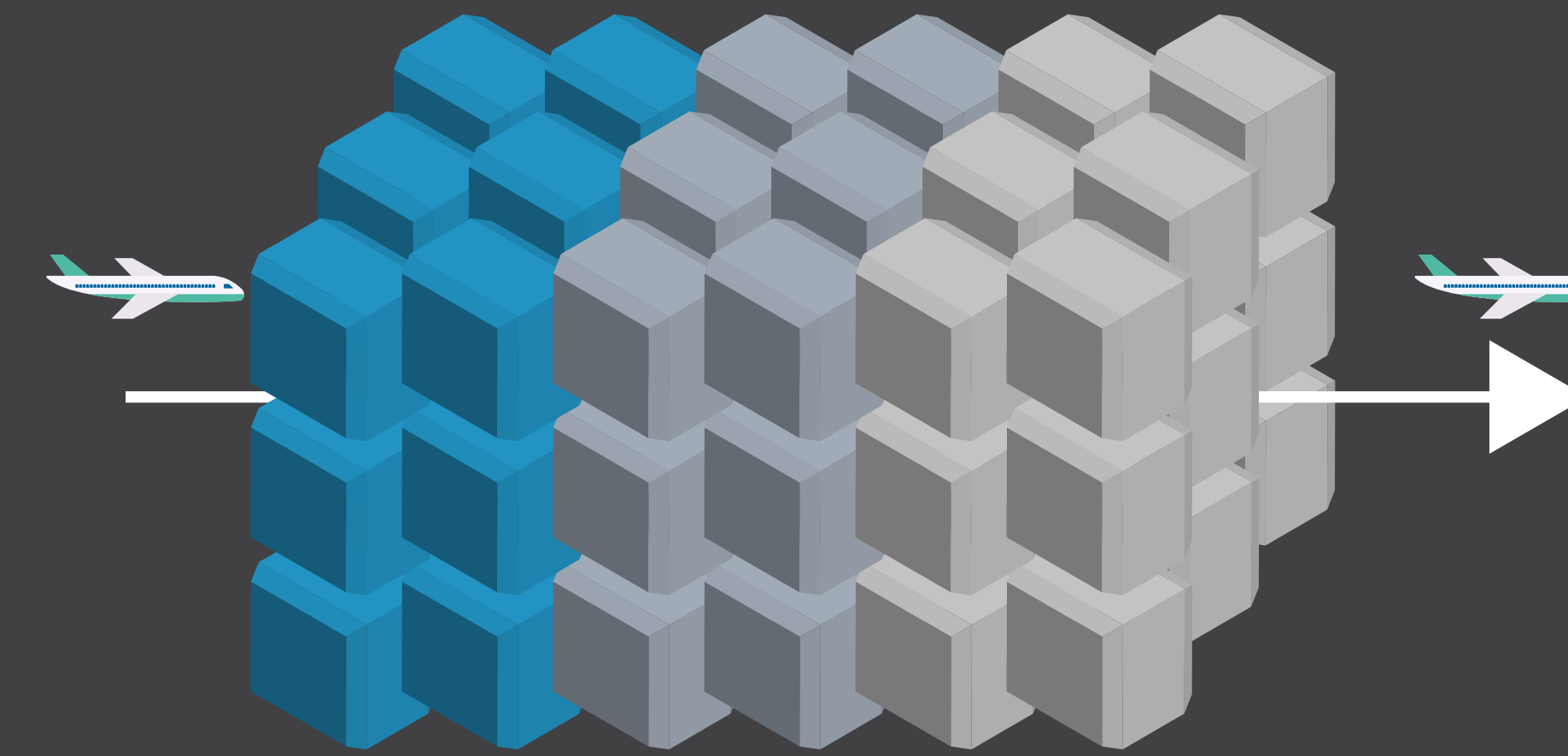
*Extra time steps and vertical levels marked in green.

New data delivery system

The next generation WAFS delivery system will enable users to customise gridded, SIGWX and OPMET data downloads to best suit their operational needs.

2) Data for an area
Users will be able to download 4 dimensional cubes of data for the area of interest.

1) Data for flight trajectories
Users will be able to download gridded data for individual flight trajectories in order to optimise flight safety and performance.

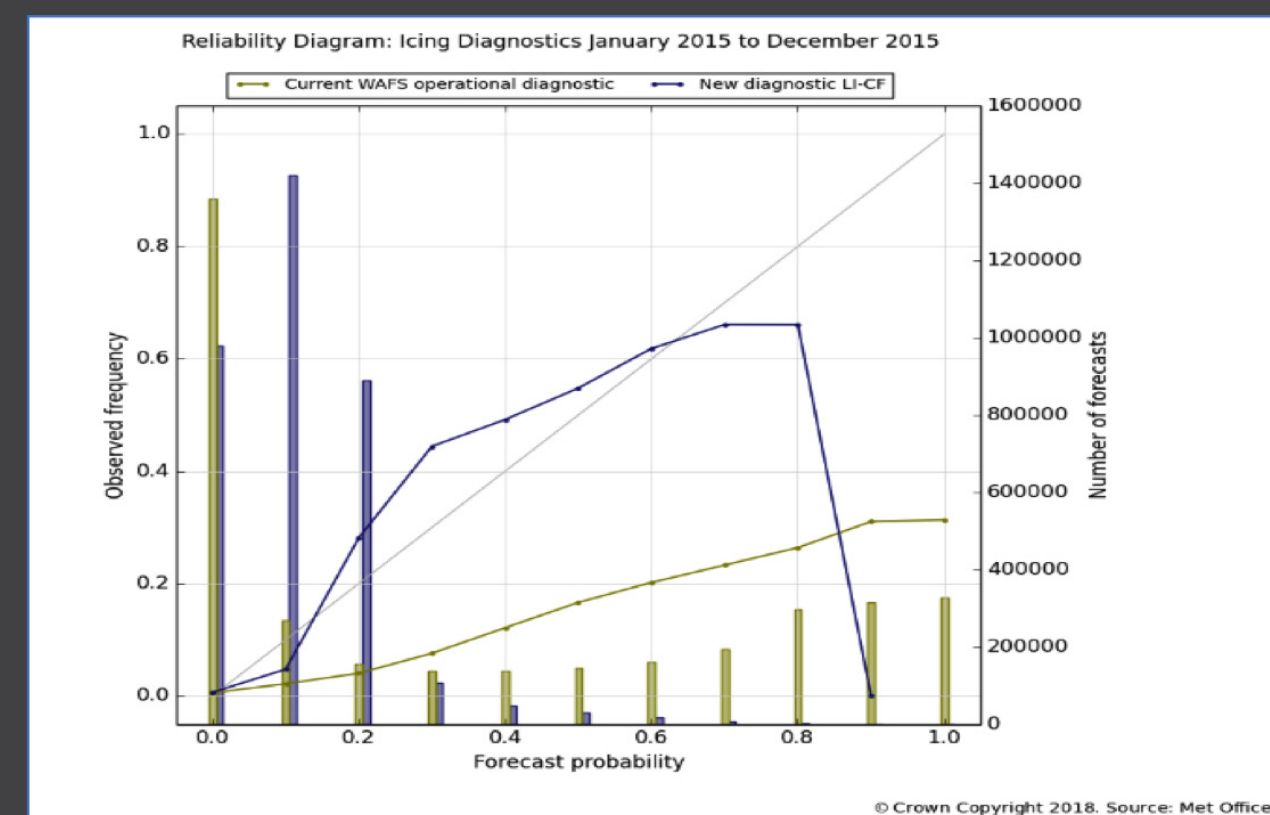
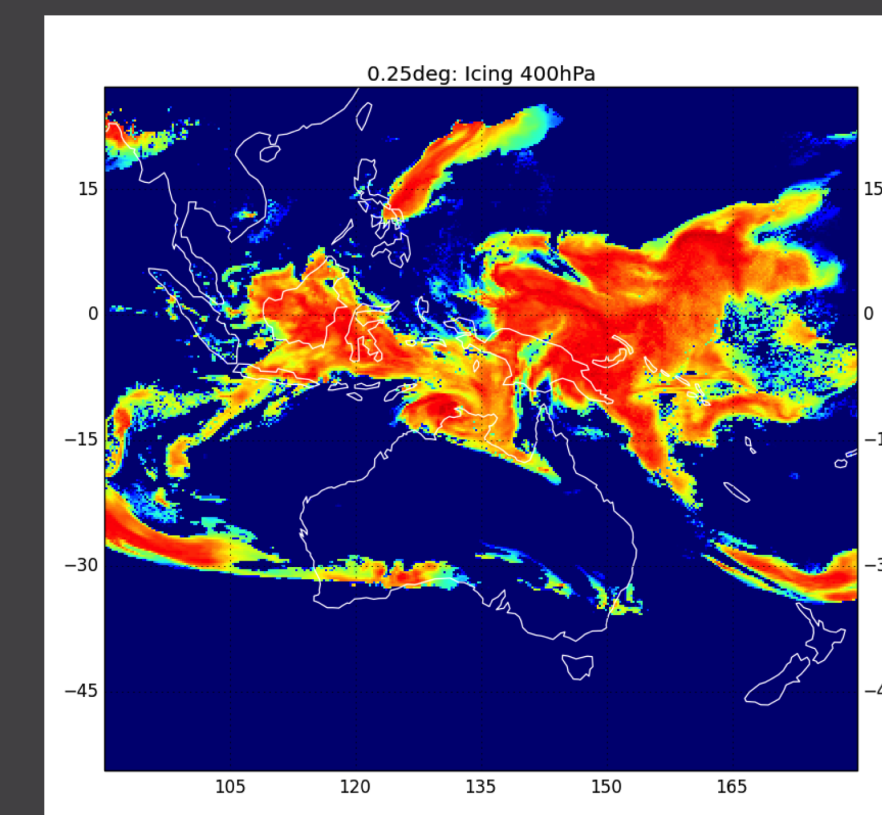


Scientific Upgrades

Improved Icing Forecasts

The new icing diagnostic is more physically realistic than the current operational diagnostic since it takes account of a wider range of meteorological conditions conducive to icing.

The reliability diagram assesses how well the predicted icing severity correspond to their observed potential frequencies, perfect reliability is lying along the grey diagonal line. The new diagnostic shows an improvement in the reliability of the icing forecasts with more correct forecasts of low icing potential and fewer incorrect forecasts of high icing potential.

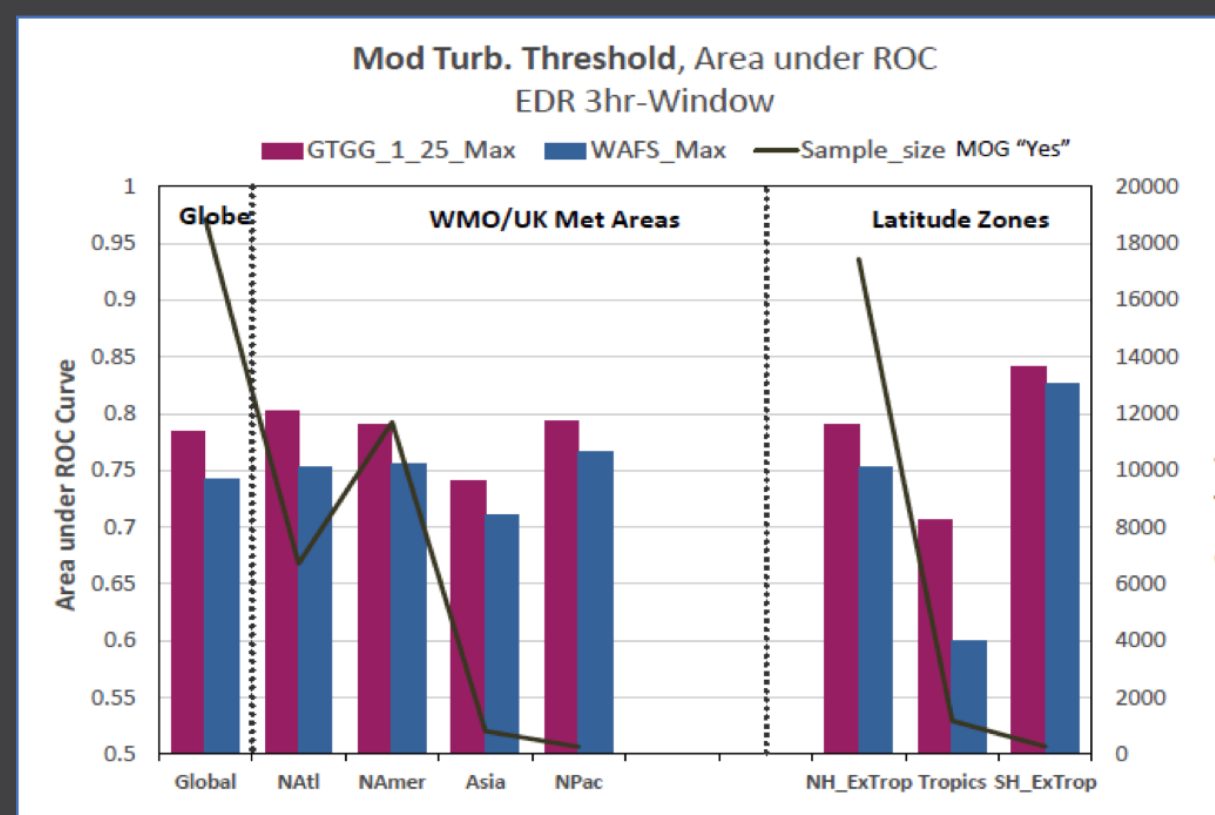
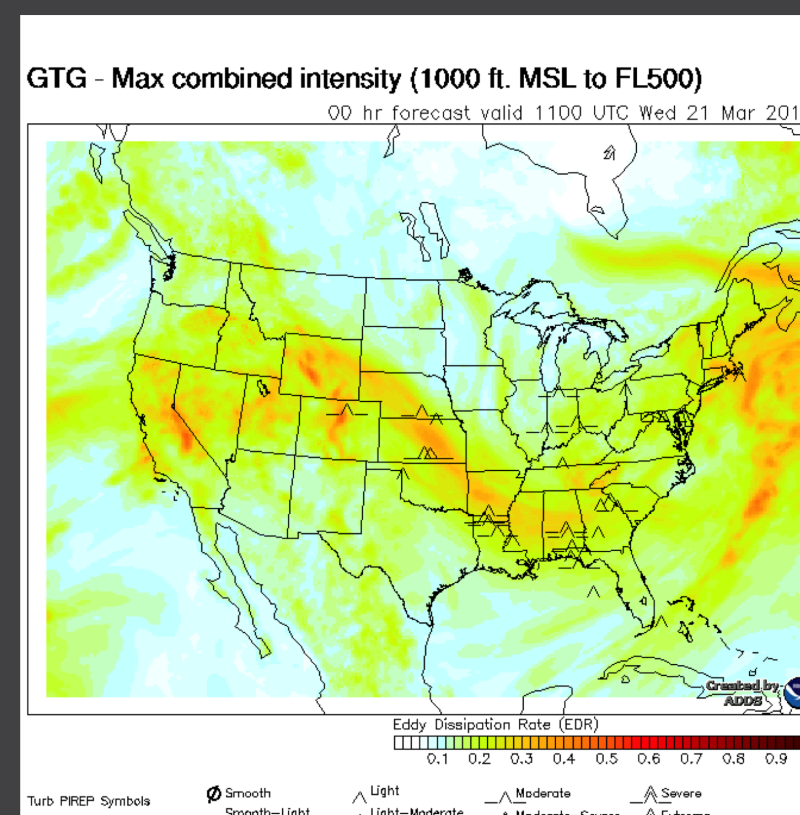


Credit: Katie Brown, Met Office.

Improved Turbulence Forecasts

The Graphical Turbulence Guidance (GTG) algorithms will provide turbulence forecasts of Eddy Dissipation Rate (EDR) which are an objective, aircraft-independent, universal measure of turbulence. The GTG turbulence forecasts include Clear Air Turbulence (CAT) and turbulence due to mountain wave activity.

The plot shows how GTG forecasts at 1.25° resolution (purple bars) outperforms the existing WAFS turbulence forecasts for all forecast areas.

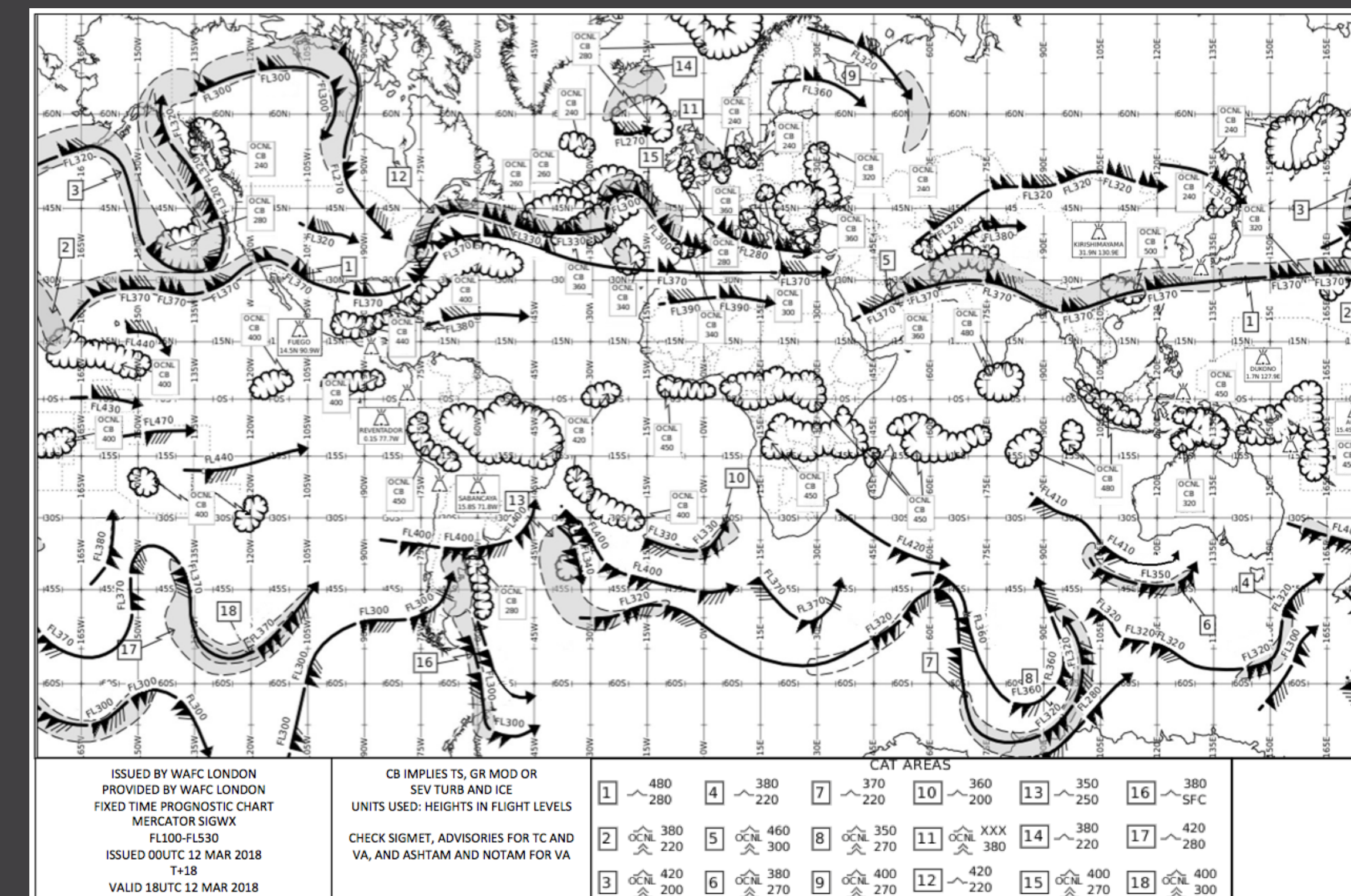


Credit: NOAA/ESRL/GSD.

SIGWX forecasts

Multiple time-step SIGWX data

Harmonised SIGWX forecasts based on 0.25 degree gridded wind, turbulence, icing and cumulonimbus. Forecasts will be produced in SWIM compatible IWXXM format.



Data will be produced for 3 hourly time-steps between T+6 and T+48.