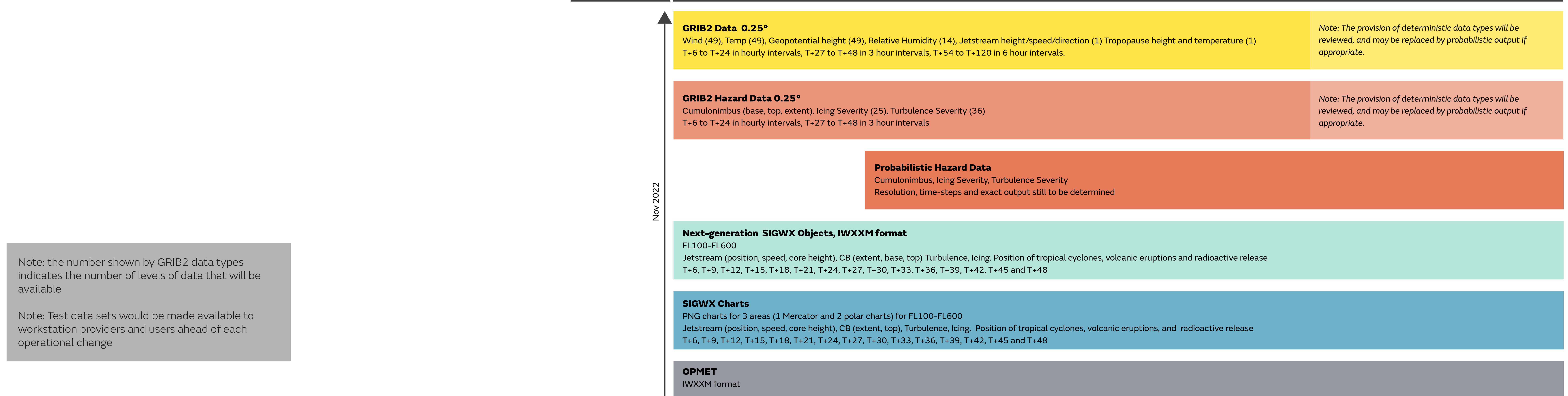
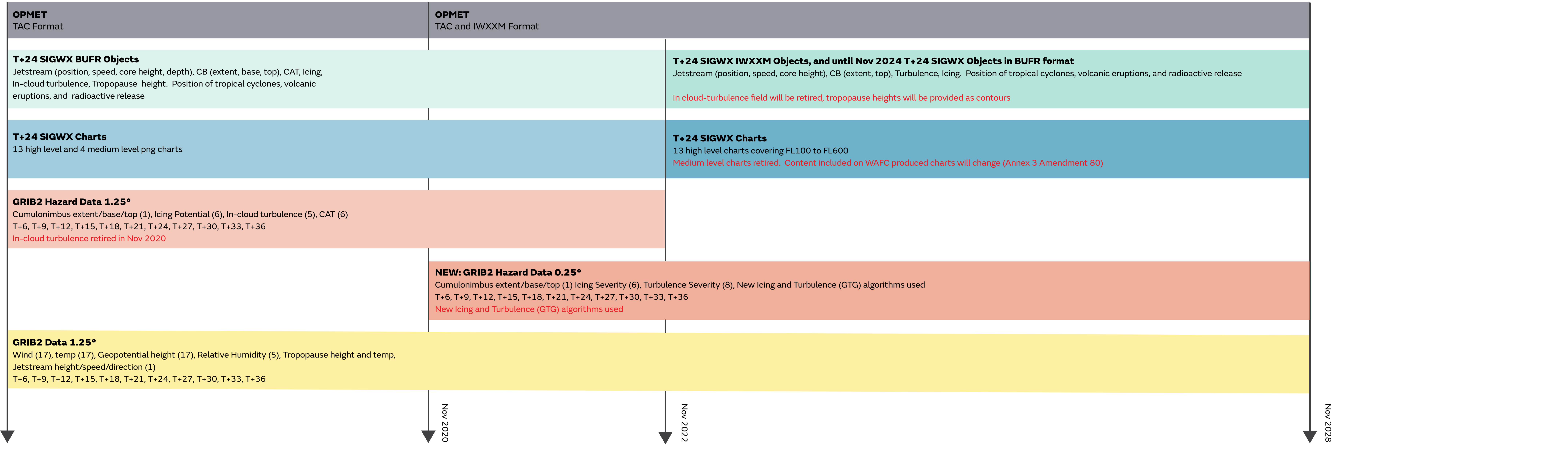


PHASE 1
In Nov 2020:
 NEW 0.25° Icing, Turbulence and CB gridded data
 NEW Improved Icing and Turbulence algorithms
 NEW OPMET data in IWXXM format
 Retired: In-cloud turbulence gridded data

PHASE 2
In Nov 2022:
 All SIGWX will cover the range FL100-FL600
 Some SIGWX elements included on charts will change
 Retired: Medium level SIGWX charts
 Retired: In-cloud turbulence SIGWX objects

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

PHASE 2
In Nov 2022:
 Next generation WAFS data sets and delivery system becomes operational

PHASE 3
In Nov 2024:
 NEW Probabilistic forecasts of CB, Icing and Turbulence

In Nov 2028:
 Potential retirement of deterministic hazard forecast data

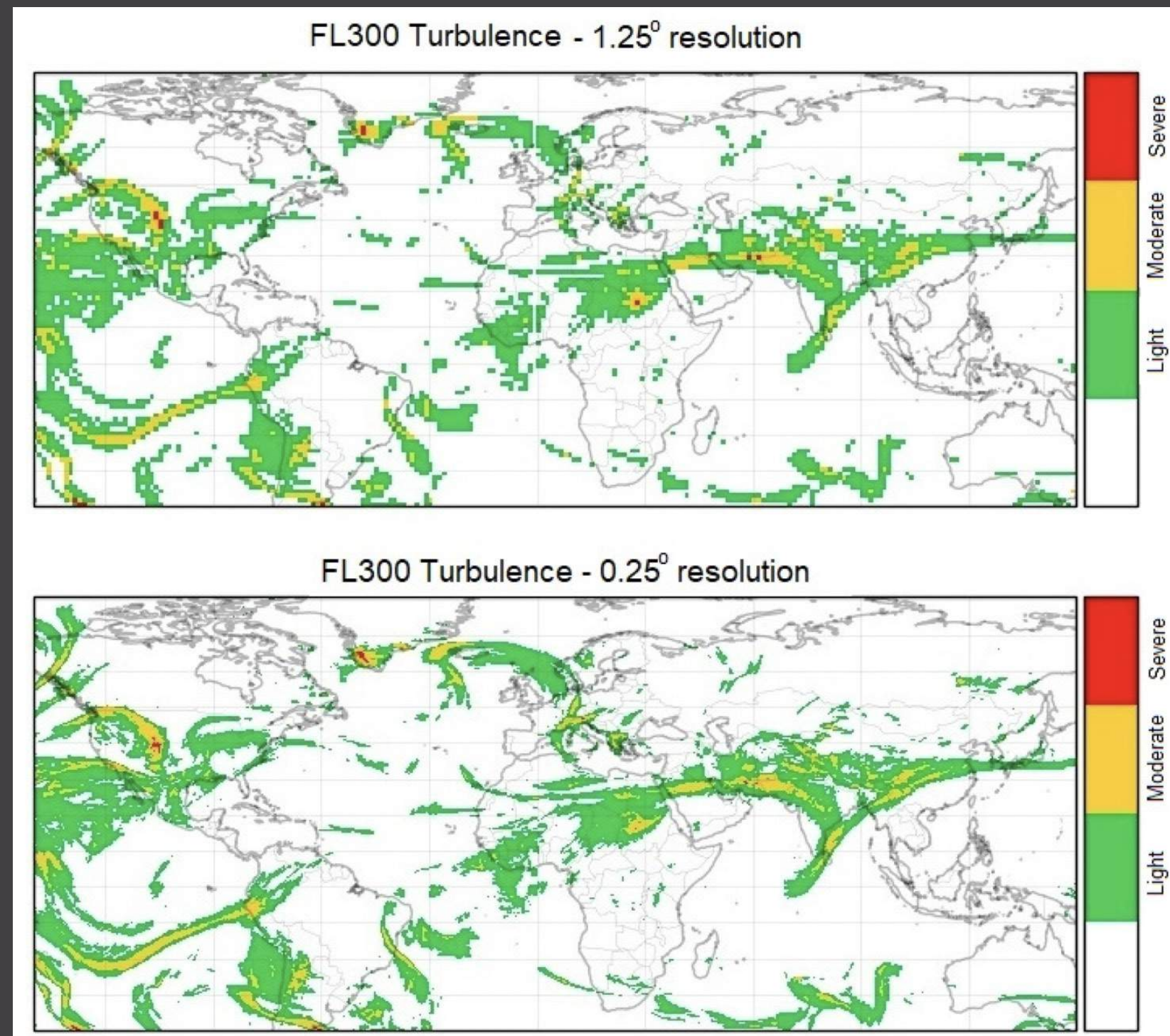
Vision:

To provide high resolution gridded data, multiple time step SIGWX forecasts, and OPMET data for 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



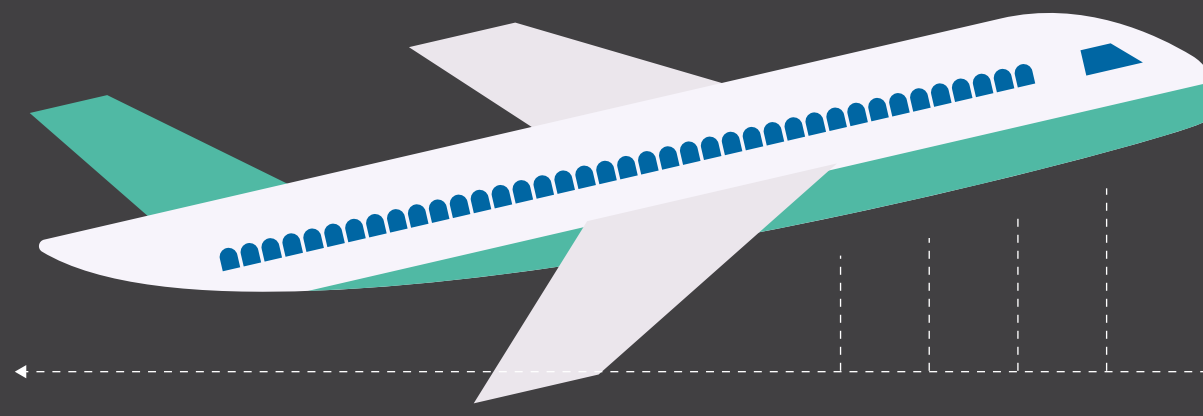
What does this mean: For an aircraft flying at 450 knots
0.25deg – 2 mins flying time
125deg – 10 mins flying time.

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	

Extra timesteps are highlighted in green

Data every 1000ft

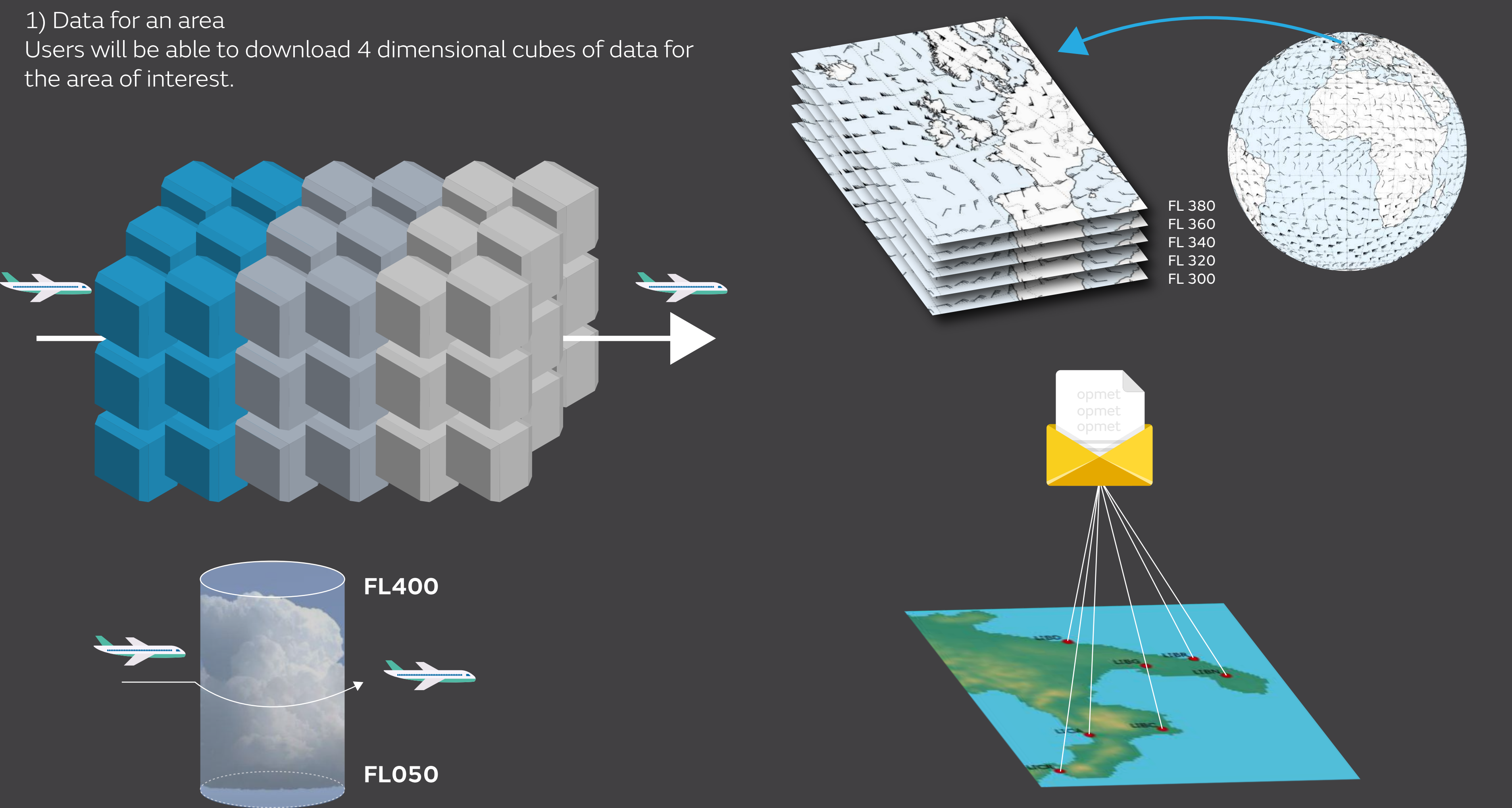


	NOW	Nov 2022
Horizontal Resolution	1.25 degrees	0.25 degrees
Wind/ Temperature	17 levels	56 levels
Icing	6 levels	26 levels
Turbulence	13 levels	36 levels
Cumulonimbus	Base/ Top/ Extent	Base/ Top/ Extent

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

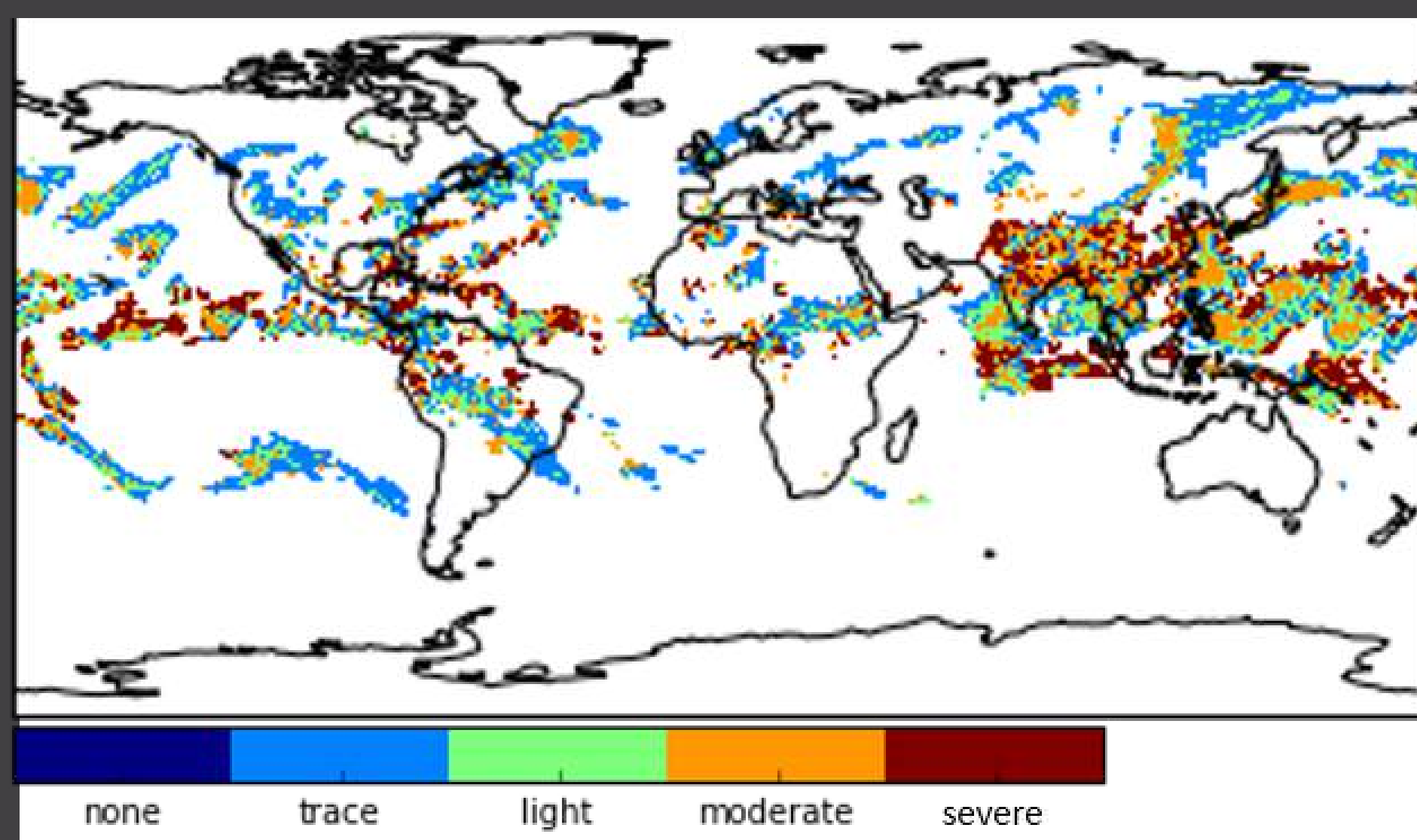


Scientific Upgrades

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.

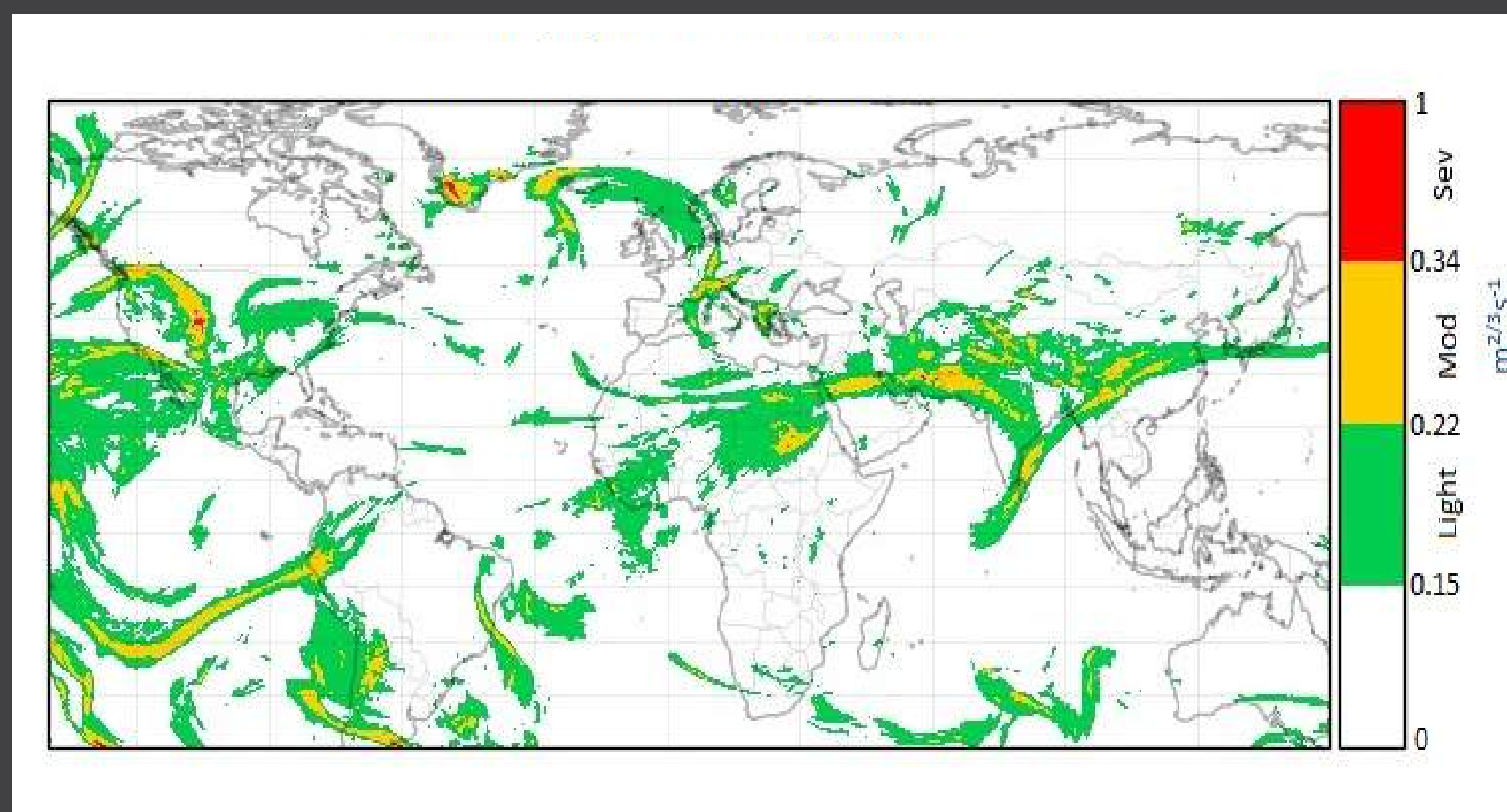
WAFS Icing Severity
0.25° FL240



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.

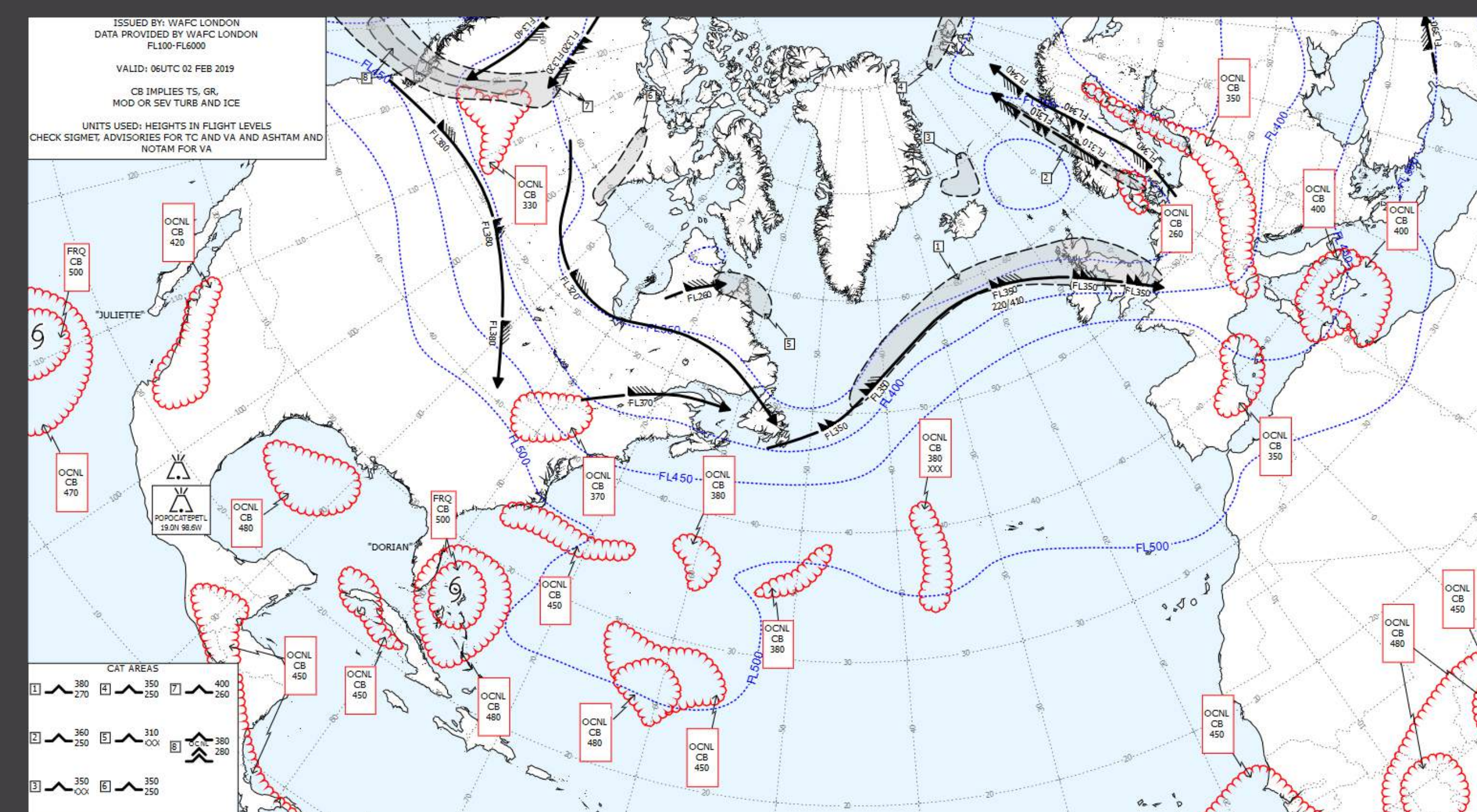
WAFS Turbulence Severity
(GTG) 0.25° FL300



SIGWX forecasts

Multiple time-step SIGWX data

Harmonised SIGWX forecasts will be based on 0.25 degree gridded wind, turbulence, icing and cumulonimbus data. Forecasts will be produced in SWIM compatible IWXXM format enabling them to be integrated into flight planning and visualisation software.



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