Basic Commerce & Industries

Developing and Advancing Aviation Weather Technologies

October 2024

For

Friends and Partners of Aviation Weather

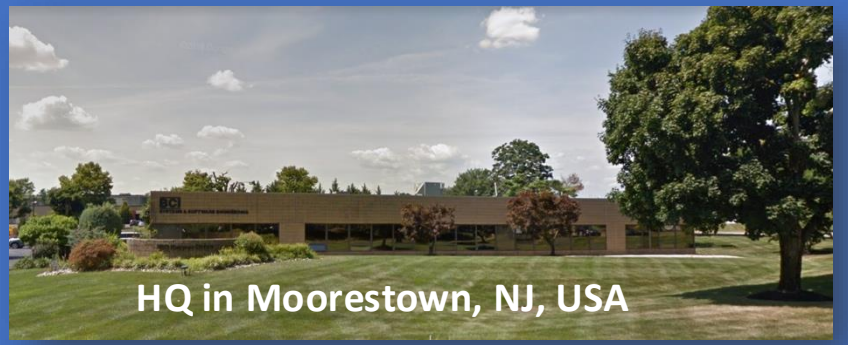
BCI

Company

BCI enters the 30th year of support to the FAA with expertise of system design, integration, and T&E for weather detection, processing and communications. Our expertise of aviation weather programs such as CSS-Wx, NWP, CIWS, SWIM, ITWS, NEXRAD, and TDWR have benefited our cross-over to commercial and general aviation.

BCI provides expertise focused on moving advanced weather technologies into daily operational use. Our integrated solutions team is comprised of subject matter experts with backgrounds across aviation weather R&D, end-users, pilots and Connected Aircraft experts.

BCI remains a well-established software development and application resource for the FAA, airlines and aviation industry.



Founded in 1981 and privately owned

200 employees working across our business

BCI

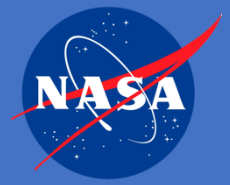
Founding Team Story

Aviation weather technology innovations are not reaching intended end-users despite extensive industry investment

Our solutions team is operationalizing advanced weather technologies to better inform end-users

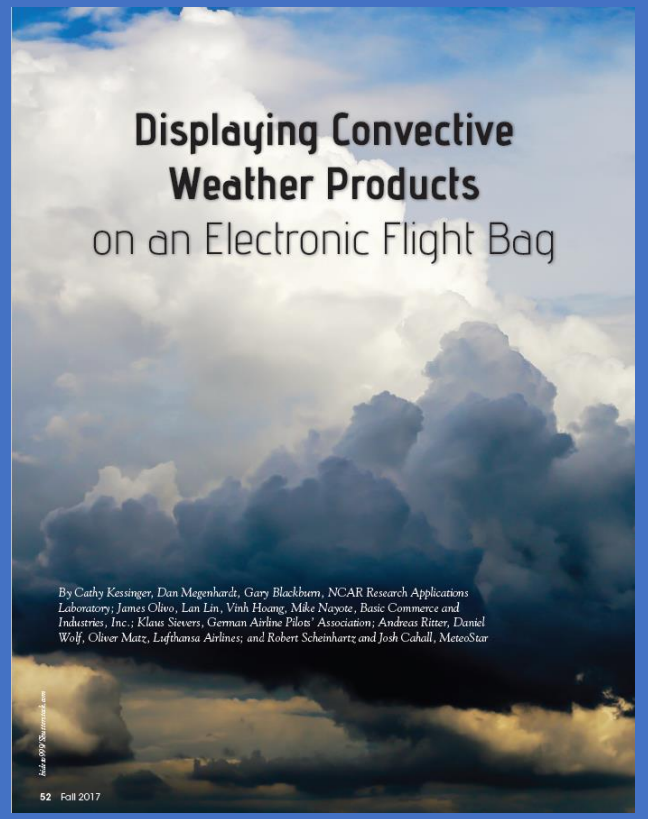
Existing partners

DELTA



Lufthansa

SkyVector®
Aeronautical Charts



BCI integrated innovative satellite-based convective hazards into an EFB application

The Journal of Air Traffic Control, Fall 2017

BCI

Common Support Services – NextGen Weather

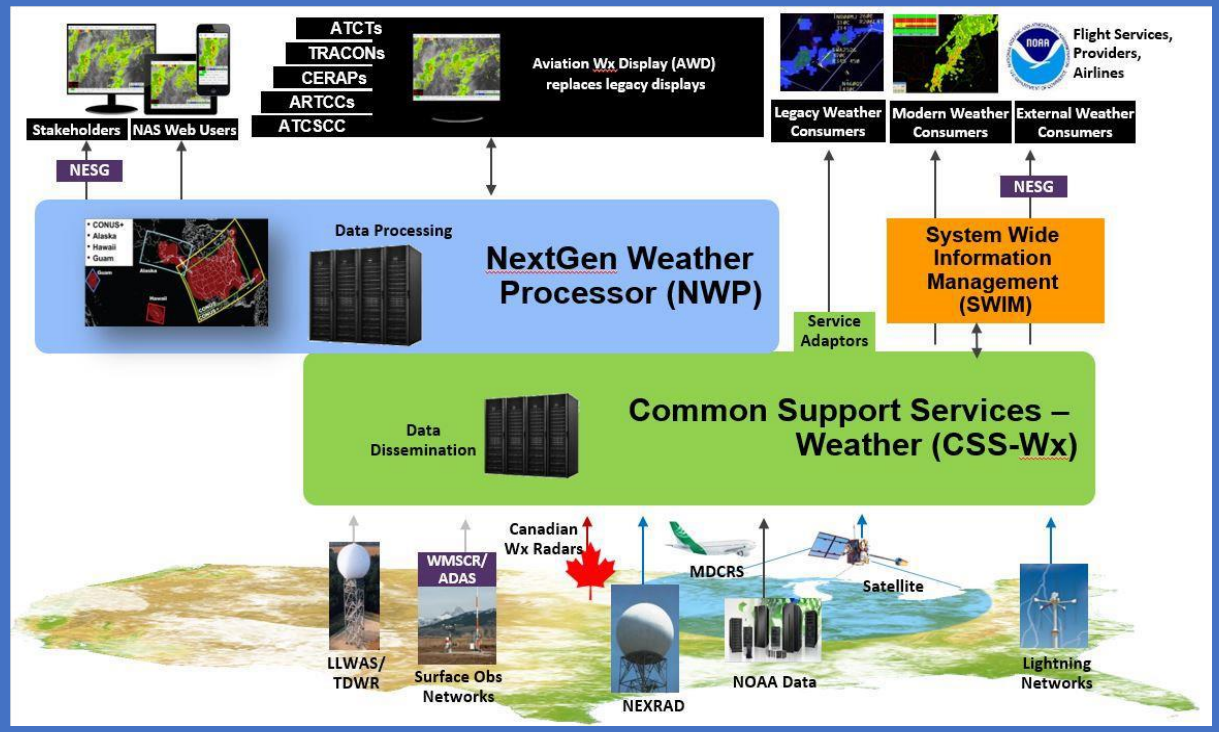
Acquires weather information from FAA and other sources

Sends data to NWP for processing

Receives data from NWP for distribution

Provides data to FAA systems that consume weather data (high reliability)

Publishes weather information to SWIM in standardized formats for broad aviation use



Common Support Services Wx
Terminal Precipitation on the Glass (TPoG)

Sharing the NextGen Weather Processor (NWP) National Radar Mosaic to replace the ASR-8/9 Weather Channel into to the Standard Terminal Automation Replacement System (STARS)

Integration requiring no “new software” on behalf of the STARS

Quality controlled consistent weather radar product

Expanded area of coverage by adding Virtual Radar sites

Air Traffic Control Responsibility

Air Traffic Control shares a role to ensure safety and efficiency with respect to Wx.

ATC systems historically rely on Wx Data internal to FAA (ASR-Wx, TDWR, LLWAS, OMO…).

Airlines historically rely on Wx Data that is Public or Vendor provisioned (NEXRAD, NWS, FAA WMSCR, (METAR, TAFs, MRMS, SAT).

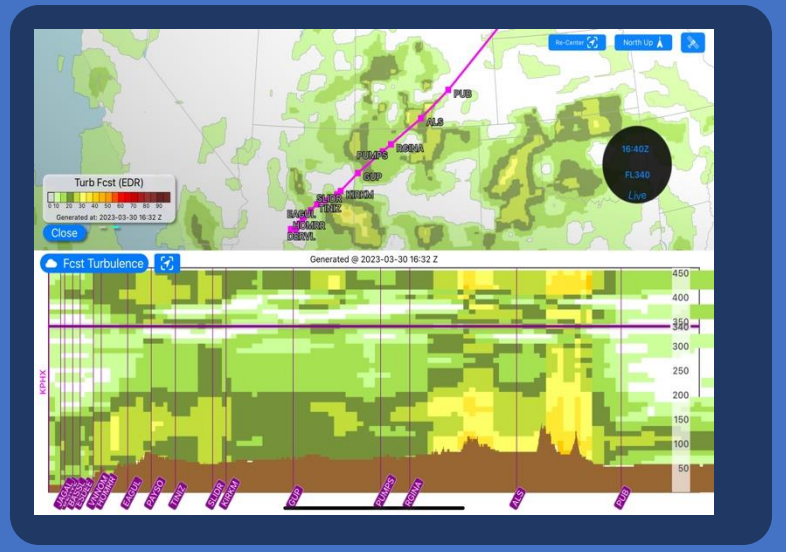
FAA Tower/TRACON/Center

CSS-Wx provides accessibility to the internal FAA products to industry via SWIM potentially giving a "Common Situational Awareness"

BCI

Wx Technology in the Cockpit

Extensive studies to assess the use of wx products within cockpit during flight with live updates. (AT/Pilot Workload, Data Comm, Products, HF Use…)



BCI FlightWx Application

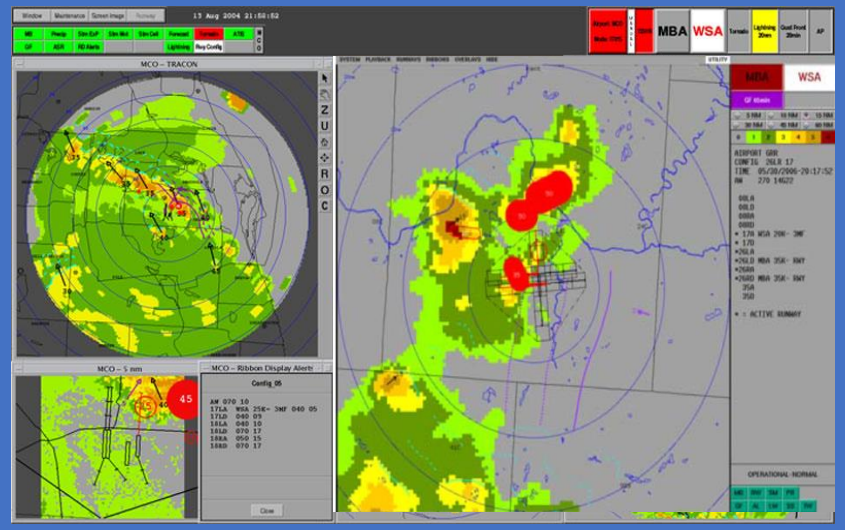
Results: Decreased ATC/Pilot VoiceComm, Better Cabin Management, Decreased Attendant Injuries, Increased Flight Efficiency/Fuel Savings

WTIC produced studies on Wx Products for specific use within Cockpit. (EDR Based Turbulence, Cloud Top and Convective Products)

BCI

CSS-Wx Immediate Products of Industry Interest

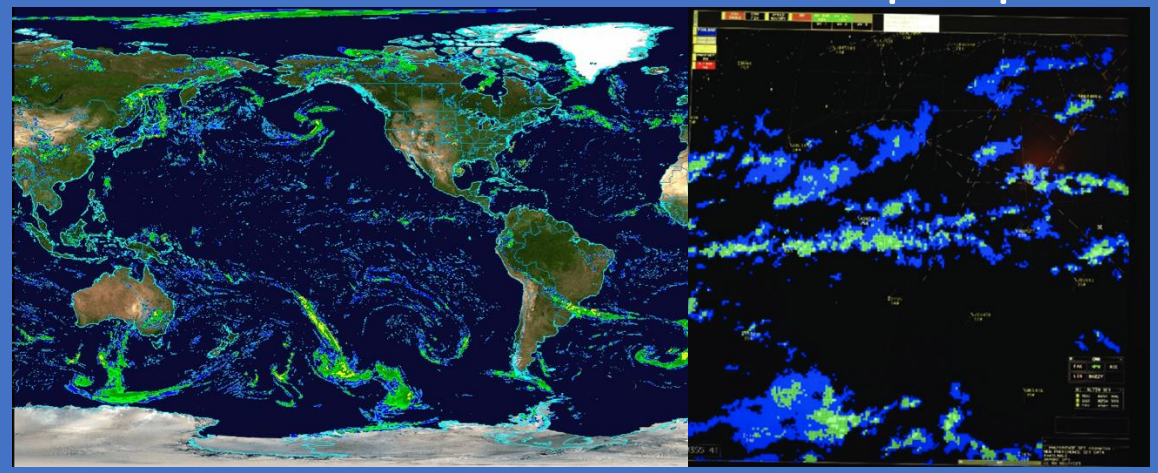
ASOS OMO DATA



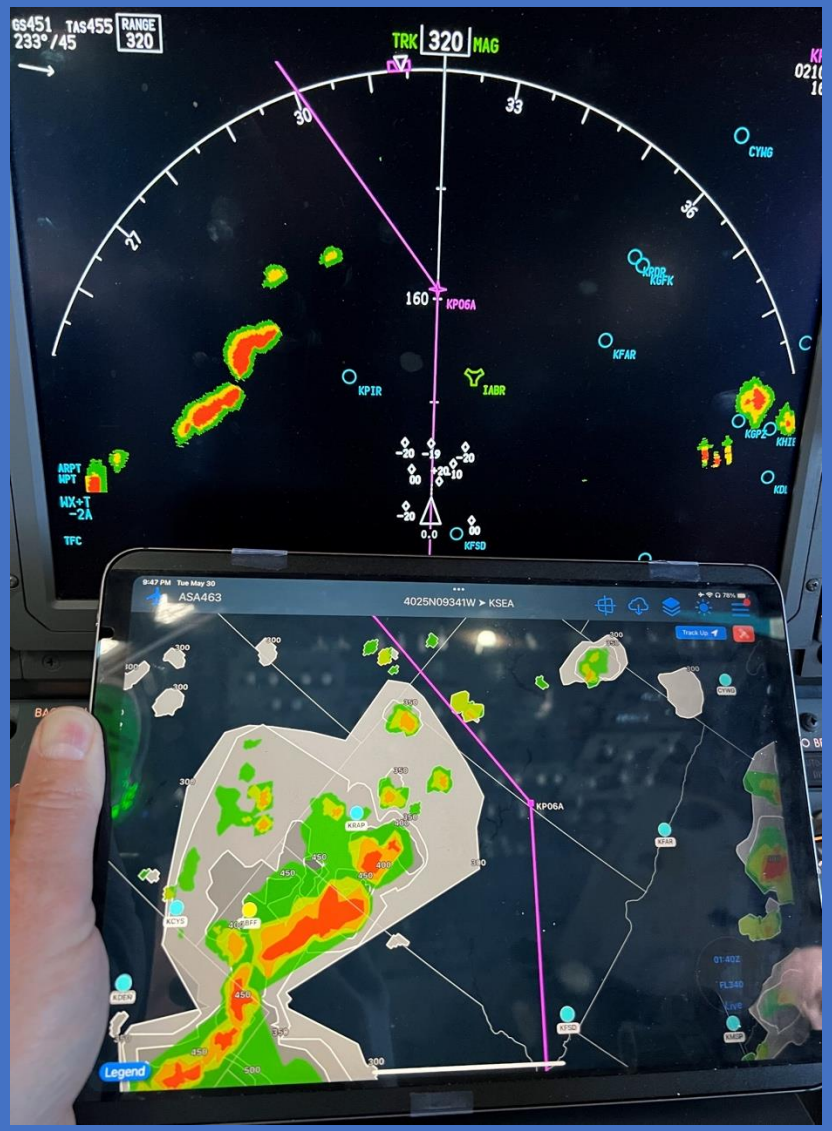
ITWS Windshear, Microburst Gustfront

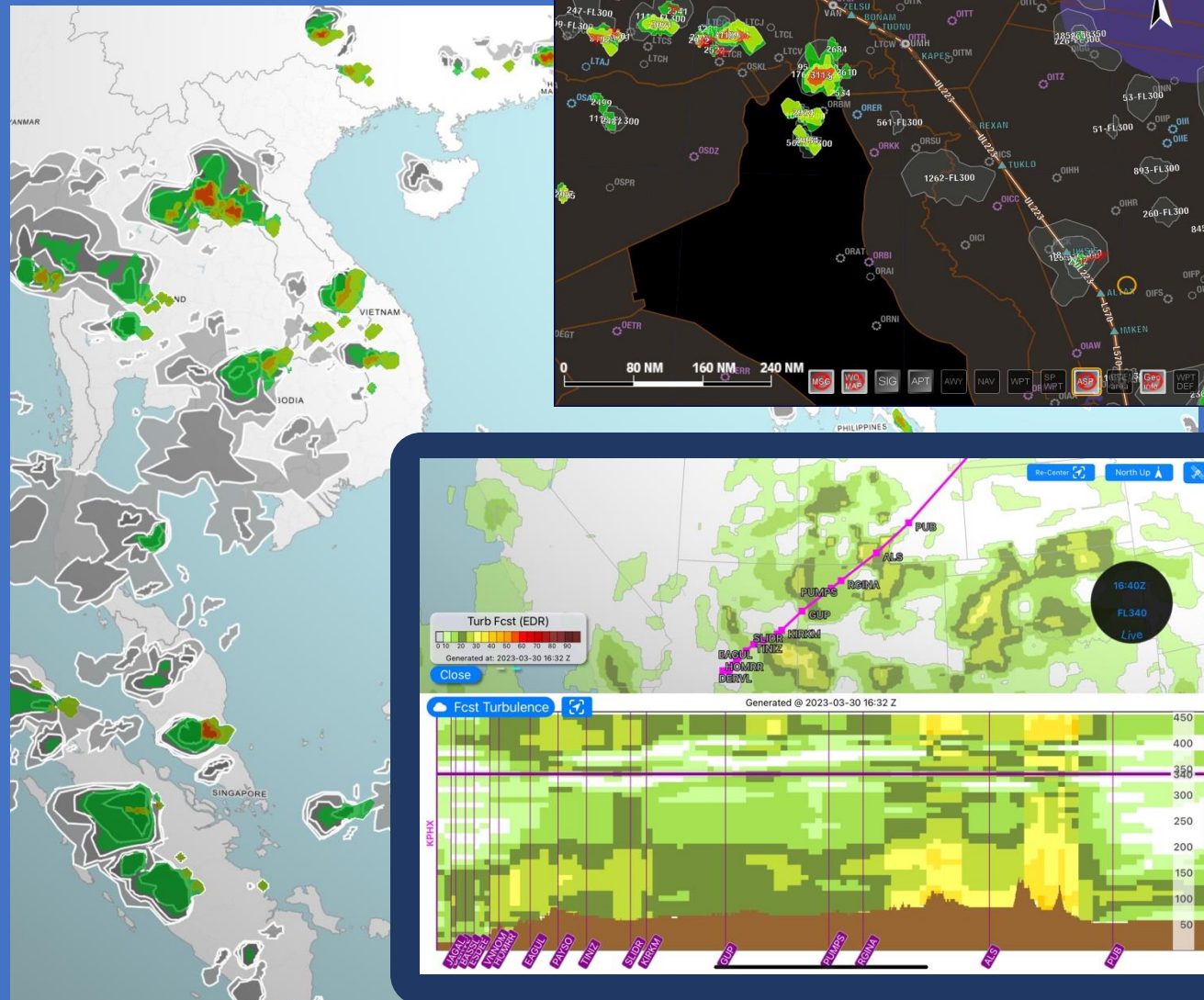
NWP Radar Mosaic

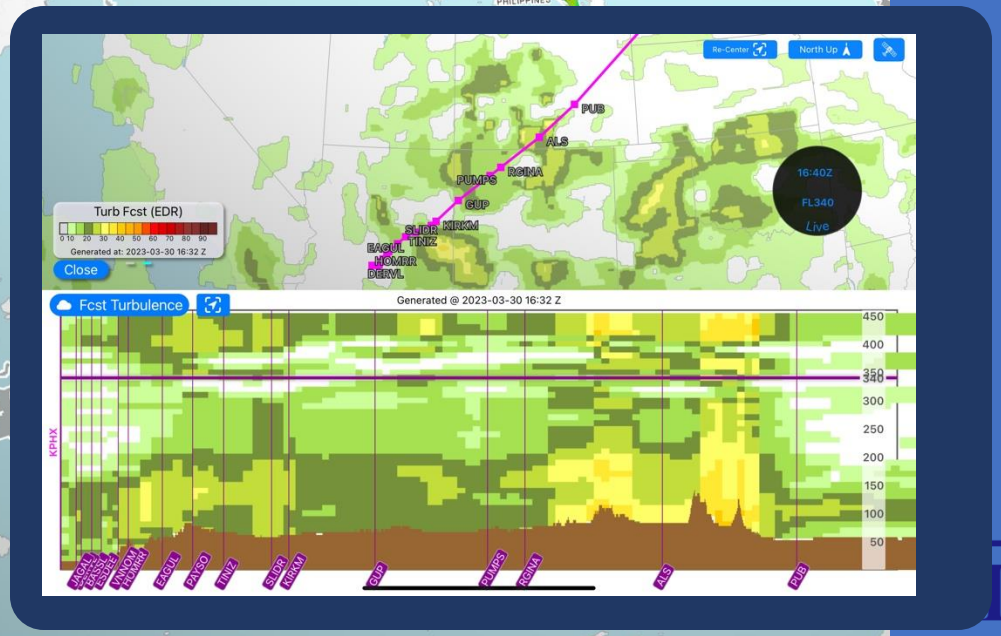
Off-Shore Precip Capability



Cockpit Flight Weather Tools







Aviation TBO Requires Common Wx Data

Both Ground and Cockpit Based TBO Algorithms require low latency high frequency data

TBO impact to ATC workload greatly relies on common situational awareness among the controller, pilot and dispatch

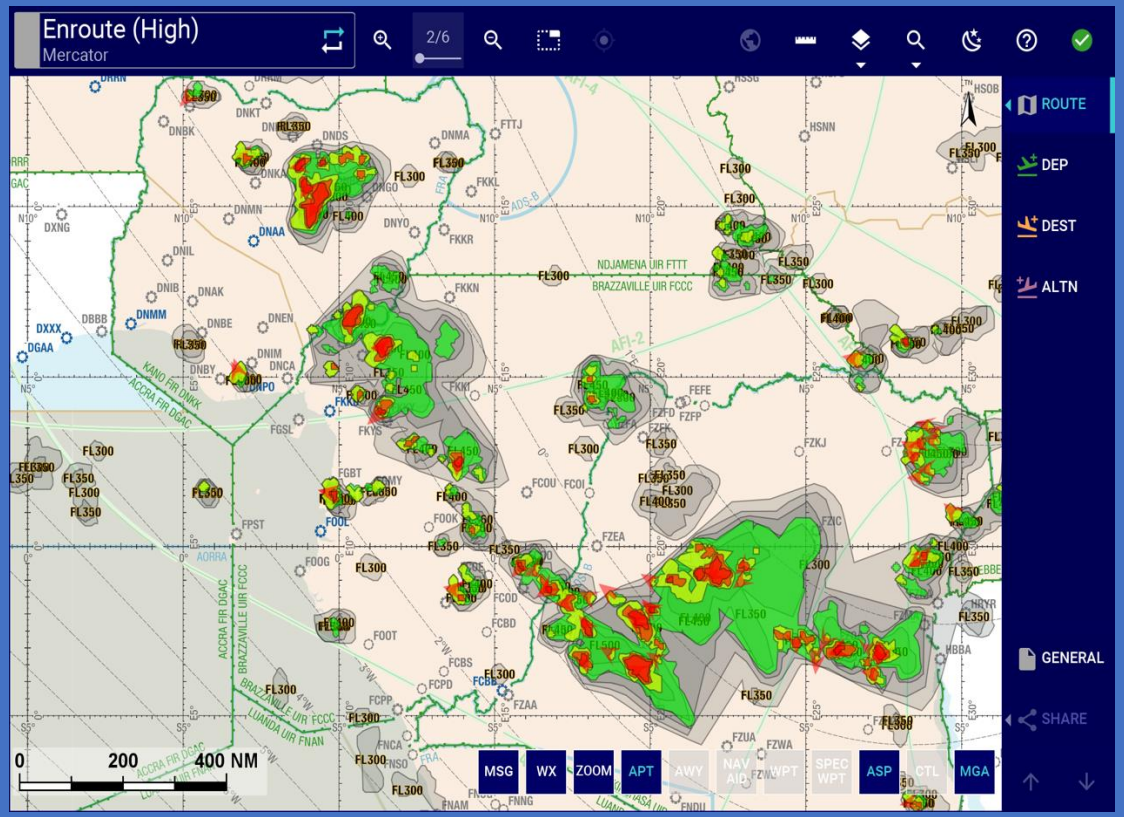
TBO Flight Optimization Tool

TBO capabilities will further improve pilot decision making while reducing workload. This can not be fully achieved without the common situational awareness with ATC

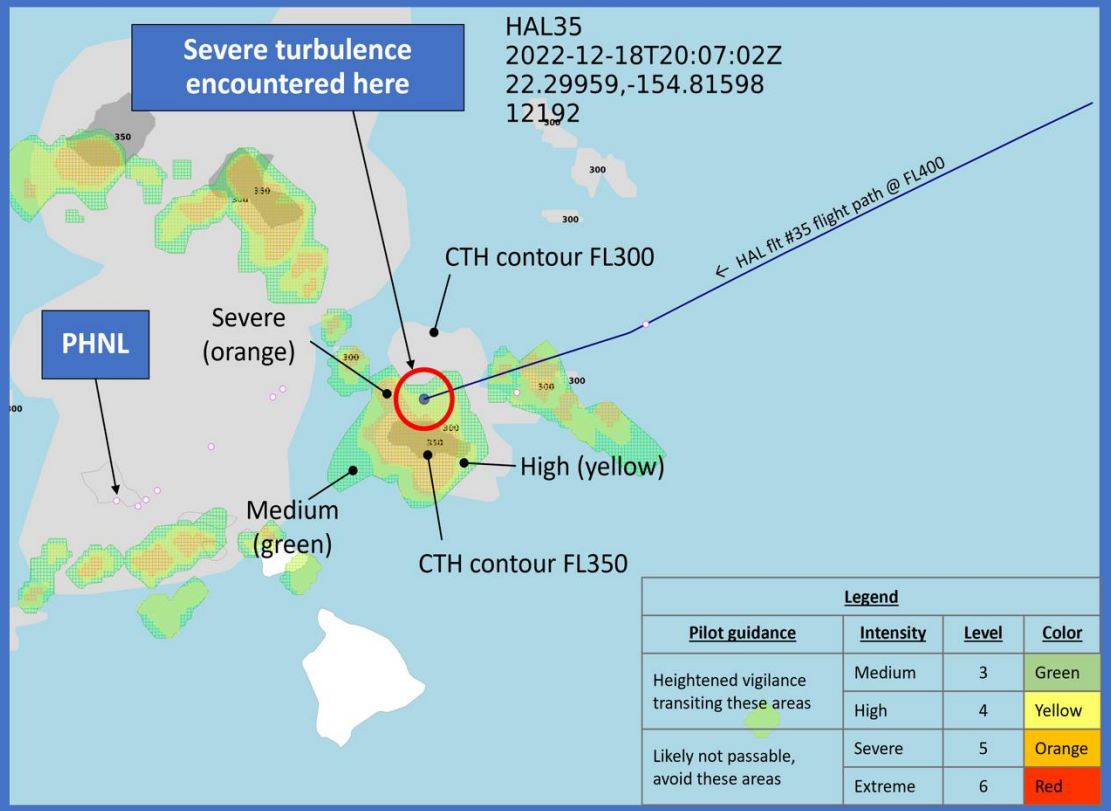
BCI

ATC Products of Interest

BCI Licensed NCAR CTH & Convective Products



HAL flt #35 route plotted with FlightWxConvective threat data



Legend			
Pilot guidance	**Intensity**	**Level**	**Color**
Heightened vigilance transiting these areas	Medium	3	Green
	High	4	Yellow
Likely not passable, avoid these areas	Severe	5	Orange
	Extreme	6	Red

Jim Olivo

Director of Aviation Weather Programs and Services

jolivo@bcisse.com
+1 609.517.2289