Using Windy for Flight Planning

Blake Crosby - November 2, 2023

TODAY'S AGENDA

01

ABOUT ME

A little about your presenter

02

MODELS

What are weather models and which one is best?

03

DATA LAYERS

Useful data layers to help with flight planning

04

CLIMATE CHANGE

What else to look for (smoke, forest fires)

05

REAL TIME

Using real time data layers such as weather radar

06

TRIP PLANNER

How to use Windy's trip planner.

TODAY'S AGENDA

07

TRIP #1

Planning a cross country trip.

08

TRIP #2

A local sightseeing trip.

09

Q&A

Your opportunity to ask questions!

Some Housekeeping Rules:

- Video **will be disabled** by default for all participants for privacy reasons.
- You will **be muted** during the presentation to avoid distracting others. If you have a question during the presentation please use the Zoom chat function.
- If it's easier for you to ask your question verbally: You will have the ability by the host during the Q&A period to unmute yourself.

BLAKE CROSBY

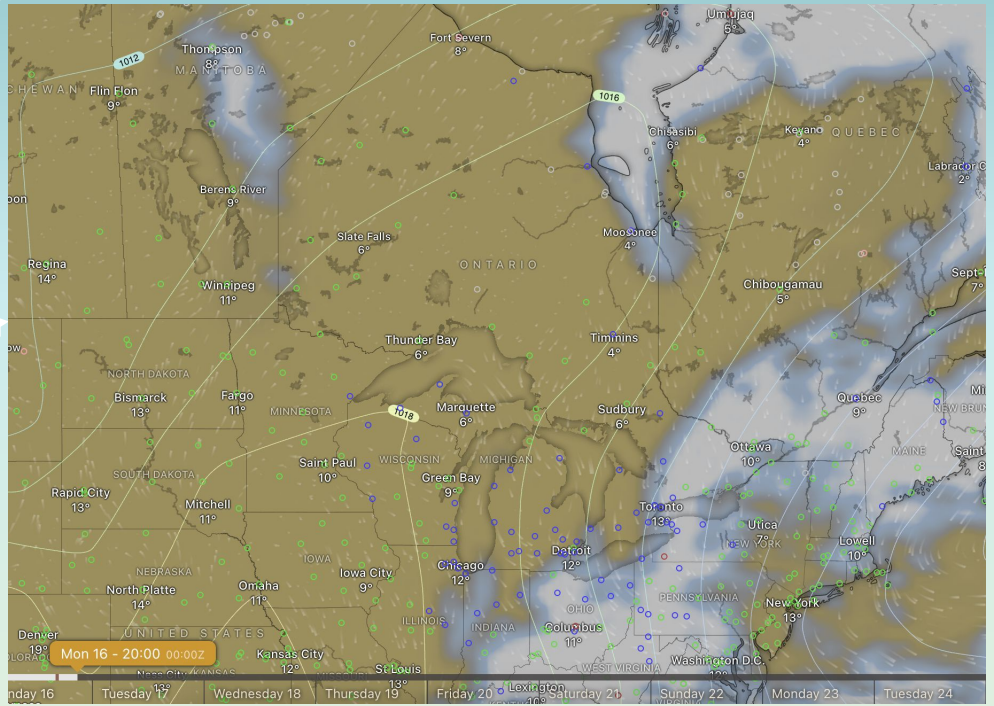
I'm a Canadian who Flies "Plane Jane", a Piper Cherokee Six.

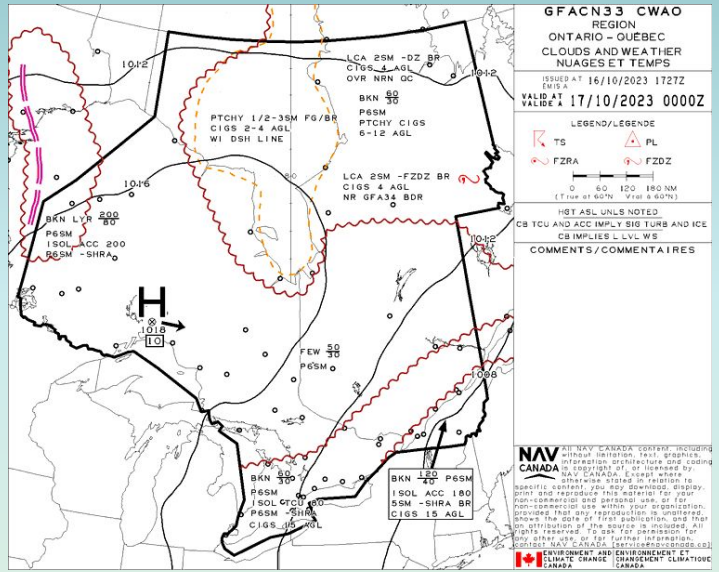
- I am **not** a meteorologist or certified flight instructor.
- I am **not** affiliated with Windy.com.

I can be reached at: me@blakecrosby.com
You can also read my blog at fly.blakecrosby.com

blakecrosby drunkwithjetlag crosbyblake

COMPARING WINDY TO THE GFA





Low clouds

Low clouds is cloud coverage at an altitude between the surface and circa 2000m. Cloud cover is given in percent.

02

WEATHER MODELS

WHAT IS A WEATHER MODEL

A SET OF INSTRUCTIONS/RULES

For a computer to use to "model" or "forecast" the weather.

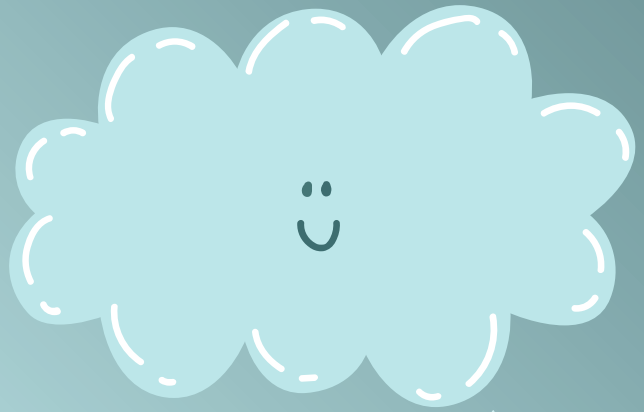
REGION IS SLICED INTO PARCELS

And the computer forecasts the weather conditions at set altitudes in each parcel.

MODELS AVAILABLE IN WINDY

Model Name	Resolution	Update Cycle	Best Used in CAN/USA
ECMWF	9 km	6 hours	✓
HRRR	3 km	1 hour	✓
GFS	22 km	6 hours	✓
NAM	5 km	6 hours	
ICON	13 km	6 hours	

[1] ECMWF is considered to be the most accurate forecast model worldwide.



03

DATA LAYERS

COMMON DATA LAYERS

Data Layer	Altitude	Used For
Wind	Surface & Aloft	Runway direction, cruise winds aloft
Pressure	Surface	Determining fronts and weather.
Cloud Base	All	VFR Flights
Visibility	Surface	Fog/Low Lying clouds
Thermals	All	Daytime heating turbulence

[2] Note: Some of these layers may only be available in Windy Premium

COMMON DATA LAYERS

Data Layer	Altitude	Used For
Aerosol	All	Volcanic ash/Forest fires
Freezing Altitude	All	IFR flights to prevent airframe icing
Temperature	Surface & 500mb	Determining air masses
Rain & Thunder	Surface	Location of convective and non convective rain

[2] Note: Some of these layers may only be available in Windy Premium

CLIMATE CHANGE

04

FOREST FIRES

Number of forest fires in the USA have doubled between 1984 and 2015 [3]

HURRICANES

An increase in flood levels, rain amount, and the number of major hurricanes. [4]

FOREST FIRES

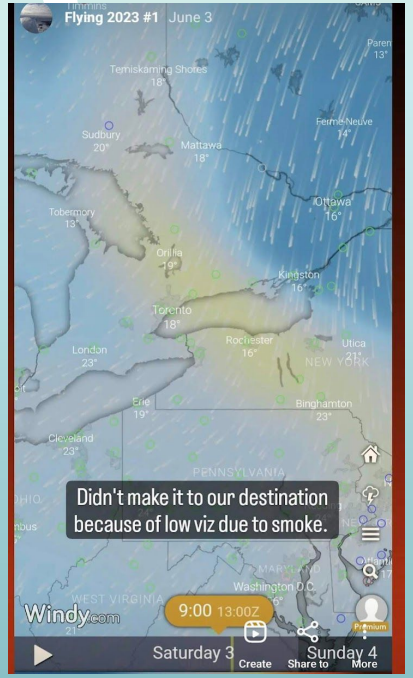
SURFACE VISIBILITY

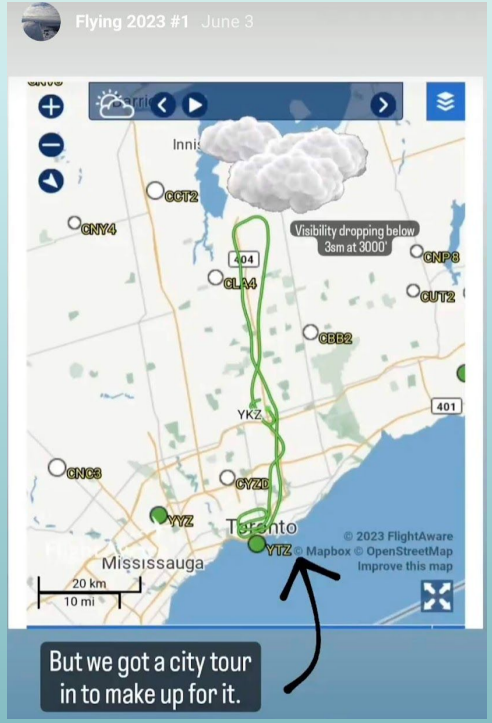
Will most likely not match visibility aloft. Horizon may be obscured for VFR flight.[5]

AEROSOL INGESTION

Smoke and ash may degrade engine performance or affect flight crew.

FOREST FIRES





TRUCKEE ACCIDENT

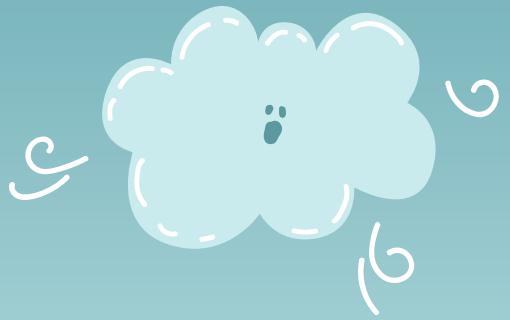
Location:	Truckee, California	**Accident Number:**	WPR21FA286
Date & Time:	July 26, 2021, 13:18 Local	**Registration:**	N605TR
Aircraft:	BOMBARDIER INC CL-600-2B16	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	6 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Because of their lack of preparation, they made critical errors on the approach that reduced the safety margin, which included[5]:

- flying the circling approach at a higher airspeed than the upper limit specified for the airplane's category C approach category;
- failing to establish the airplane on the downwind leg of the circle-to-land approach; and
- failing to visually identify the runway early in the approach, **likely due to obscuration by smoke.**

HURRICANE TRACKER

05



REAL TIME DATA

DATA LAYERS

METAR/TAF

Current METARS and TAFs at airports

SATELLITE

Visible and Infrared

RAIN

Real time weather radar with lightning.

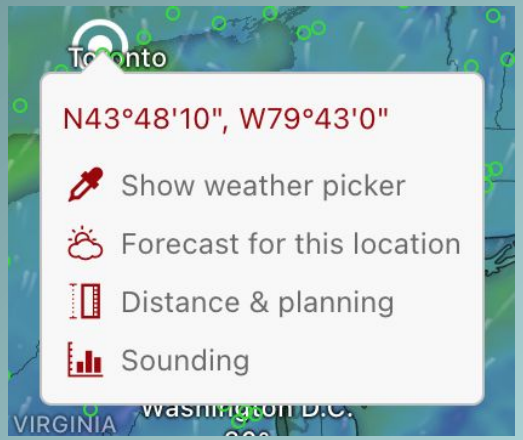
06

TRIP PLANNER

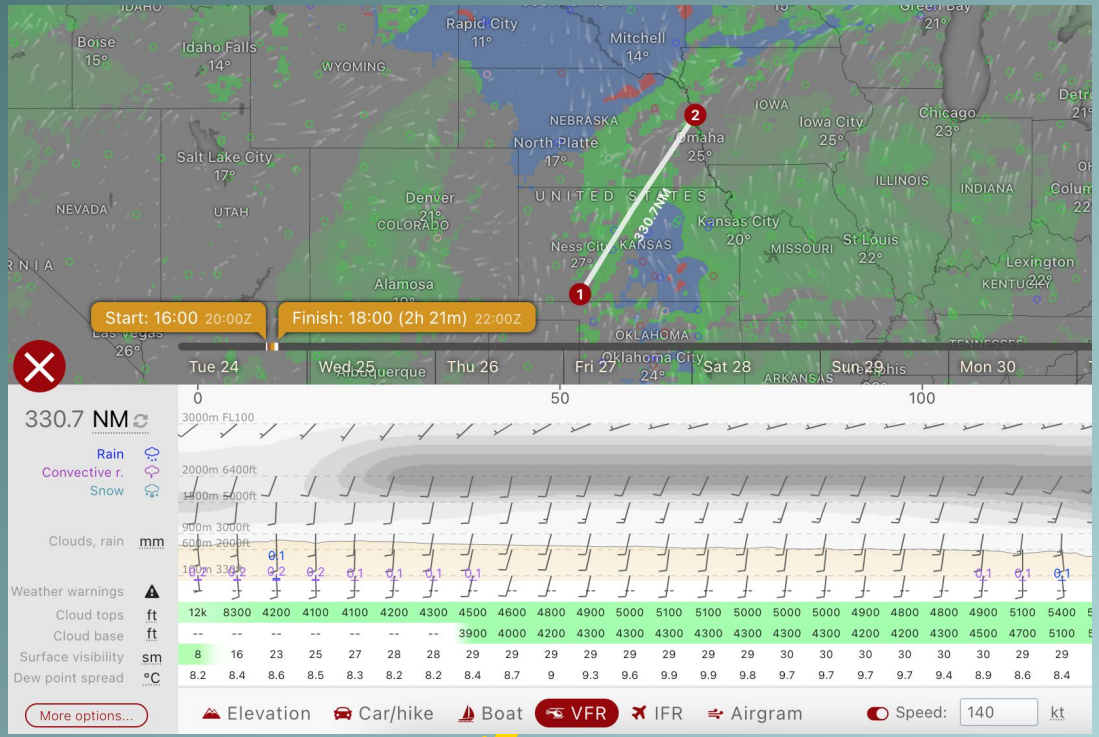
TRIP PLANNER

DISTANCE AND PLANNING

Right click on a location on the map and select "Distance & planning"



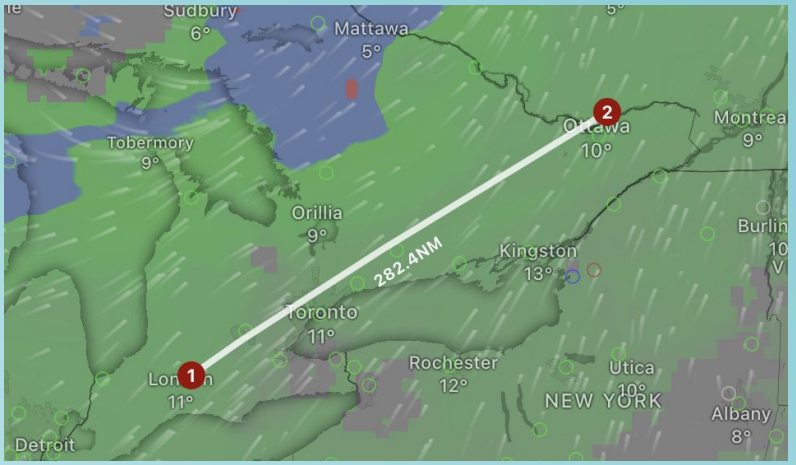
TRIP PLANNER



07

CROSS COUNTRY FLIGHT

CYYZ TO CYUL

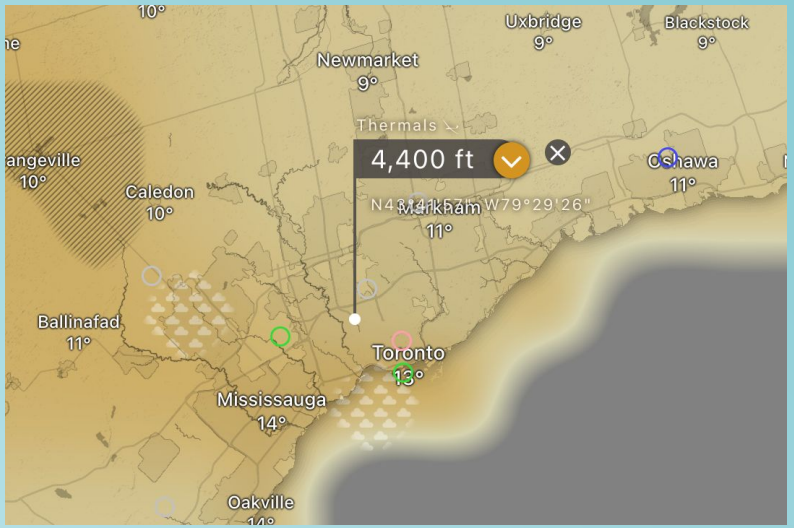


VFR Flight departing at 13:00 tomorrow.
Weather expected along route
Discuss mitigation strategies with avoiding rain/low cloud
Optimize route for head/tailwinds

08

LOCAL SIGHTSEEING

SIGHTSEEING FLIGHT



VFR Flight to maximize passenger comfort
Departing tomorrow @ 13:00
Usually 1 hour or less
Would like good in flight visibility (no haze)

09

QUESTION & ANSWERS

THANKS!

Post-Event Survey:
https://forms.gle/tmjxvDxoGpRXf7LA9

Slides and Webinar Recording:
https://fly.blakecrosby.com/2023/10/using-windy-for-flight-planning.html

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon** and infographics & images by **Freepik**

USING GFA IN WINDY

Forecast model: GFS 22km

Provider: NOAA

Updated 3h 33m ago (ref 12Z)

Next update expected at: **07:42 PM, in 3h 26m 23s**

Update interval: 6 - 7 hrs

Reference time: 2023-10-16T12:00:00Z