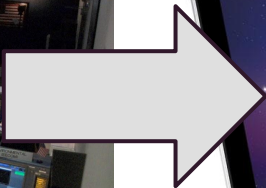


An Integrated Online HAB System

Ethan Harstad - Stratospheric Ballooning Association

What is it?

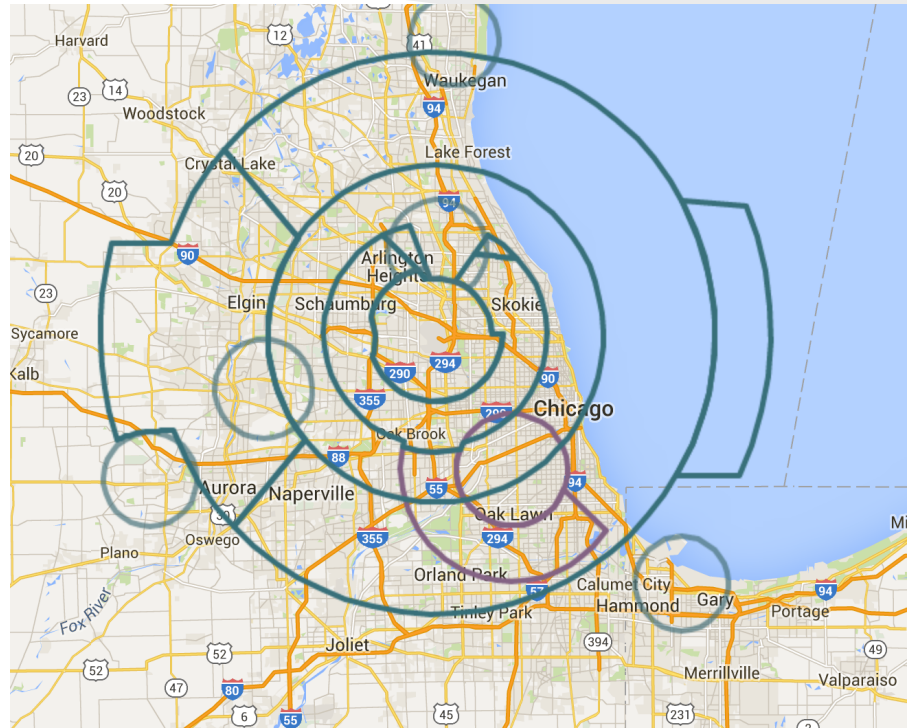
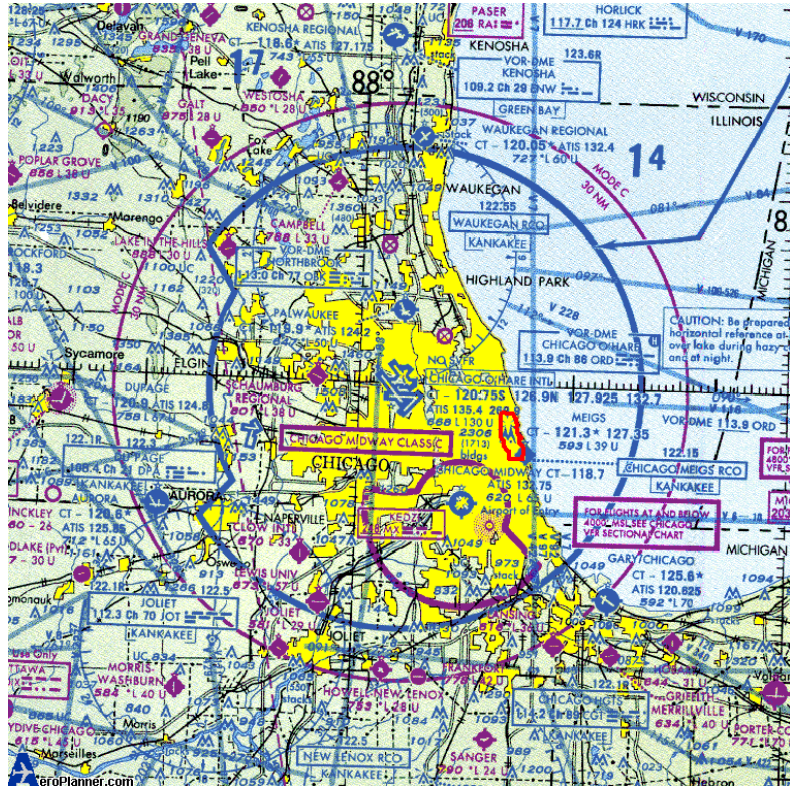


Mission

Improve the quality of balloon missions
through simplification and standardization

What's hard?

Airspace awareness



Scheduling

The screenshot displays the HABtk - 0.01 Alpha software interface. The main window shows a map of the Des Moines, Iowa area with several flight paths plotted in various colors (blue, green, yellow, orange, red, purple). The paths originate from a central point near Des Moines and extend in various directions, ending at points labeled 'Burst'. The map includes major roads like I-80, I-380, and US-30, and cities like Boone, Perry, Johnston, Clive, Des Moines, Indianola, Ankeny, Newton, Marshalltown, Montezuma, and Pella.

On the left side, there is a control panel with the following settings:


- Flight: Kaymont 600:1.12kg neck-lift
- Buttons: New, Open, Edit
- Start Time: 2012-05-11 12:00 (Pick)
- Stop Time: 18:00 (Pick)
- Interval (hr): 3 (Days out: 7)
- Progress: 100%
- Run button

At the bottom, a 'Prediction List' table is visible, showing the following data:

Show	Launch Time (UTC)	Balloon Type	Lift (kg)	Time Aloft	Distance (km)	Altitude (km)
<input checked="" type="checkbox"/>	2012-05-17 15:00	Kaymont 600	1.12	02:23:30	56.09	31.532
<input checked="" type="checkbox"/>	2012-05-16 15:00	Kaymont 600	1.12	02:23:00	49.28	31.375
<input checked="" type="checkbox"/>	2012-05-16 12:00	Kaymont 600	1.12	02:23:00	58.08	31.375
<input checked="" type="checkbox"/>	2012-05-17 18:00	Kaymont 600	1.12	02:23:30	56.02	31.532
<input checked="" type="checkbox"/>	2012-05-16 18:00	Kaymont 600	1.12	02:23:00	36.72	31.375
<input checked="" type="checkbox"/>	2012-05-17 12:00	Kaymont 600	1.12	02:23:30	56.68	31.532

Regulations

No certificate may be issued unless a completed application form has been received (14 C.F.R. 91, 101, and 105).

 US Department of Transportation Federal Aviation Administration		Form Approved: O.M.B. No. 2120-0027	
		APPLICANTS — DO NOT USE THESE SPACES	
Region		Date	
Action <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved — Explain under "Remarks" Signature of authorized FAA representative			
INSTRUCTIONS			
Submit this application in triplicate (3) to any FAA Flight Standards district office. Applicants requesting a Certificate of Waiver or Authorization for an aviation event must complete all the applicable items on this form and attach a properly marked 7.5 series Topographic Quadrangle Map(s), published by the U.S. Geological Survey (scale 1:24,000), of the proposed operating area. The map(s) must include scale depictions of the flightlines, showlines, race courses, and the location of the air event control point, Police dispatch, ambulance, and fire fighting equipment. The applicant may also wish to submit photographs and scale diagrams as supplemental material to assist in the FAA's evaluation of a particular site. Application for a Certificate of Waiver or Authorization must be submitted 45 days prior to the requested date of the event. Applicants requesting a Certificate of Waiver or Authorization for activities other than an aviation event will complete items 1 through 8 only and the certification, item 15, on the reverse.			
1. Name of organization		2. Name of responsible person	
3. Permanent mailing address	House number and street or route number	City	State and ZIP code
4. FAR section and number to be waived			
5. Detailed description of proposed operation (Attach supplement if needed)			
6. Area of operation (Location, altitudes, etc.)			
7a. Beginning (Date and hour)		7b. Ending (Date and hour)	
8. Aircraft make and model (a)	Pilot's Name (b)	Certificate number and rating (c)	Home address (Street, City, State) (d)

Pre-flight

- Heuristic guidance
- Trajectory prediction
- Long term forecasting
- Airspace awareness
- Standardized reporting

In-flight

- Telemetry aggregation
- Real time prediction
- Airspace awareness
- Enhanced communication

Post-flight

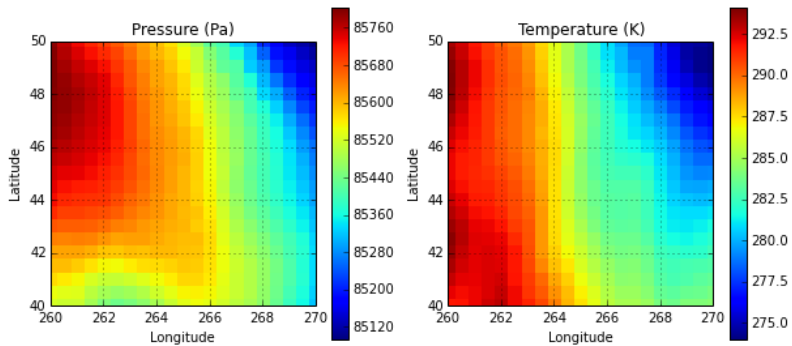
- Data assimilation
- Data analysis
- Data sharing
- Continuous improvement

Current Work

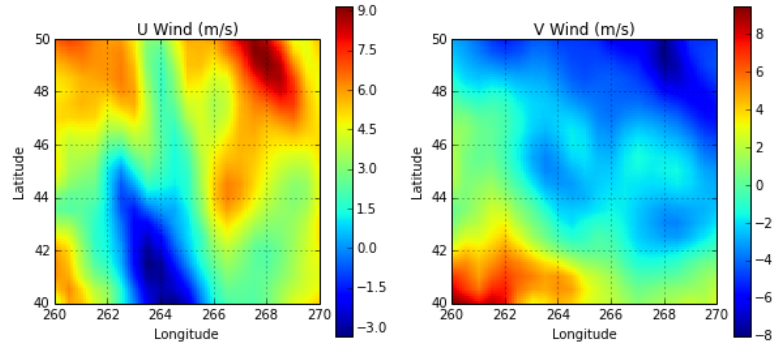
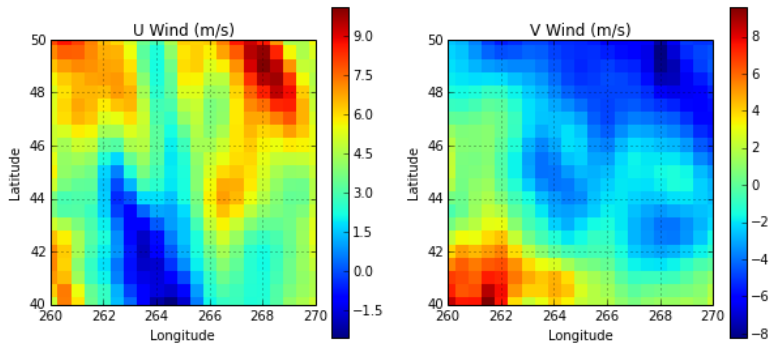
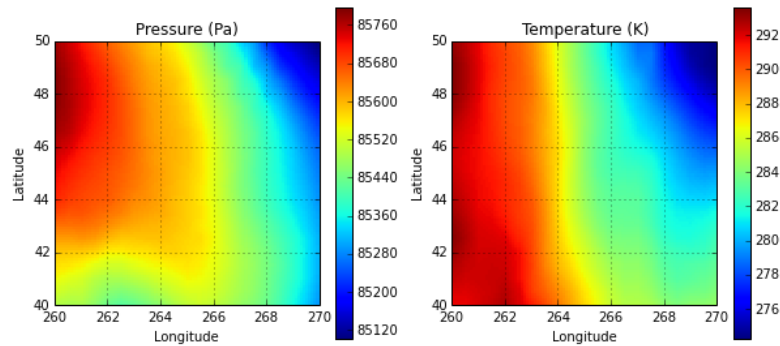
- Online prediction
- Online tracking
- Offline tracking
- Data assimilation/presentation

Interpolation

Nearest Neighbor Interpolation



Tilinear Interpolation



Future?

