

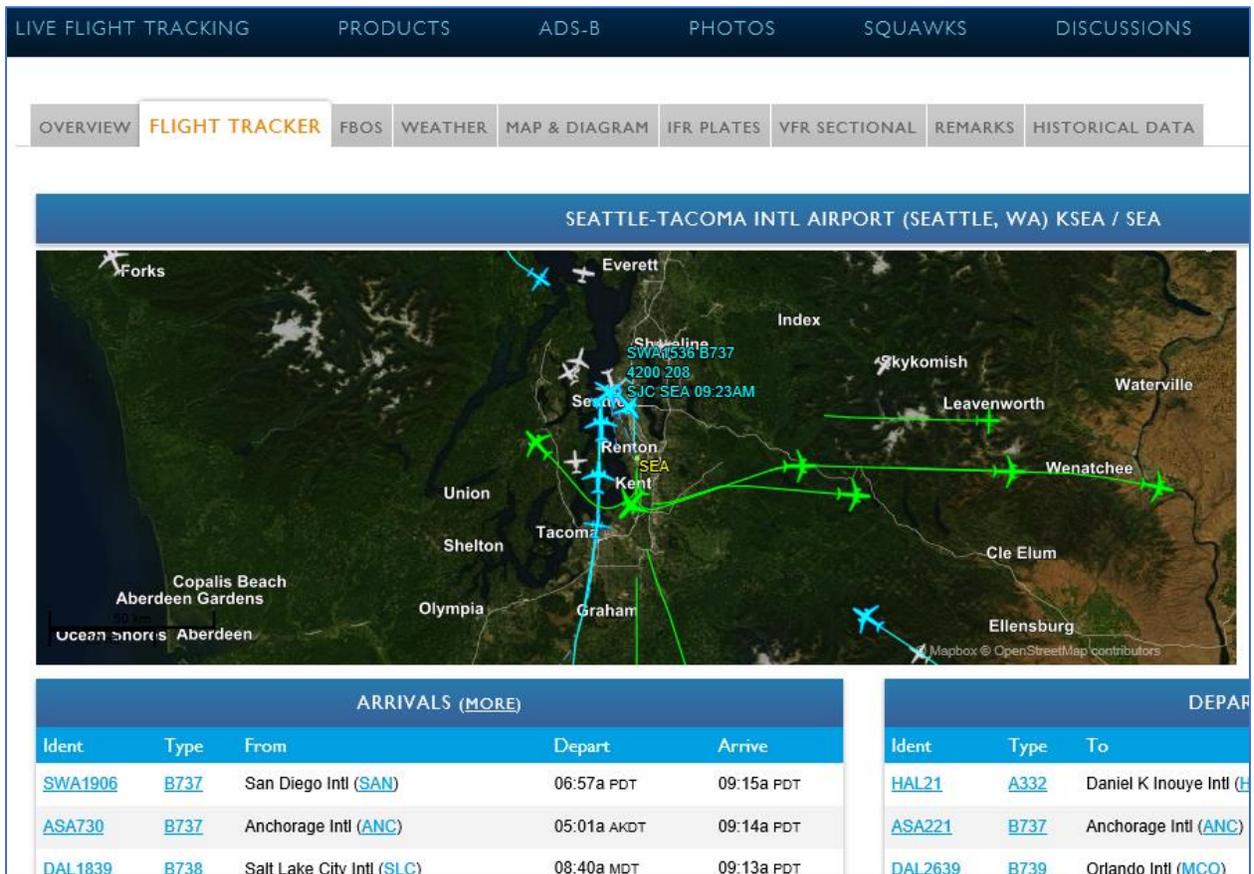
## A Tutorial: Using Online Resources to Identify and Study Impact Flights

There are numerous online resources for identifying impactful flights, such as that low departure that maybe just turned west over your house. I've been studying these online resources for years, and although each resource has certain advantages, the one I routinely use is FlightAware. So, how do I quickly gather data about a particular flight, such as a SeaTac south flow departure that just screamed low over my house?

As a first step, I open up the SeaTac (KSEA)<sup>1</sup> live flight webpage, at FlightAware:

<http://flightaware.com/live/airport/KSEA>

The KSEA webpage for live traffic looks like this:



The main graphic is a feed showing current traffic (actually, with a short 5-10 minute delay, for security reasons); in this example, I have set the background as a satellite view with towns labeled. Blue flights are arrivals; green flights are departures.

Note that there are links all over this webpage. A few that are particularly handy include:

<sup>1</sup> **Acronym Explained:** all major airports in the U.S. are assigned the letter 'K' in a 4-letter code, recognized internationally; thus SeaTac, which we know as SEA, is more precisely KSEA.

- IFR<sup>2</sup> Plates: use this link to look up the actual published procedures used by both ATC and flight crews. Studying the details of these procedures reveals what impact strategies are being used (and ignored) by FAA.
- ARRIVALS (more): click on this and you can scroll through a couple weeks of arrivals.
- DEPARTURES (more): same thing, to view a couple weeks of departures.
- FLIGHT IDs: in this example, if you click on SWA1906 in the ARRIVALS column, you pull up all the flight data for today's early Southwest flight from San Diego. You can also click on flight IDs moving across the live map view, to access the same data.

So, assume that around 830AM I observe a large 4-engine plane departing westbound over Federal Way. Who was it, where were they going, how high were they? I click on the DEPARTURES (more) link to view the scrollable departure list. I scroll down and look for flights that took off a few minutes prior to my observing this flight. I see there was a cargo Boeing 747 to Narita (Tokyo, Japan). I click on the link for NCR614 and this opens up:

**National Cargo 614** NCR614

**EN ROUTE**  
Landing in 7 hours 20 minutes

**SEA**  
SEATTLE, WA  
took off from [Seattle-Tacoma Intl - SEA](#)  
THURSDAY 06-JUL-2017  
08:29AM PDT (39 minutes late)

**NRT**  
TOKYO, JAPAN  
landing at [Narita Int'l - NRT](#)  
FRIDAY 07-JUL-2017  
(39 minutes late) 08:52AM JST

1h 3m elapsed  
528 mi flown

8h 23m total flight time

7h 20m remaining  
4,246 mi to go

NOT YOUR FLIGHT? [NCR614 flight schedule](#)

**Flight Details** updated 30 seconds ago

[View track log](#) [Track inbound plane](#)

[All flights between SEA and NRT](#) [Add NCR614 to My FA](#)

| FLIGHT TIMES     |             |                  |
|------------------|-------------|------------------|
|                  | Takeoff     | Landing          |
| Actual/Estimated | 08:29AM PDT | 08:52AM JST (+1) |
| Scheduled        | 07:50AM PDT | 08:13AM JST (+1) |

**AIRCRAFT INFORMATION**

Aircraft Type Boeing 747-400 (quad-jet) (B744) [Photos](#)

? [NCR614 flight schedule](#)

BASE LAYER  
CLASSIC

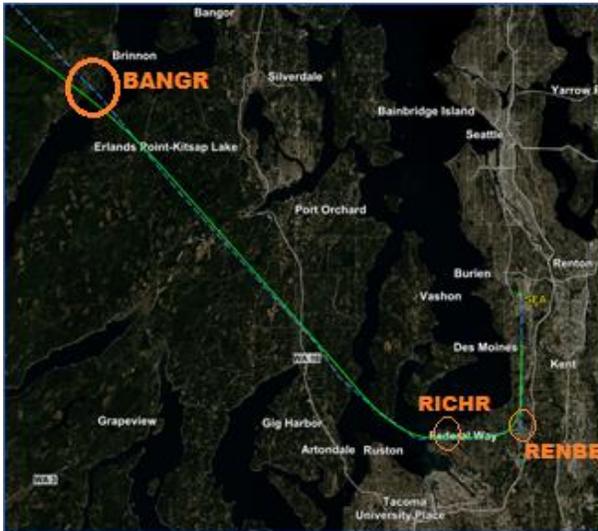
**CLICK TO CHANGE**

OVERLAYS

- Sunlit Earth
- Weather Radar
- Worldwide Weather
- TFRs

<sup>2</sup> **Acronym Explained:** ‘Instrument Flight Rule’ – this is the set of rules used commercially, more rigorously obligating pilots to flying defined routes and rigidly complying with instructions from air traffic control.

If I want to change the map background, I run the cursor over the map and click on the three short vertical lines, in the upper right corner of the map. A window pops open. I click where it says 'click to change'; with this, I can choose from street maps, satellite views, aviation sectionals, etc.



The map view is easily expanded. Here's a blow-up showing just the departure to the Olympic Peninsula, on a labelled satellite view (I prefer this map background as it offers lots of detail yet is also the most intuitive for non-aviation people). Look closely at this satellite view. Notice the dashed blue line under the green flight track. The dashed blue is the filed flight plan. People need to understand that, in air traffic control, no commercial flight happens without the pilot first filing a precise plan, including route, speeds, and altitudes. Where the green track deviates from the dashed blue line, this indicates ATC<sup>3</sup>, using radar control, has issued a shortcut to the flight. For example, in the Hood Canal area, south of Brinnon, ATC

issued a clearance sending NCR614 south of the filed route (a slight left turn). Note, too, the fixes added to this satellite image: this flight crew, flying the BANGR8<sup>4</sup> published departure procedure, climbs to cross RENBE<sup>5</sup> at 3,000ft or higher, then turns right to pass over RICHR, and by design makes a turn just west of Dash Point to cross BANGR at 10,000ft or higher. Notice that FAA could just as easily have defined a departure procedure that continued to a higher altitude, further south, before starting a westbound turn. Notice, also, a westbound turn over an industrial area (such as the Port of Tacoma docks) would make a lot of sense, if reducing noise impacts was a priority consideration.

While on the subject of published departure procedures, here are links to the two procedures where FAA has designed south flow departures passing over thousands of homes in Federal Way:

- [http://flightaware.com/resources/airport/SEA/DP/BANGR+EIGHT+\(RNAV\)](http://flightaware.com/resources/airport/SEA/DP/BANGR+EIGHT+(RNAV))
- [http://flightaware.com/resources/airport/KSEA/DP/HAROB+FIVE+\(RNAV\)](http://flightaware.com/resources/airport/KSEA/DP/HAROB+FIVE+(RNAV))

The BANGR8 departure is used by commercial flights to Asia, western BC and Alaska; the HAROB5 departure is issued to commercial flights going to Hawaii, western Oregon (except

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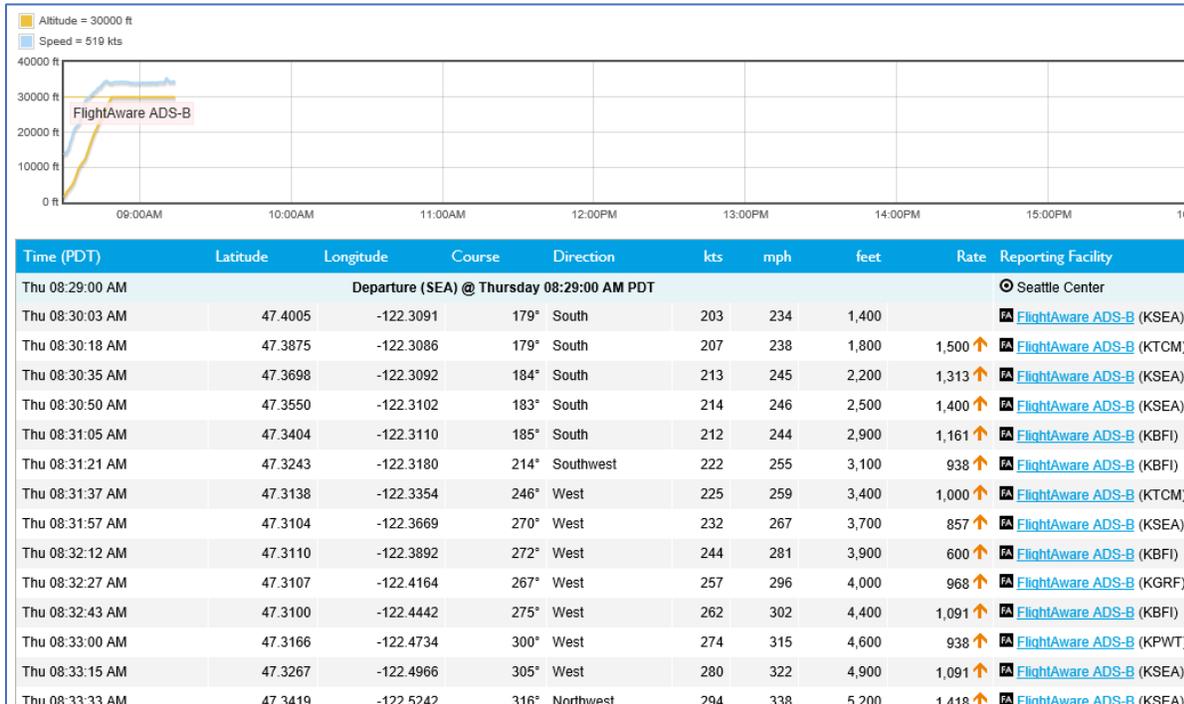
<sup>3</sup> **Acronym Explained:** 'Air Traffic Control' – the personnel who monitor flights and issue instructions/clearances, so as to maintain safety and advance efficiency (they can also enhance noise mitigation, but tend not to).

<sup>4</sup> **Acronym Explained:** BANGR8 is a published departure procedure, used primarily for KSEA departures heading to Asia, Alaska, or western British Columbia. The name is for the fix BANGR; the number is the latest version (an earlier version would have been BANGR7, and probably had slightly different instructions).

<sup>5</sup> **Acronym Explained:** RENBE is a geographic fix. This is just a location, precisely defined by latitude and longitude. Fix-names enable precise navigation by pilots, and by aircraft automation. RICHR, BANGR and HAROB are other fixes mentioned in this paragraph.

Portland... those go straight out), and Northern California. Both the BANGR8 and HAROB5 require the departure to cross RENBE at or above 3,000ft, then turn west to cross RICHR. At RICHR, they diverge; while HAROB5 proceeds westbound, BANGR8 makes turns toward Port Angeles (the actual geographic fix, BANGR, is just south of Brinnon, near the mouth of the Duckabush River; here's a link: <http://opennav.com/waypoint/US/bangr>)

How do I find out how high the flight was, where it passed over my home? If I click on the link where it says "View Track Log" (on the right side of the webpage, under 'Flight Details'), I get this data:



It looks like a pile of numbers, but there is valuable information in this. All data for the flight is compiled, with updates every few seconds or minutes. In this example, I see that the flight went straight out (south, headings 179 to 185), but started a right turn after reaching 3,000ft. The latitude and longitude is provided, for each position update. So, in this example, with a westbound departure, I can conveniently use longitude to establish altitude. If my longitude is at 122.400, the flight data compiled here indicates that this flight was 4,000ft<sup>6</sup> when it passed over my home.

BTW, latitudes and longitudes for your location can also be obtained online. Use this link (<http://www.latlong.net/convert-address-to-lat-long.html>) and plug in your home address; it will produce a lat/long and aerial view of your address.

<sup>6</sup> **Acronym Explained:** Altitudes this tutorial, as in aviation in general, are normally in reference to sea level. Sometimes you may see two altitude-related acronyms: AGL means 'above ground level', and MSL means 'mean sea level'.