

ZSE Weather Watch

A newsletter from your Seattle ARTCC Center Weather Service Unit

CWSU Webpage Update *by James Vasilj*

The home pages of the National Weather Service's (NWS's) four Western Region Center Weather Service Units (WR CWSUs), Seattle, Oakland, Los Angeles, and Salt Lake City, were recently redesigned to enable the use of Keyhole Markup Language (KML) files with Google Earth and Google Maps. The newly designed web pages will enhance situational awareness and decision support by having the ability to overlay various weather

parameters at the same time and to smoothly pan/zoom to different regions of the user's choice. The new design also offers a more consistent look among the WR CWSUs web pages, allowing users to download KML files to use in their own applications such as Google Earth. The pages are best viewed using the Google Earth browser plugin (which you may need to download), but many of the products can still be viewed using the older Google Maps version.

By default the homepage will

include icons for current flight categories (VFR=green circle, MVFR=blue square, IFR=red triangle, LIFR=inverted purple triangle), plus links on the left (NWS emblem) for Seattle and Portland area METARs (figure 1). A mouse click on an individual station's icon will open a pop-up window, displaying the station's ID, name, elevation, METAR, and TAF (if available), plus links to METAR summaries, NWS forecasts, and model guidance (Figure 1). On the right side of the map is a list of various

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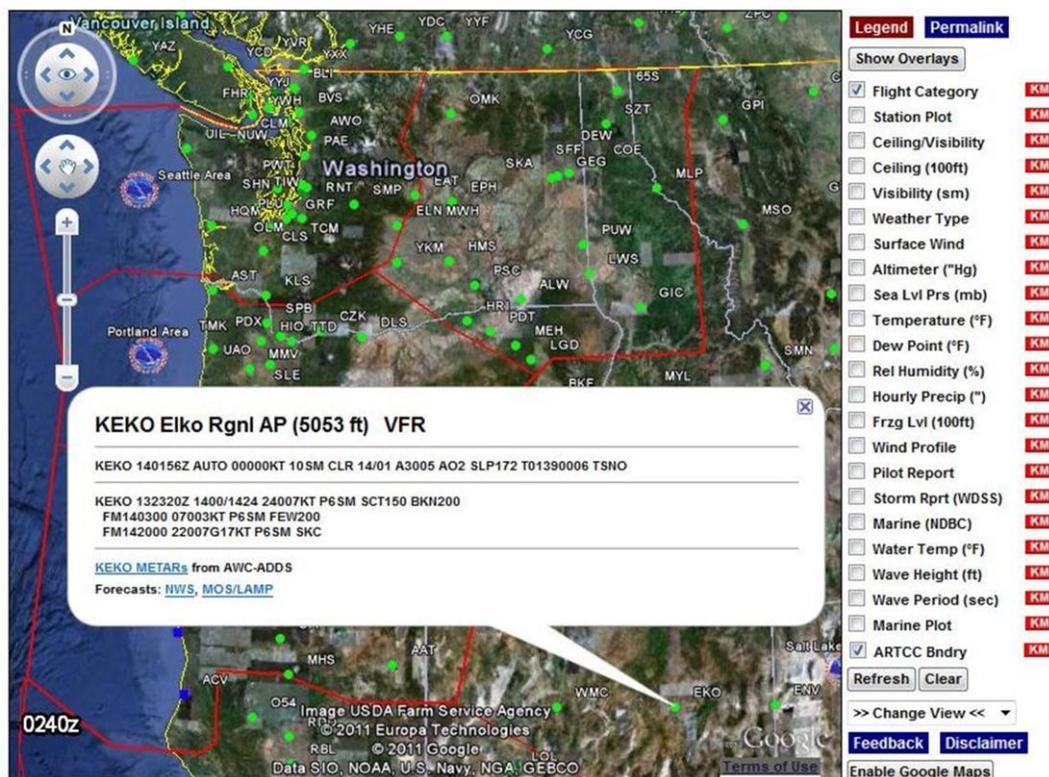


Figure 1 – Default map view for the ZSE CWSU home page with pop-up window.

parameters that can be plotted, including ceiling, visibility, altimeter, highest freezing level, pilot reports, etc. Clicking on the “Show Overlays” button will display a list of available overlays, including radar and satellite images, AIRMETs/SIGMETs, CCFP forecasts, NWS watches and warnings, etc. An example would be the highest freezing levels overlaid with the current icing AIRMETs (**Figure 2**).

The red “Legend” button at the top of the page opens a window displaying a legend for the available plots and overlays. The blue “Permalink” button allows users to save a bookmark of the currently selected plots and overlays and map location and zoom. The display automatically updates

every ten minutes. Pressing the “Refresh” button manually updates the display. Clicking a red “KML” button next to each selection downloads the respective KML file for use in other application programs.

Another new feature is the “Change View” selection box to the right of the map below the “Refresh” and “Clear” buttons. This allows one to select different viewing areas, including FAA Air Route Traffic Control Centers (ARTCCs), individual NWS Forecast Offices (listed by state), and areas across Canada, Mexico and the Caribbean. **Figure 3** is an example of the Houston ARTCC area showing aviation flight categories (based on current METARS) overlaid with the current NEXRAD echo tops. Notice the squall line moving

through the Houston ARTCC airspace with widespread echo tops in excess of 50,000 feet. CCFP forecast overlays could be used to compare the movement of the squall line with the CCFP forecasts.

Choices on the left-hand menu have also been updated. Be sure to check out “ZSE Favorites” for a list of links to web cams, forecast models, weather calculators, and the new Internet briefing page used for ZSE CWSU stand-up briefings.



ZSE CWSU is now on Facebook. Click the Facebook image link found on all ZSE webpages to navigate to the site.

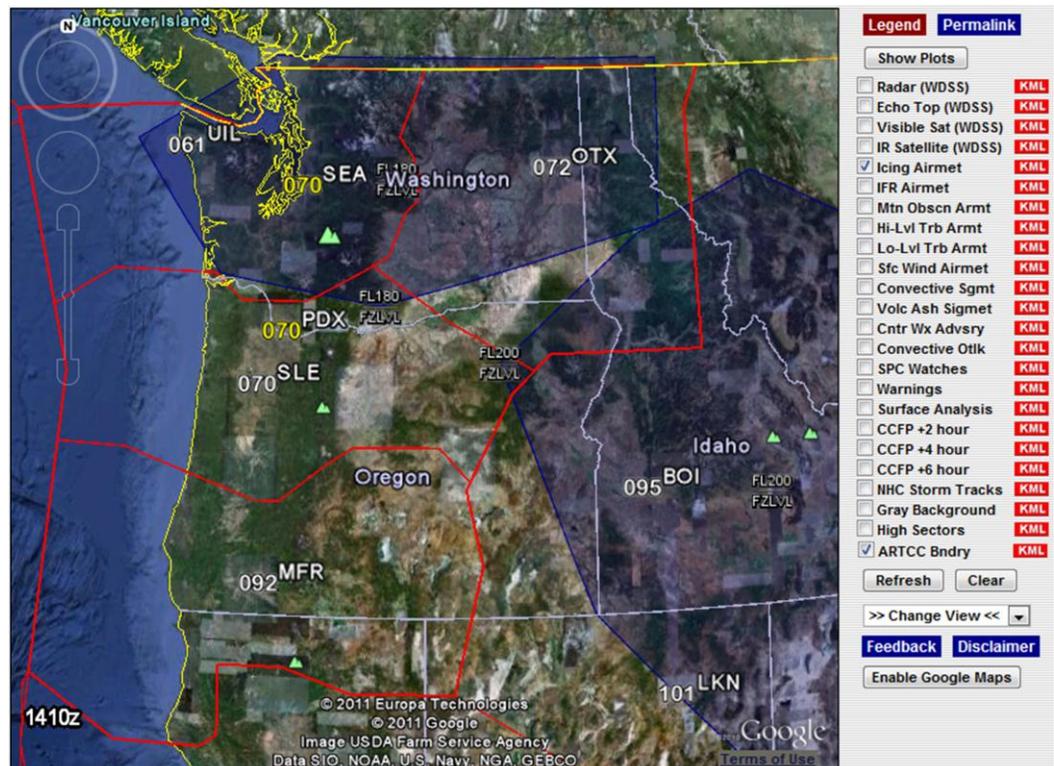


Figure 2 - Highest freezing levels and icing AIRMETs

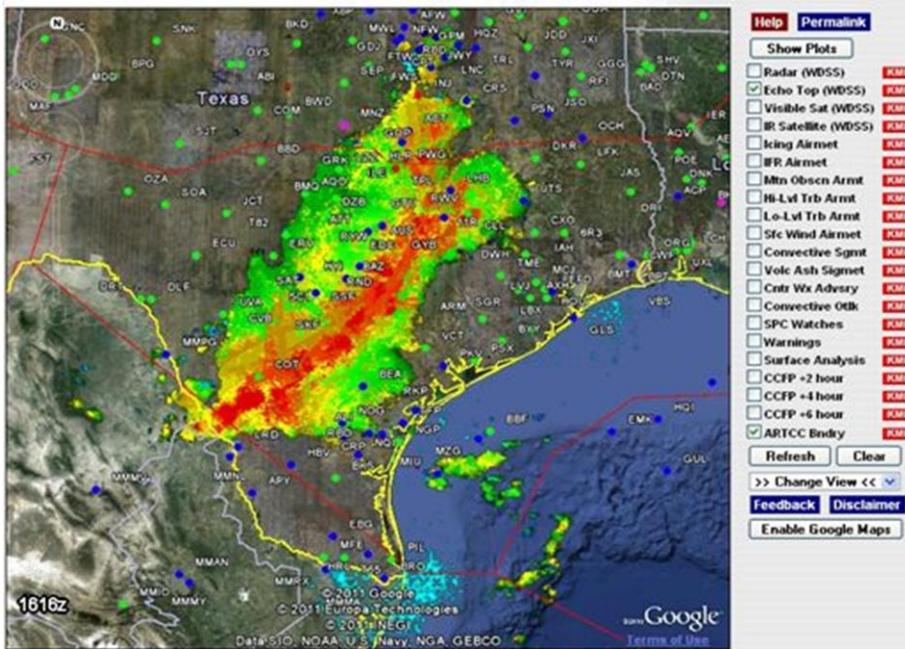


Figure 3 - Houston CWSU showing aviation flight categories overlaid with NEXRAD radar echo tops.

We're on the Web!

Main web page
www.wrh.noaa.gov/zse

Mobile page
www.wrh.noaa.gov/zse/mobile.htm

Facbook
www.facebook.com/US.NationalWeatherService.SeattleCWSU.gov

Vertical Wind Profiles *by John Werth*

Recent changes to NWS WR CWSU web pages include the addition of vertical wind profiles for a number of select airports across the country. Vertical wind profiles, updated hourly from the Rapid Update Cycle (RUC) forecast model, can assist FAA traffic managers in reducing airport delays by managing traffic flow issues in the approach zone caused by strong, low level winds and the potential for "compression" on final approach. They can also be useful in setting airport arrival and departure corridors and runway configurations, which are usually determined by the prevailing wind conditions.

Inbound aircraft can experience a tail wind at the arrival fix followed by a transition to a headwind on

final approach. If this flow pattern is not managed properly, a loss in the required aircraft separation can occur. To better manage the flow, aircraft are spaced further apart on final, resulting in reduced airport arrival rates and an increasing potential for airport delays.

Figure 4 is an example vertical wind profile for San Francisco, CA based on output from the 19Z May 5, 2011 RUC model run. Forecast winds are displayed as color-coded wind barbs from the surface to 20,000 feet above ground level (ft agl). Screen output also includes the highest forecast freezing level, depicted by a solid red line on the graphic image.

One can also display the calculated headwind/ tailwind

component of the forecast wind, based on a user selected runway configuration. This option shows the potential variations in ground speed as the aircraft moves through the approach zone.

Tailwind/headwind data is displayed next to each wind barb with the selected runway configuration next to the NOAA logo. All vertical wind profiles are output as JPEG graphic images that can be easily incorporated in other documents.

Wind data can be displayed as winds barbs or text, while temperature and relative humidity data is displayed as text. Users can select plots heights of 2,000 ft agl, 10,000 ft agl, or 20,000 ft agl. The lowest display will also show model forecast, non-convective, low level wind shear (LLWS) from the surface to 2,000 ft agl.

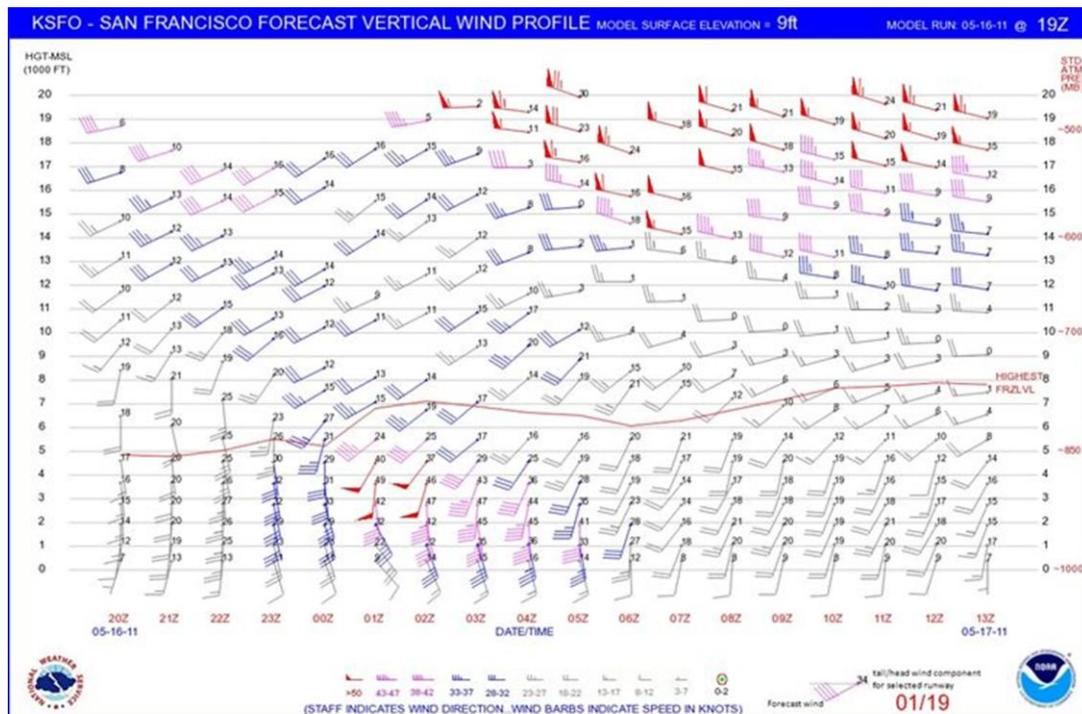
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This graphic displays forecast vertical wind profiles over the selected location from the surface to 20,000 feet AGL. Forecast winds are displayed at 1-hour intervals out through 18 hours. The graphic is updated hourly based on the latest run of the RUC model. Wind speeds are color-coded with speeds 28-37 kts displayed in blue, 38-47 kts in pink, and winds greater than 47 kts in red. Wind direction is indicated by the staff extending from the crosshair using a 360 degree compass, where 180 degrees indicates a south wind and 360 degrees a north wind. The solid red line indicates the highest forecast freezing level for the given time.

Figure 4 – San Francisco vertical wind profile showing moderate to strong low level winds 23 to 05 UTC.

Atmospheric Rivers *by John Werth*

Imagine a stream of water thousands of miles long, flowing towards you at 30 miles per hour. This isn't hypothetical - it's a real river, carrying more water than 7-15 Mississippi Rivers combined. It's a river of water vapor in the earth's atmosphere called atmospheric rivers (ARs). ARs are narrow corridors of water vapor transport in the lower atmosphere. Their presence and characteristics are responsible for some of the most extreme precipitation and flooding events – especially along the west coast when they encounter mountain ranges. In a recent event, more than 16.5 inches of rain was recorded at one California coastal

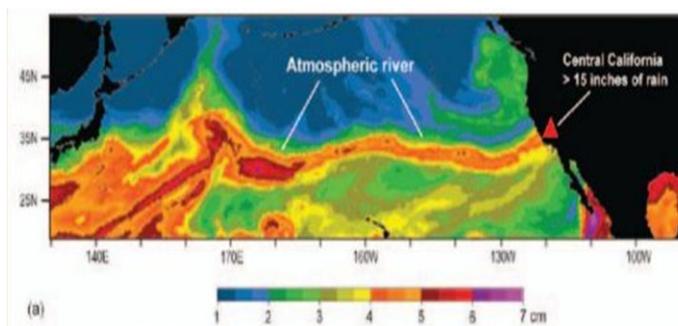


Figure 5 – An atmospheric river that hit California on 13-14 October

site on 13-14 October 2009. This particular AR had a long, narrow fetch that spanned most of the North Pacific (Figure 5). Upon making

landfall an average of more than 8 inches of rain fell along a swath of coastal California over a hundred miles wide.

http://www.osdpd.noaa.gov/bTPW/TPW_Animation.html?product=EAST_PACIFIC_TP



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