

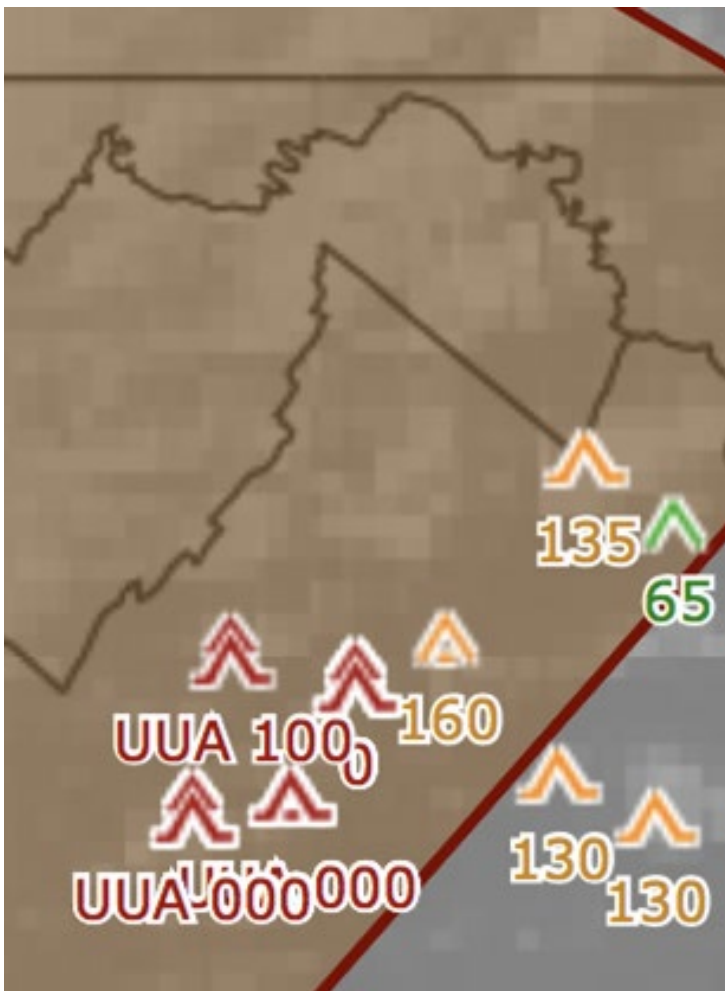
Mini case study: Cold front-related severe turbulence in the 110-130 layer on 24 Feb 2019

On 24 Feb 2019 a strong cold front moved quickly E across ZDC, resulting in an initial SIGMET for ocnl sev turb blw 120 valid 1836-2236Z. From 1940Z to 2012Z, sev turb was reported 4 times in the 110-130 layer over/E of the NW VA mtns by a B737, a B738 and a C25B, all on descent.

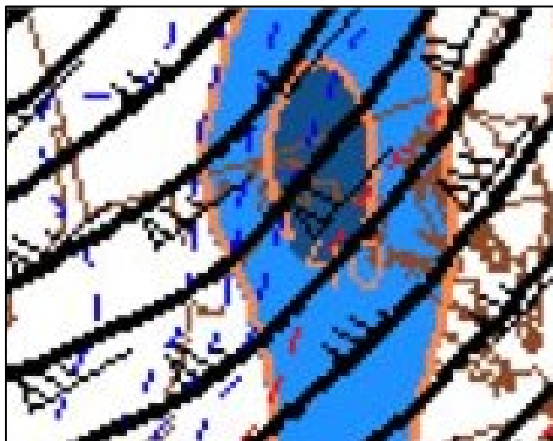
CAUSES INCLUDED:

- Passage of the mid-level cold front with increasing cold air advection/700 hPa frontogenesis from 18Z to 20Z
- Moderate vertical motions over the region ahead of mid-level short-wave activity
- High mountain ridges/peaks (3500 – 4000 ft+) and 60 kt+ WSW – W mid-level wind generated mountain waves, enhancing vertical motions

PIREPS 1930Z – 2100Z



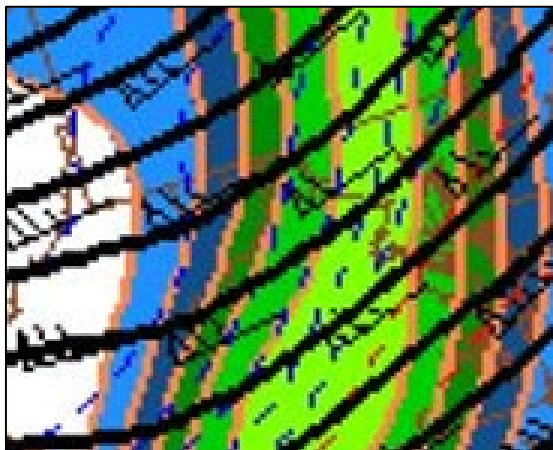
18Z 700 hPa Petterssen frontogenesis and 700 hPa hgt/temp/wind



18Z 700-400 hPa diff vort adv and 500 hgt/vort (fill)



20Z 700 hPa Petterssen frontogenesis and 700 hPa hgt/temp/wind



20Z 700-400 hPa diff vort adv and 500 hgt/vort (fill)

