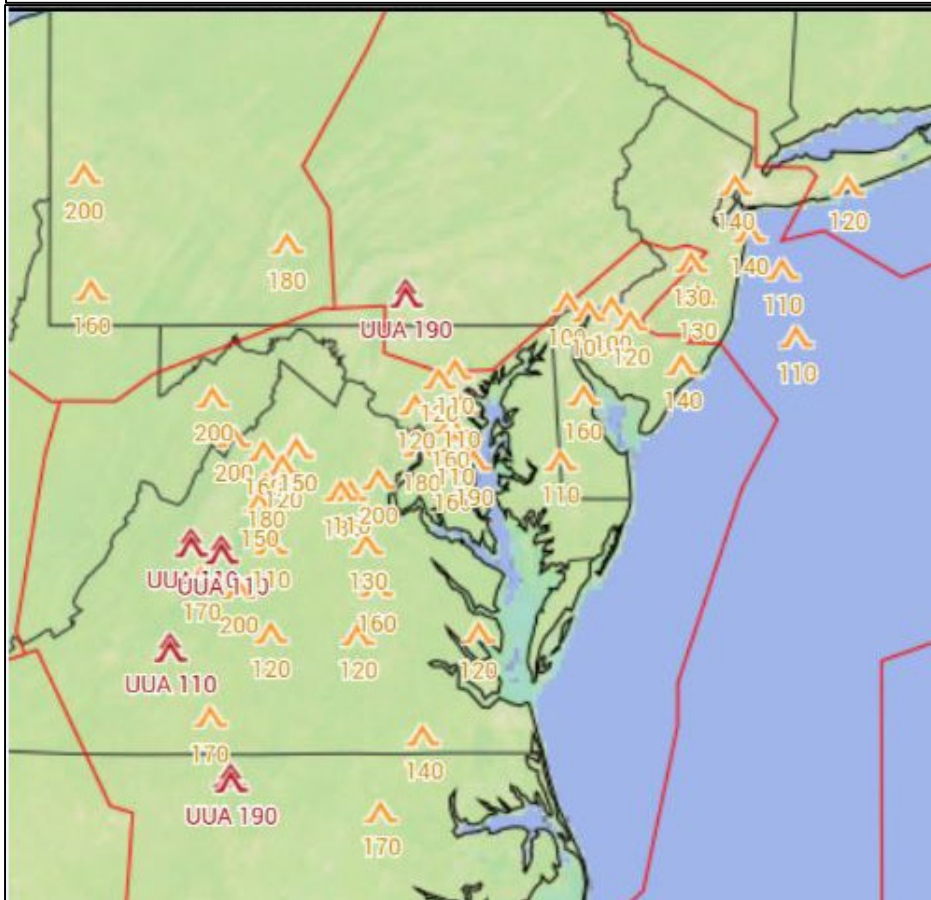


29-30 Oct 2017 – Significant Mid-Atlantic Region Turb Event (Developing Coastal Low)

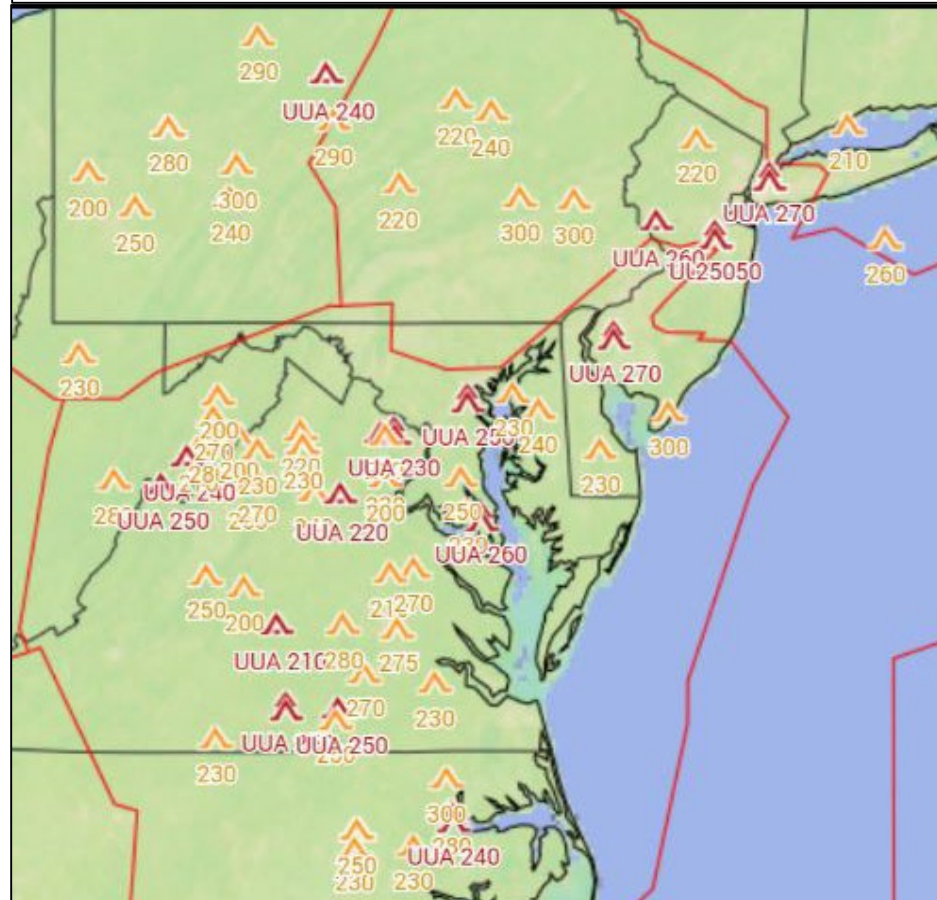
IMPACTS

A developing coastal low generated widespread mod-sev turb at multiple levels 29-30 Oct 2017. The PIREPS shown below were received over a 12-hour period (1328 UTC 29 Oct – 0128 UTC 30 Oct). Within just the 18 UTC – 00 UTC timeframe (the period of this short case study), 14 severe turb PIREPS, ranging from 110 to FL270, were called into ZDC ATCs. These (and prior) reports prompted the issuances of multiple SIGMETs (via AWC) and GI messages (via ZDC CWSU). Per FAA logs, this turb event caused ZDC to enter into turb constraints (disruption to normal ops, such as the inability to hold inbound aircraft at certain levels, which can negatively impact the NAS). It also resulted in multiple intermittent departure route stops out of PCT (including RIC) and ORF with 2-3 hours of re-routes from different fixes for DC Metros' arrivals. Slides 2 and 3 show some of the meteorological conditions that led to this significant turbulence event.

MOD-SEV TURB PIREPS 100-FL200 1328 UTC 29 OCT – 0128 UTC 30 OCT 2017



MOD-SEV TURB PIREPS FL200-FL300 1328 UTC 29 OCT – 0128 UTC 30 OCT 2017

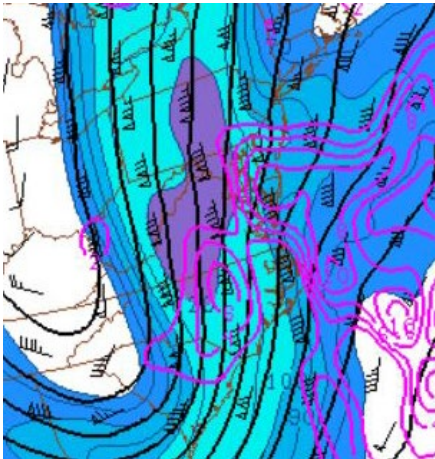


29-30 Oct 2017 – Significant Mid-Atlantic Region Turb Event (Developing Coastal Low)

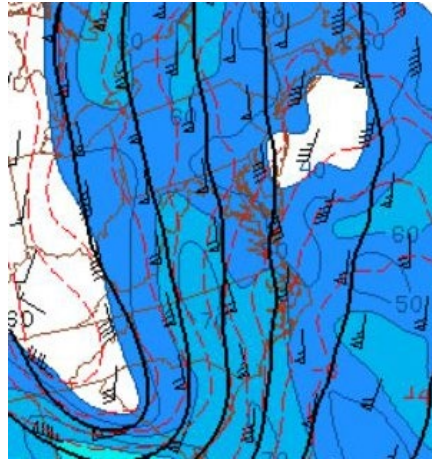
METEOROLOGICAL CONDITIONS: 18 UTC (29 OCT) AND 00 UTC (30 OCT)

A number of factors (shown below) worked together to cause this turb event, including strong horizontal/vertical wind shear, a strong upper-level jet (with multiple embedded wind maxima) flowing generally S to N across the Mid-Atlantic region, a sharp upper-level trough becoming negatively tilted (increasing upper-level divergence), a developing mid-level circulation over the Mid-Atlantic region and multiple shortwaves rotating through the region with strong mid-level vorticity advection. An area of mid-level frontogenesis (not shown) also rotated NNW across the N ½ of ZDC fm 18 UTC to 00 UTC.

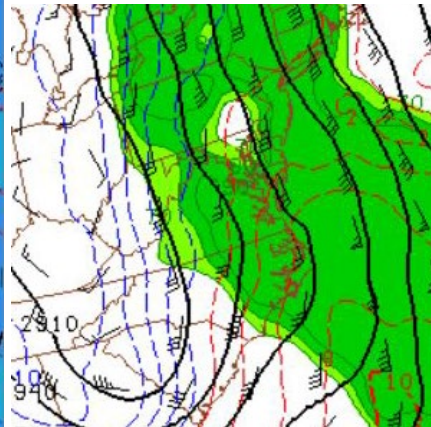
18 UTC: 300 hPa hgt/wind/div



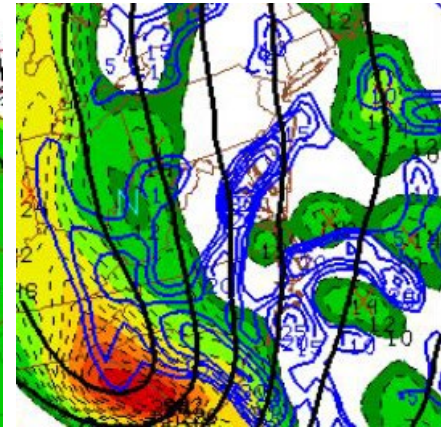
18 UTC: 500 hPa hgt/wind/temp



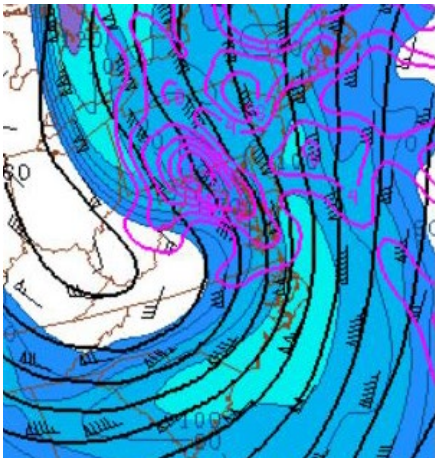
18 UTC: 700 hPa hgt, wind, temp/700-500 hPa mean rh



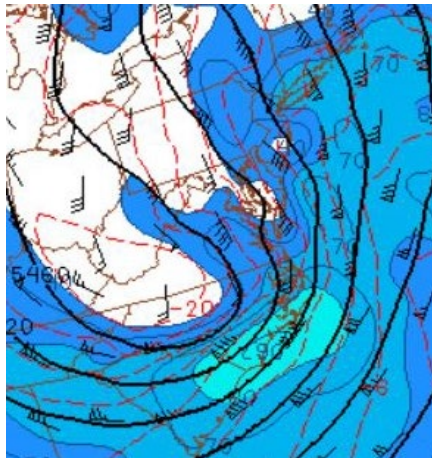
18 UTC: 700-400 hPa diff vort/500 hPa vort adv



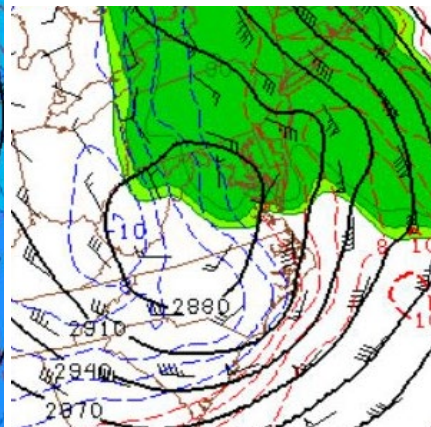
00 UTC: 300 hPa hgt/wind/div



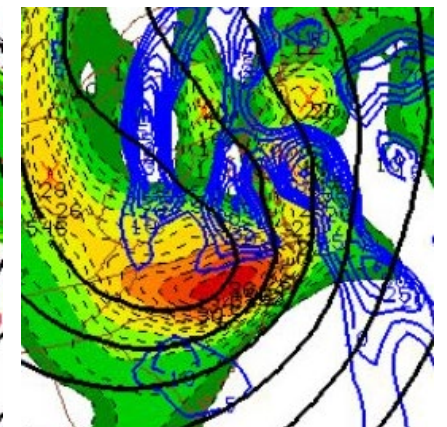
00 UTC: 500 hPa hgt/wind/temp



00 UTC: 700 hPa hgt, wind, temp/700-500 hPa mean rh



00 UTC: 700-400 hPa diff vort/500 hPa vort adv

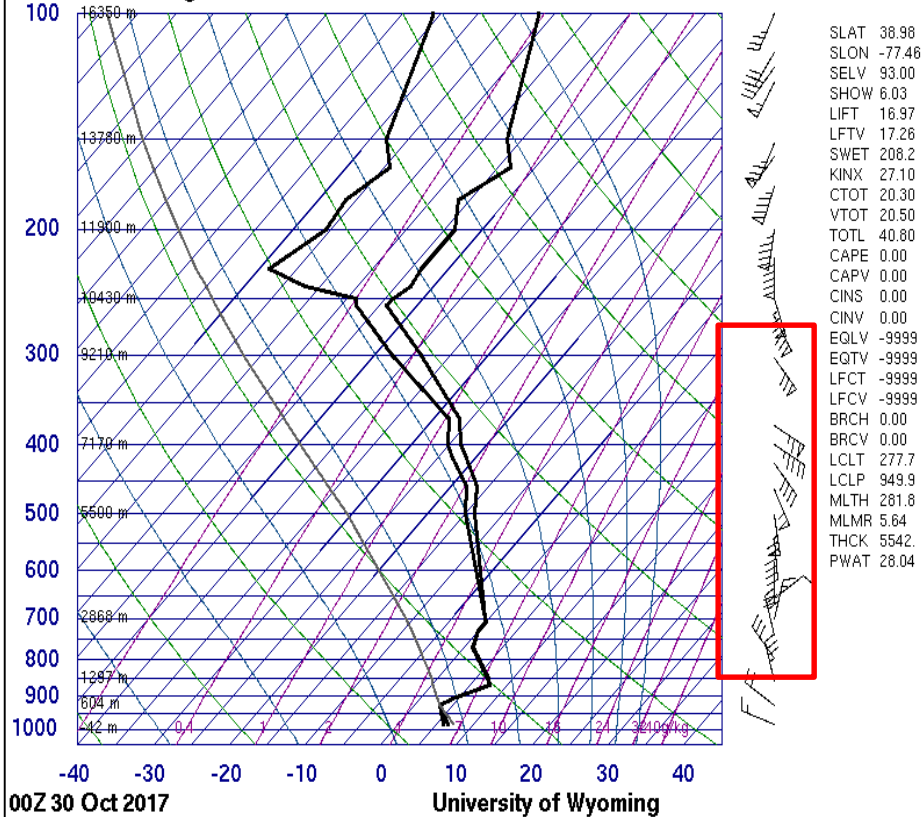


29-30 Oct 2017 – Significant Mid-Atlantic Region Turb Event (Developing Coastal Low)

METEOROLOGICAL CONDITIONS: 00 UTC SKEW-T DIAGRAMS AT IAD, WAL

00 UTC 30 Oct 2017 Skew-Ts at both IAD and WAL showed strong vertical wind speed and directional shear. Note the area highlighted in red.

72403 IAD Sterling



72402 WAL Wallops Island

