# May 2015
## AMVs vs Radiosonde  (0000 & 1200 UTC)

| Northern hemisphere | No of Collocation | MVD | RMSVD | SD | Mean Speed Dif (ABS) | Mean Dir Dif (ABS) | Bias | Mean Speed AMV | Mean Speed RS |
|---|---|---|---|---|---|---|---|---|---|
| Low level CMV | 692 | 4.6 | 5.1 | 2.1 | 3.1 | 25.2 | 0.4 | 7.6 | 7.3 |
| Mid level CMV | 750 | 5.3 | 6.0 | 2.6 | 3.8 | 17.7 | -0.9 | 11.7 | 12.6 |
| High level CMV | 3370 | 6.5 | 7.5 | 3.8 | 4.5 | 15.1 | -0.5 | 17.5 | 18.0 |
| High level WVWV | 5726 | 6.8 | 6.8 | 4.1 | 4.7 | 14.5 | 1.2 | 19.8 | 18.6 |

| Tropics | No of Collocation | MVD | RMSVD | SD | Mean Speed Dif (ABS) | Mean Dir Dif (ABS) | Bias | Mean Speed AMV | Mean Speed RS |
|---|---|---|---|---|---|---|---|---|---|
| Low level CMV | 179 | 4.4 | 4.6 | 0.9 | 3.2 | 26.0 | 2.4 | 7.0 | 4.6 |
| Mid level CMV | 64 | 4.1 | 4.2 | 0.4 | 3.0 | 24.5 | 2.1 | 7.6 | 5.5 |
| High level CMV | 3628 | 4.8 | 5.5 | 2.7 | 3.4 | 20.8 | -0.4 | 8.6 | 9.0 |
| High level WVWV | 5679 | 5.0 | 5.8 | 3.0 | 3.5 | 20.5 | 0.8 | 9.7 | 8.9 |

| Southern hemisphere | No of Collocation | MVD | RMSVD | SD | Mean Speed Dif (ABS) | Mean Dir Dif (ABS) | Bias | Mean Speed AMV | Mean Speed RS |
|---|---|---|---|---|---|---|---|---|---|
| Low level CMV | 22 | 4.0 | 4.2 | 0.5 | 3.0 | 24.3 | 1.0 | 6.5 | 5.5 |
| Mid level CMV | 17 | 5.4 | 5.5 | 0.3 | 4.4 | 17.8 | -1.5 | 9.4 | 10.8 |
| High level CMV | 17 | 7.7 | 8.2 | 2.9 | 6.9 | 15.1 | -1.2 | 15.8 | 16.9 |
| High level WVWV | 44 | 8.3 | 8.9 | 2.5 | 6.7 | 14.1 | 4.5 | 24.8 | 20.4 |

| Global | No of Collocation | MVD | RMSVD | SD | Mean Speed Dif (ABS) | Mean Dir Dif (ABS) | Bias | Mean Speed AMV | Mean Speed RS |
|---|---|---|---|---|---|---|---|---|---|
| Low level CMV | 893 | 4.6 | 5.1 | 2.1 | 3.2 | 26.0 | 0.7 | 7.4 | 6.7 |
| Mid level CMV | 831 | 5.2 | 5.9 | 2.7 | 3.8 | 17.9 | -0.6 | 11.4 | 12.0 |
| High level CMV | 7015 | 5.6 | 6.6 | 3.5 | 3.9 | 17.9 | -0.5 | 12.8 | 13.3 |
| High level WVWV | 11449 | 5.9 | 7.0 | 3.8 | 4.1 | 17.4 | 1.1 | 14.9 | 13.8 |

MVD: Mean vector difference

RMSVD: Root mean square vector difference

SD: Standard Deviation

Mean Speed Dif (ABS):  Absolute mean wind speed difference

Mean Dir Dif (ABS):  Absolute mean wind direction difference


High level:  100-400hPa

Mid level:  401-700hPa

Low level: 701-975hPa

**MVD, RMSVD, SD, Mean Speed Dif, Mean Speed AMV, Mean Speed RS are in ms$^{-1}$, Mean Dir Dif is in degree.**

**Collocation Criteria:**

- All AMVs within 150km of each radiosonde location and pressure difference ±20hPa are considered for validation.
- Collocation pairs with speed difference greater than 30ms$^{-1}$ and direction difference greater than 60$^{o}$ are screened out.
- Quality indicator is not used for the current validation.