

Kalpana-1 AMV: MAY 2016

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 | 339 | 5.2 | 5.7 | 2.2 | 3.4 | 26.6 | 0.7 | 8.2 | 7.6 |
| Mid level CMV | 716 | 5.0 | 5.6 | 2.4 | 3.4 | 17.0 | -0.5 | 11.8 | 12.3 |
| High level CMV | 3024 | 6.7 | 7.8 | 4.0 | 4.7 | 13.3 | -0.4 | 19.5 | 19.9 |
| High level WWV | 5089 | 7.5 | 7.5 | 4.6 | 5.4 | 13.6 | 1.1 | 21.4 | 20.4 |

| 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 | 107 | 4.0 | 4.2 | 1.0 | 2.8 | 23.8 | 1.7 | 6.7 | 5.0 |
| Mid level CMV | 71 | 4.6 | 4.7 | 0.5 | 2.8 | 24.4 | 0.4 | 8.7 | 8.3 |
| High level CMV | 2946 | 4.9 | 5.5 | 2.5 | 3.2 | 21.7 | 0.2 | 9.3 | 9.1 |
| High level WWV | 4336 | 5.2 | 5.9 | 2.7 | 3.4 | 21.2 | 1.3 | 11.0 | 9.7 |

| 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 | 19 | 6.1 | 6.1 | 0.2 | 3.9 | 29.7 | 1.6 | 10.5 | 8.9 |
| Mid level CMV | 2 | 10.4 | 10.4 | 0.3 | 9.7 | 6.8 | -9.7 | 27.5 | 37.1 |
| High level CMV | 1 | 4.1 | 4.1 | 0.0 | 1.0 | 18.0 | -1.0 | 12.1 | 13.1 |
| High level WWV | 23 | 6.7 | 6.8 | 0.5 | 4.1 | 19.9 | 1.2 | 16.5 | 15.3 |

| 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 | 465 | 5.0 | 5.6 | 2.3 | 3.3 | 25.6 | 1.0 | 8.1 | 7.1 |
| Mid level CMV | 789 | 5.0 | 5.6 | 2.4 | 3.3 | 17.4 | -0.5 | 11.7 | 12.2 |
| High level CMV | 5971 | 5.9 | 6.9 | 3.6 | 4.0 | 17.4 | -0.1 | 14.6 | 14.6 |
| High level WWV | 9448 | 6.4 | 7.6 | 4.1 | 4.5 | 17.0 | 1.2 | 16.7 | 15.5 |

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 $\pm 20\text{hPa}$ are considered for validation.**
- **Collocation pairs with speed difference greater than 30ms^{-1} and direction difference greater than 60° are screened out.**
- **Quality indicator is not used for the current validation.**