

INSAT-3D AMVs: February 2017

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 IRW | 3534 | 4.0 | 4.6 | 2.3 | 2.7 | 20.8 | -0.7 | 7.2 | 7.9 |
| Mid level IRW | 3119 | 4.4 | 5.1 | 2.5 | 3.1 | 11.6 | -1.1 | 16.5 | 17.5 |
| High level IRW | 1820 | 5.1 | 5.8 | 2.6 | 3.6 | 7.9 | -0.2 | 27.2 | 27.5 |
| High level WVV | 3093 | 5.1 | 5.8 | 2.6 | 3.3 | 9.3 | 0.3 | 25.2 | 24.9 |

| Tropics | No of Collocation | MVD | RMSVD | SD | Mean Speed Dif (ABS) | Mean Dir Dif (ABS) | Bias | Mean Speed AMV | Mean Speed RS |
|----------------|-------------------|-----|-------|-----|----------------------|--------------------|------|----------------|---------------|
| Low level IRW | 902 | 3.6 | 4.0 | 1.7 | 2.5 | 22.2 | -0.1 | 5.9 | 6.0 |
| Mid level IRW | 1112 | 3.9 | 4.2 | 1.6 | 2.5 | 21.1 | -0.4 | 7.0 | 7.5 |
| High level IRW | 7046 | 4.0 | 4.6 | 2.2 | 2.7 | 18.7 | 0.2 | 9.1 | 8.8 |
| High level WVV | 9443 | 4.7 | 5.4 | 2.6 | 3.3 | 16.9 | 0.8 | 13.9 | 13.2 |

| 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 IRW | 146 | 4.2 | 4.3 | 0.8 | 3.3 | 16.4 | 1.4 | 9.1 | 7.7 |
| Mid level IRW | 64 | 3.4 | 3.5 | 0.6 | 2.4 | 8.2 | -1.6 | 13.0 | 14.7 |
| High level IRW | 118 | 4.1 | 4.4 | 1.4 | 2.4 | 16.0 | 0.4 | 14.2 | 13.7 |
| High level WVV | 155 | 5.2 | 5.3 | 1.1 | 3.2 | 11.0 | 2.0 | 21.8 | 19.8 |

| Global | No of Collocation | MVD | RMSVD | SD | Mean Speed Dif (ABS) | Mean Dir Dif (ABS) | Bias | Mean Speed AMV | Mean Speed RS |
|----------------|-------------------|-----|-------|-----|----------------------|--------------------|------|----------------|---------------|
| Low level IRW | 4582 | 4.0 | 4.6 | 2.4 | 2.8 | 21.1 | -0.5 | 7.1 | 7.5 |
| Mid level IRW | 4295 | 4.2 | 4.9 | 2.4 | 2.9 | 14.4 | -0.8 | 13.6 | 14.4 |
| High level IRW | 8984 | 4.2 | 4.9 | 2.4 | 2.8 | 16.4 | 0.2 | 12.9 | 12.7 |
| High level WVV | 12691 | 4.7 | 5.4 | 2.6 | 3.2 | 15.1 | 0.7 | 16.0 | 15.3 |

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 as a criteria for collocation.