

CURRENT STATUS OF THE ACCURACY OF GMS CLOUD MOTION WINDS AND WATER VAPOR MOTION WINDS

The purpose of this document is to present the status of the GMS Cloud Motion Winds (CMWs) and Water Vapor Motion Winds (WVMWs). Vector and speed differences of CMWs and WVMWs are shown in this document.

Current Status of the accuracy of GMS Cloud Motion Winds and Water Vapor Motion Winds

Monthly mean differences between Cloud Motion Winds (CMWs) or Water Vapor Motion Winds (WVMWs) and rawinsonde winds are calculated in accordance with the method specified in the international comparison of CMWs. Vector differences of CMWs for the period between June 1995 and April 1999 are shown in Fig.1, and speed differences are shown in Fig.2. Vector and speed differences of WVMWs for the same period are shown in Fig.3.

1. Low-level CMWs

The root mean square (RMS) vector differences are smaller than 5.1m/s and the mean absolute values of speed differences are smaller than 2.5m/s.

2. High-level CMWs

RMS vector differences are smaller than 9.8m/s and the mean absolute values of speed differences are smaller than 5.5m/s.

3. WVMWs

RMS vector differences are smaller than 10.2m/s and the mean absolute values of speed differences are smaller than 6.0m/s.

MSC modified the routine process of wind extraction to increase the density of WVMWs by increasing the number of targets of cloud selection on 31 July 1998. Since then the number of WVMWs has increased to 600 – 800 vectors for one wind observation time, which is 3 – 4 times as many as before. Figure 3 shows that this modification has not affected the accuracy of WVMWs.

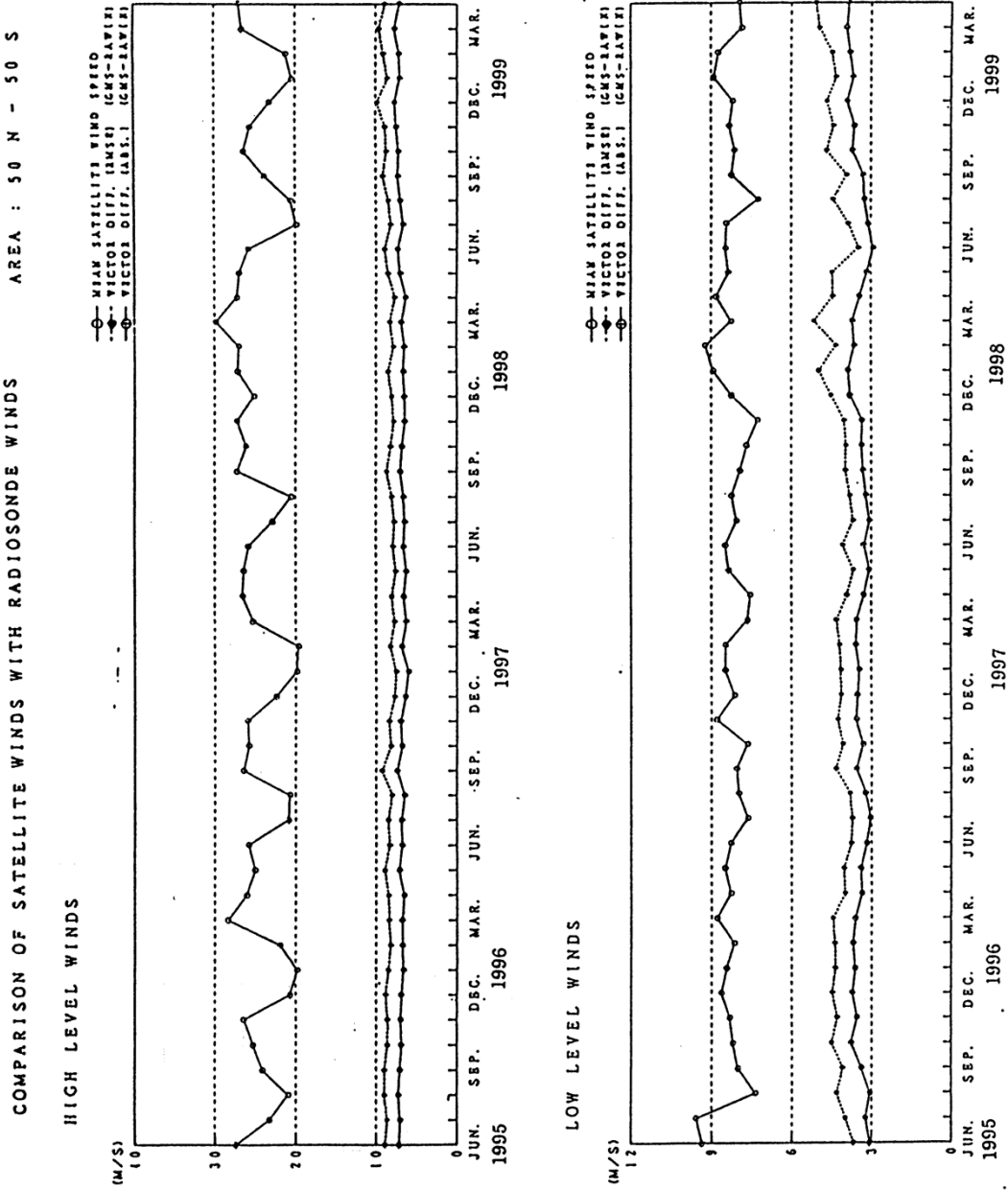


Figure 1. Monthly-mean vector differences between CMWs and rawinsonde winds.

Figure 1

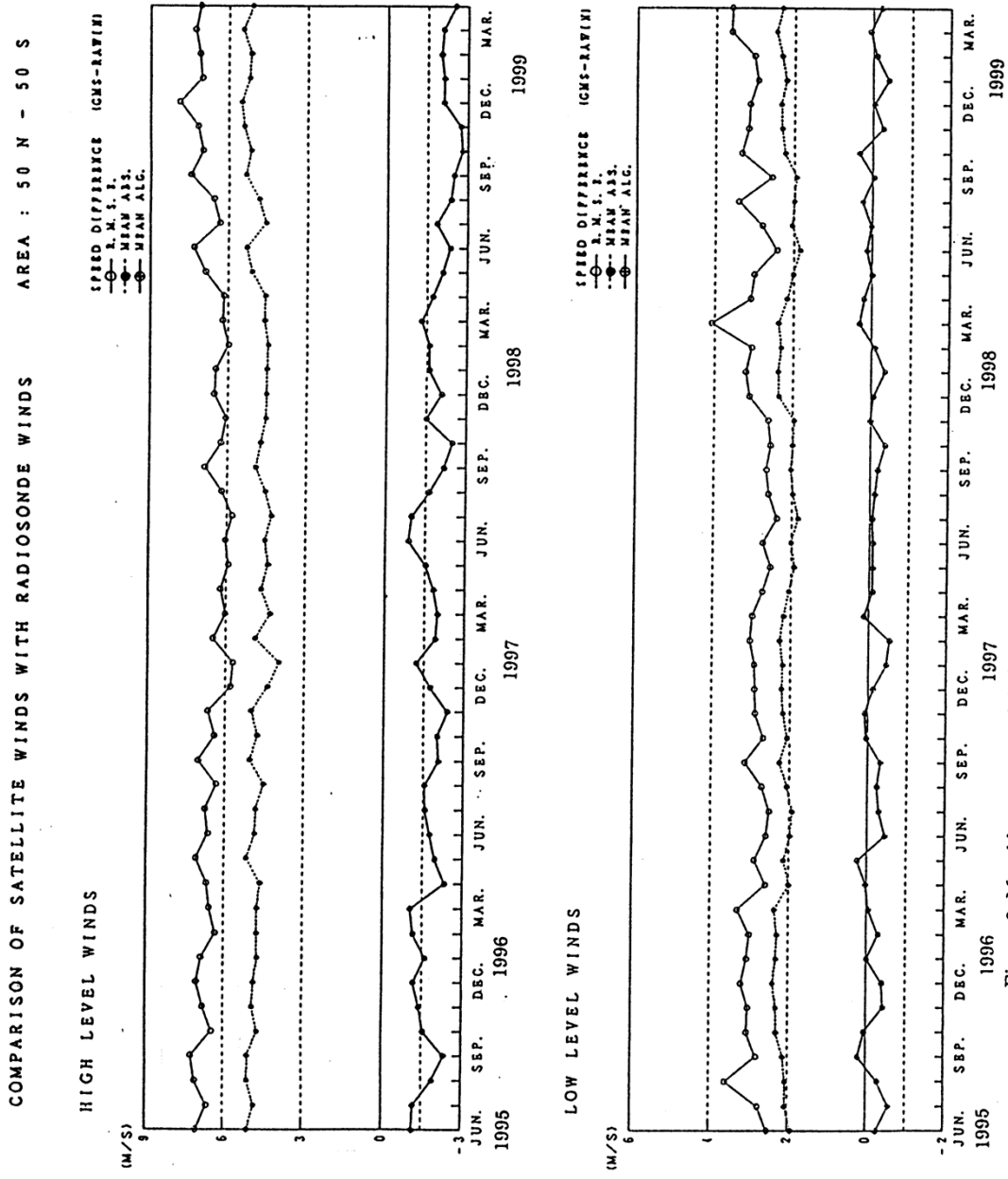


Figure 2. Monthly-mean speed differences between CMWs and rawinsonde winds.

Figure 2

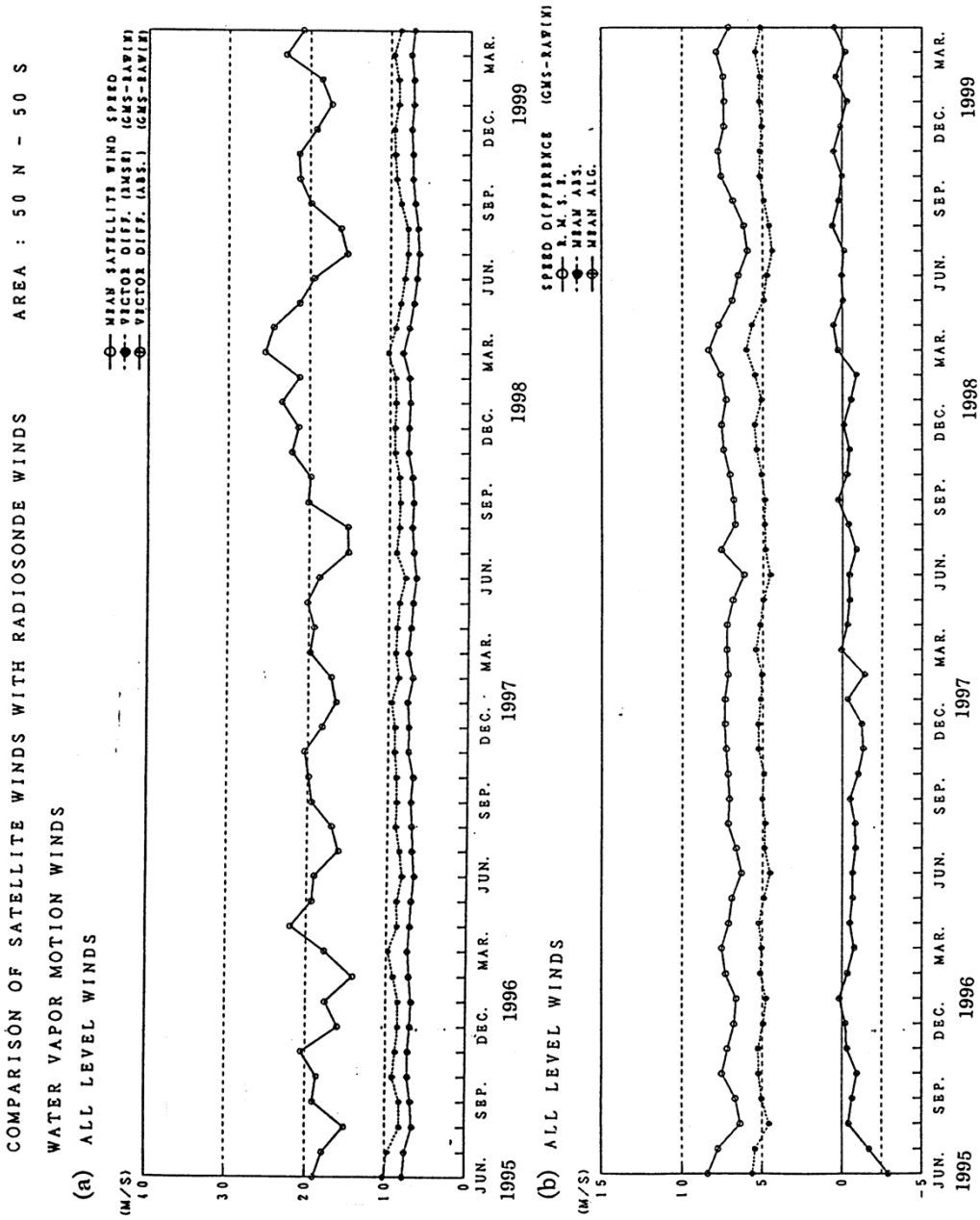


Figure 3. Monthly means of (a) vector differences and (b) speed differences between WVMWs and rawinsonde winds.

Figure 3