

NATIONAL RADIO ASTRONOMY OBSERVATORY  
Tucson, Arizona

5 April 1985

MEMORANDUM

To: VLBA Site Selection Committee

From: R. L. Brown

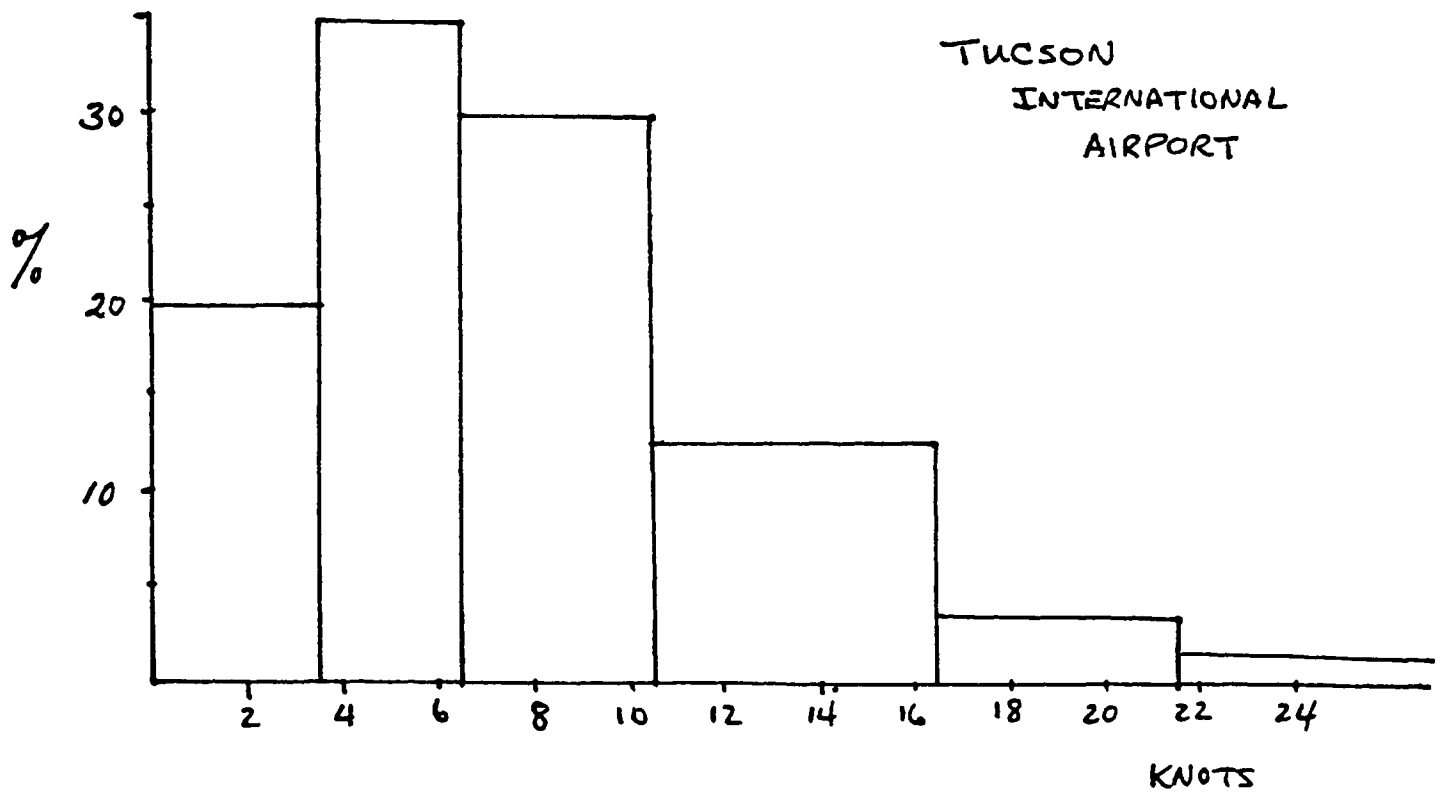
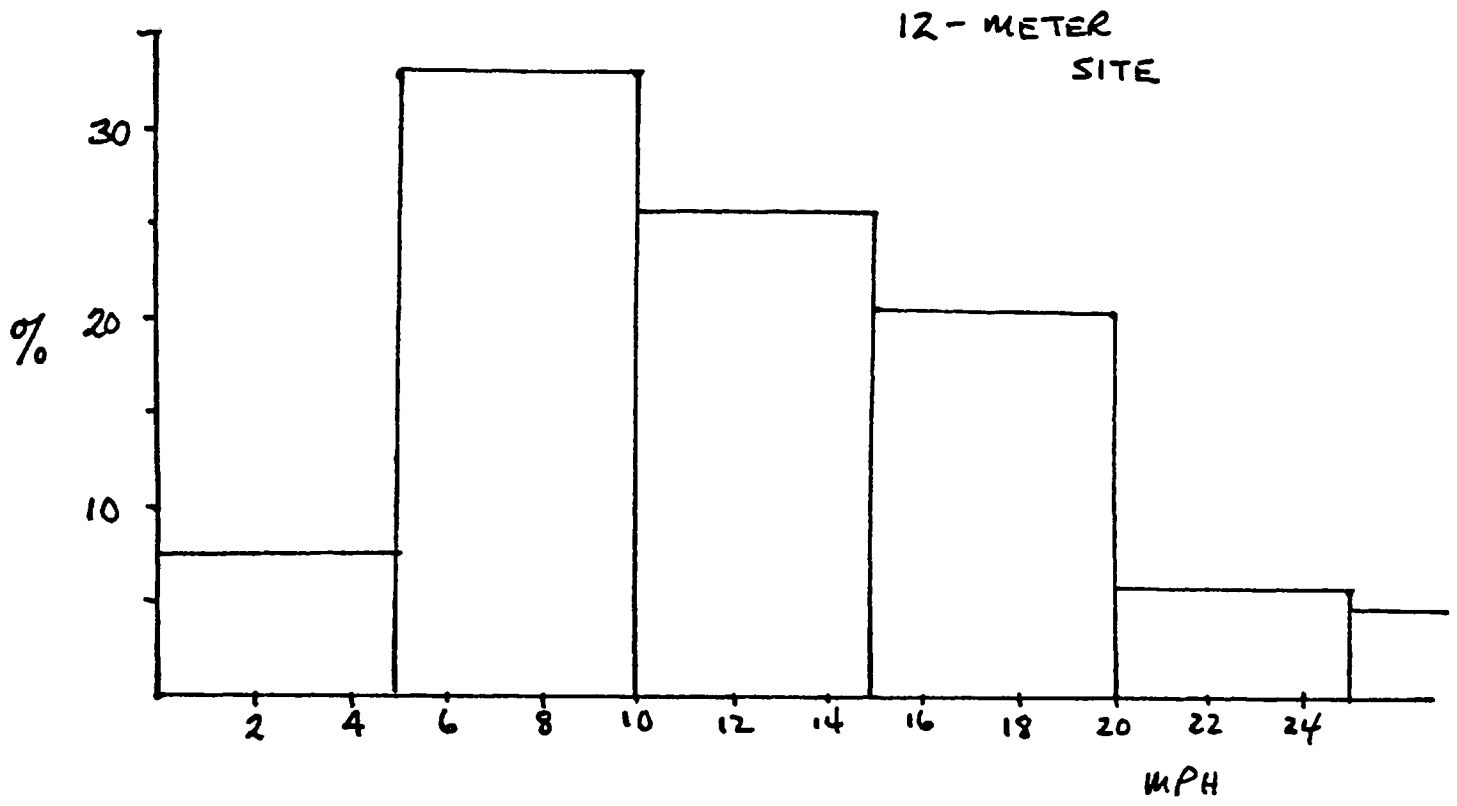
Subject: Wind Data in the Tucson Area

A very complete historical record of the winds in the vicinity of the city of Tucson is available either from the USAF from measurements made at Davis-Monthan Air Force Base, or from the U. S. Weather Bureau Station located at Tucson International Airport. Separated by less than 10 miles, these two sites do not fully sample the Tucson area but they can be compared for consistency. Together they characterize one particular valley site.

I obtained and compiled the wind data from both these sites; more than 20-years data are included in the averages presented below. The basic data are averages over 1-hour intervals and refer to mean wind, no record is kept of peak wind (by any definition).

Available for public distribution are these 1-hour mean values summed in various ways. In the tabulations that follow I present them as monthly averages, averaged over the years indicated. Other averages, by hour, by day, and so forth, are also available, if needed. The tabulations presented here are the percentage of time that the mean wind, on average, falls into the speed ranges noted. One curiosity about the D-M AFB data is that a few of the monthly averages, summed horizontally in the tables below do not sum to 100%. When I inquired about this, I received the reply "they should". Yes, indeed. Military sums, I guess.

The figure accompanying this memorandum summarizes in histogram form the mean wind statistics both at the 12-meter site and at the valley site as represented by the Tucson International Airport data.



TUCSON AREA WIND STATISTICS  
MEAN WIND

Site: Davis-Monthan Air Force Base

Years: 1942 - 1946; 1948 - 1976

Percentage of time that the mean wind is:						
MEAN WIND (KNOTS)	1-3	4-6	7-10	11-16	17-21	22-27
January	19.4	32.6	21.7	7.7	1.4	0.4
February	18.3	34.1	22.6	8.2	1.7	0.3
March	17.5	32.3	22.7	9.6	2.2	0.5
April	16.2	32.1	25.3	11.1	2.3	0.5
May	16.0	32.8	26.6	11.2	1.9	0.3
June	15.9	31.8	26.3	12.1	2.2	0.4
July	17.2	31.1	26.7	10.0	1.5	0.3
August	19.9	33.8	25.3	5.9	0.8	0.2
September	18.4	34.3	23.8	7.8	1.3	0.2
October	18.6	33.9	23.2	7.8	1.1	0.2
November	16.6	33.3	22.9	7.0	1.4	0.3
December	19.1	30.9	22.0	7.5	1.3	0.4

TUCSON AREA WIND STATISTICS  
MEAN WIND

Site: Tucson International Airport

Years: 1948 - 1970

Percentage of time that the mean wind is:						
MEAN WIND (KNOTS)	1-3	4-6	7-10	11-16	17-21	22-27
January	22.0	34.6	26.2	10.6	3.4	0.9
February	20.0	34.9	28.7	11.2	2.6	0.7
March	17.5	32.9	29.6	14.4	3.3	0.8
April	15.8	31.9	31.3	15.7	3.5	0.8
May	16.2	33.4	30.0	15.6	3.1	0.5
June	17.4	32.3	30.0	15.7	2.5	0.5
July	18.0	33.6	30.4	13.8	2.0	0.5
August	19.7	37.6	29.8	10.0	1.2	0.3
September	19.3	35.5	29.5	12.2	1.9	0.4
October	19.9	35.0	28.7	11.0	2.9	0.9
November	20.0	34.4	28.2	11.0	3.1	1.1
December	21.8	34.1	27.5	10.5	3.1	0.9