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65 Meter Radiotelescope Project
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Site examples

These examples do not represent an attempt to select a site. They are not meant to be exclusive, but only to indicate a few cases of well known locations, at or near which large astronomical facilities already exist, and in which the basic climatologic requirements necessary for good performance of the instrument are met.

The average wind and the nightly temperature variation are good indices of the wind and thermal conditions, which directly affect the performance of the instrument at short wavelengths.

The cloud cover is taken as a fair measure of the clarity of the atmosphere. There is no unanimity concerning the value of this parameter for the various techniques of radio astronomical observation. However, most observers agree, generally speaking, on its importance.

The elevation has been taken as a measure of the atmospheric absorption and the water content. Although the atmospheric humidity exhibits significant regional variations, the elevation remains the dominant parameter.

It should be noted that the instrumental performance has been evaluated, and found good, for wind velocities of up to 18 mph and temperature changes of 1.5 °F/h (about 18° F variation through the night).

Green Bank appears a rather unsatisfactory location from the standpoint of cloud cover, but has been included to show its adequacy from the engineering viewpoint.

Location	Average wind mph	Ambient temp. var. at night	Clear days/year	Elev. ft
Tucson	8.1	0.8 F/h	250	2600
Kitt Peak	12.5	17 F/night	260	6875
Cerro Tololo	11.5	8 F/night	280	7250
Green Bank	11.7	1.5 F/h	80	2700

Unlike other instruments (such as the Very Large Array), the basic site selection criteria, which are of a rather general climatologic character, can be met in a very large number of developed and undeveloped sites in the United States and abroad. Consequently, any attempt to carry through a selection necessarily leads to questions of purely scientific (northern versus southern hemisphere), general administrative (proximity to existing or planned NRAO facilities), and construction management nature (added construction and operation risks and difficulties in isolated or foreign locations).

The preceding points are unfortunately of very broad scope and qualitative and subjective nature, but will have to be settled first, at least partially, in choosing a site for this instrument.