A NEW OPTICAL OBSERVATORY IN TURKEY

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Abstract. Site-testing observations carried out between 1982 and 1986 have shown that Southwest and Southeast Turkey contain good potential observatory sites. The mountain known as Bakırlıtepe near the Mediterranean coast was found to be a good site with a high percentage of nights with clear skies and good seeing.

Here we summarize the results of the site-test observations and give general information about the site.

1. Introduction

This paper gives some brief information about the new optical observatory site which some of the participants visited after the conclusion of IAU Symposium 177. The site is located on a mountain known as Bakırlıtepe about 50 km (35 km as the crow flies) west of the city of Antalya at a height of 2485 m at latitude 36°51′ N and longitude 30°20′ E (Figure 1). It was selected after site-testing observations carried out between 1982 and 1986. Among the sites tested, Bakırlıtepe was found to be the best, with a high percentage of nights with clear skies and good seeing.

R.F. Wing (ed.), The Carbon Star Phenomenon, 507-511.

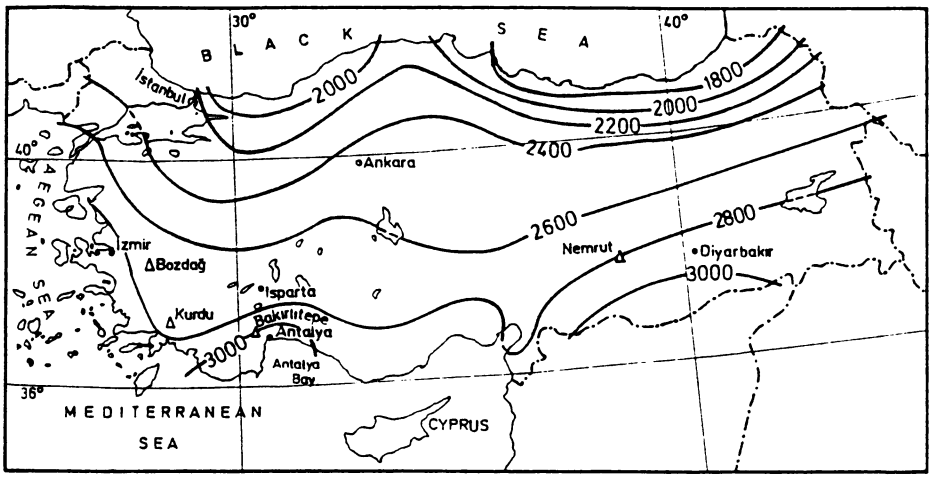

Figure 1. Map of Turkey showing the positions of sites tested (triangles), radio sonde stations (filled circles), and contour lines of sunshine hours per year.

2. Summary of Site-Testing Observations

Meteorological observations and astronomical seeing measurements made during two seasons are summarized in Figures 2 – 5, and in Tables 1 and 2. The details can be found in Aslan et al. (1989). As seen from Tables 1 and 2, Bakırlıtepe compares favorably with the Roque de los Muchachos Observatory on La Palma, one of the world's best observatories. It should be noted that the seeing measurements on Bakırlıtepe and La Palma were made by the same method (Walker 1984) using the same Polaris trail telescopes (borrowed from the Royal Greenwich Observatory) and Walker's set of calibration trails. It is now known that the actual seeing on La Palma is much better than indicated in Table 1, because the calibration of the Polaris trails contained the dome seeing of the 120-inch Lick telescope, against which the calibration was made. What this means is that the actual seeing on Bakırlıtepe might also be better than that indicated in Table 1.

3. The Facilities

The observatory on Bakırlıtepe is presently under construction and should be operational by the end of 1997. The site will be operated as the Turkish National Observatory (TUG) under the administration of the TUG Institute of TÜBİTAK (Scientific and Technical Research Council of Turkey). Initially there will be two facilities: telescopes of 0.4-m and 1.5-m aperture. The first telescope will be used for photometry, the second mainly for spectroscopy. The 0.4-m telescope was donated by the University of Utrecht. The 1.5-m telescope is a joint project between IKI-RAN (Space Research

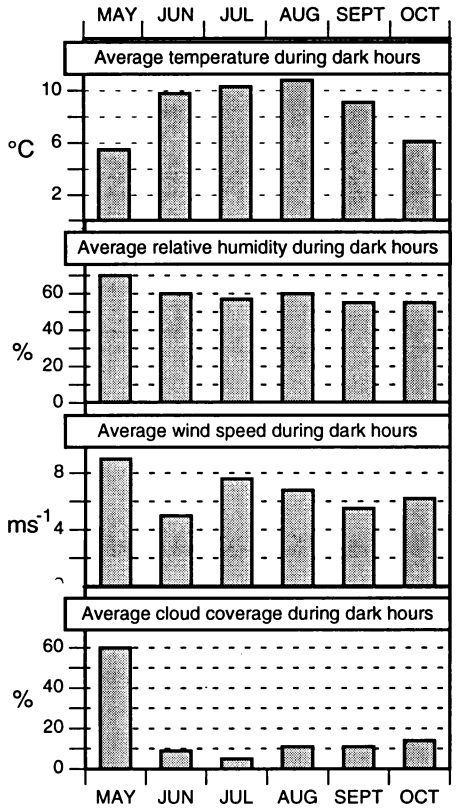

Figure 2. Average values of meteorological observations made in 1984 and 1985.

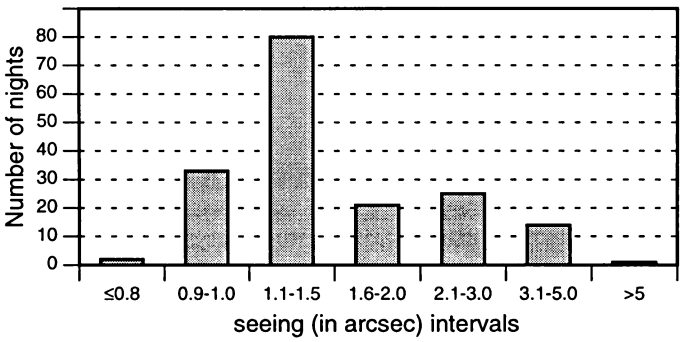

Figure 3. Distribution of average seeing values.

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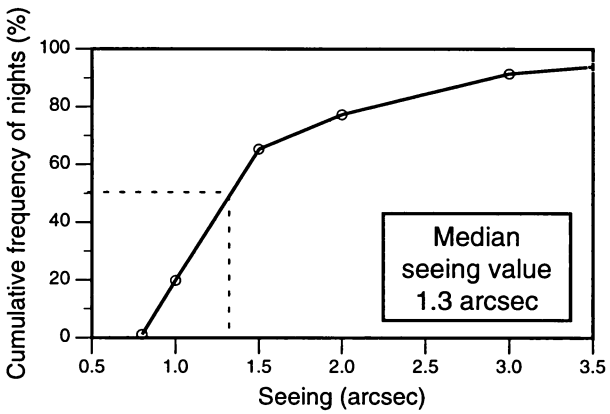

Figure 4. Percentage of nights with average seeing smaller than a given value (May to October).

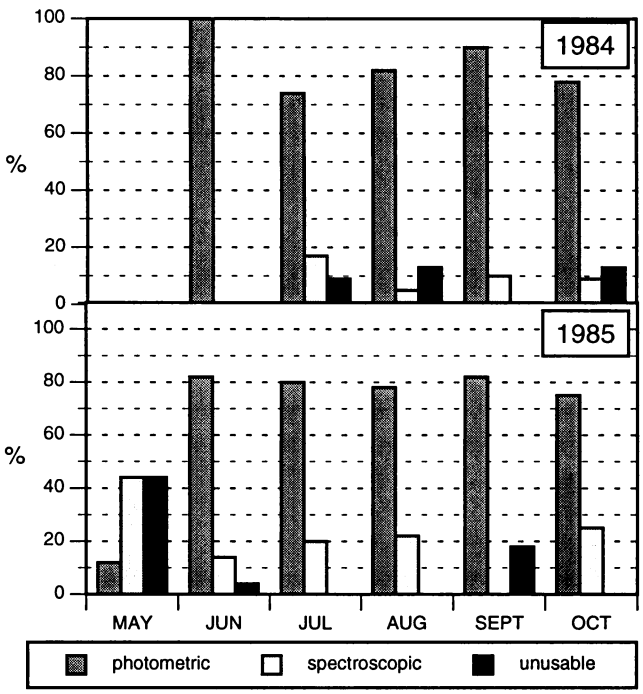

Figure 5. Monthly percentages of night quality.

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TABLE 1. Comparison of atmospheric seeing on Bakırlıtepe and Roque de los Muchachos Observatory (RMO)

RMO		Bakırlıtepe		
Interval	Median seeing	Interval	Median seeing	
			Hourly	Nightly
1984 Summer	1.″1	1984 Summer	1.″1	1.″3
1984/5 Winter	1.″4	1985 Summer	1.″3	1.″4
1975 Winter+Summer	1.″3			

TABLE 2. Comparison of night quality on Bakırlıtepe and Roque de los Muchachos

	Interval	No. of nights	Percentage of		Ref.
			Photometric nights	Usable nights	
RMO	1982+1983 (Winter+Summer)	221	59	78	Ardeberg, 1984
	Jun84-Feb85	178		80	Murdin, 1985
	May84-Dec84	194	50	81	Murdin, 1985
Bakırlıtepe	1984+1985 (May to Oct)	226	72	90	Aslan et al., 1989
	1985+1986 (Nov to Apr)	284	54		Aslan et al., 1989

Institute of the Russian Academy of Sciences), EAO-KSU (Engelhardt Astronomical Observatory–Kazan State University) and the TUG Institute of TÜBİTAK. It is a Ritchey-Chretien telescope with three cassegrain foci of focal ratios f/3, f/7.7, and f/17.3, and a coudé focus of f/48. The focal plane instrumentation is under study.

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