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USAFETAC/PR-80/001

LEVEL II



CLOUD COVER AND VISIBILITY CLIMATOLOGY FOR THE PHILIPPINES

Daniel E. Mitchell, SSgt, USAF

May 1980

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14 REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER USAFETAC/PR-80/001 ✓	2. GOVT ACCESSION NO. AD-AC85525	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) CLOUD COVER AND VISIBILITY CLIMATOLOGY FOR THE PHILIPPINES.		5. TYPE OF REPORT & PERIOD COVERED Final rept.
7. AUTHOR(s) Daniel E./Mitchell SSgt, USAF		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS US Air Force Environmental Technical Applications Center/ENO Scott AFB, Illinois 62225 ✓		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS US Air Force Environmental Technical Applications Center Scott AFB, Illinois 62225		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE May 1980
(12) 14		13. NUMBER OF PAGES 14
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		15. SECURITY CLASS. (of this report) Unclassified
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) meteorology, climatology, cloud cover, visibility, Philippines, Aparri, Baguio, Borangan, Cagayan de Oro, Clark AB, Cebu, Daet, Davao, Dipolog, Dumaquete, Hinatuan, Iloilo, Malaybalay, Manila, Masbate, Surigao, Vigan, Zamboanga		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report provides cloud cover and visibility climatology for 19 locations in the Philippines. The mean number of days with total cloud amount less than or equal to one-tenth and visibility greater than or equal to 6 miles for each month and by hours of the day are provided for each location.		

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PREFACE

The US Air Force Environmental Technical Applications Center (USAFETAC) prepared this report for the Defense Mapping Agency (DMA) Hydrographic/Topographic Center, Washington, DC. The report is intended to help DMA appraise weather factors in the Philippine Islands that could affect aerial photography. It does not provide a comprehensive climatology of the Philippines, but answers a specific question.

General

Spring is the best season for aerial photography in the Philippines because of the greater number of clear days, fewer storms, good visibility, and slightly less crab angle (crosswind effect). We recommend early spring for the southern and western portions, and late spring or early summer for the northern and eastern portions of the Philippines. Table 1 and Figure 1 list the stations used for this study and show their location. Table 2 provides cloud cover and visibility statistics for each location.

Cloudiness

Cloud cover is the greatest restriction to aerial photographic operations in the Philippines. Mean cloudiness averages 60 percent to 70 percent the year round, with a maximum in the daytime. Cloudiness tends to decrease at night over land and increase over the water. Inland stations have maximum cloud cover during daylight hours, with a minimum of low clouds in the early morning hours. Coastal stations have cloud cover drifting in from the sea in the early morning with a decrease in cloud cover 3 hours after sunrise, then increasing again during the afternoon. This is especially true of the northern and eastern coasts in winter, and the southern and western coasts in summer.

Visibility

Surface visibility below 6 miles is uncommon in this area. Morning ground fog is occasionally present both along the coasts and in the interior valleys, but it usually clears shortly after sunrise. Heavy showers restrict visibilities below 1 mile for short periods. Volcano or higher mountain peaks are covered with clouds at frequent intervals during the winter, limiting the ability to photograph the windward sides and peaks during this period.

Table 1. Stations Used in Study.

STATION NAME	NORTH LATITUDE (deg min)		EAST LONGITUDE (deg min)		WMO* NUMBER	STATION ELEVATION (feet)	PERIOD OF RECORD (yr/mo-yr/mo)
Aparri	18	22	121	38	982320	13	6601-7712
Baguio	15	29	120	58	983280	105	6601-7912
Borangan	11	37	125	26	985530	23	6601-7512
Cagayan de Oro	08	29	124	38	987480	20	6601-7812
Clark AB	15	11	120	33	983270	485	6601-7612
Cebu	10	20	123	54	986450	138	6601-7212
Daet	14	07	122	57	984400	36	7401-7812
Davao	07	04	125	36	987530	66	7401-7812
Dipolog	08	36	123	21	987410	16	6901-7812
Dumaguete	09	18	123	18	986420	20	6601-7812
Hinatuan	08	22	126	20	987550	20	6901-7812
Iloilo	10	42	122	34	986370	46	7201-7812
Malaybalay	08	09	125	05	987510	2106	7201-7812
Manila	14	31	121	01	984290	74	6601-7812
Masbate	12	22	123	37	985430	36	6601-7512
Surigao	09	48	125	30	986530	72	6901-7812
Vigan	17	34	120	23	982220	102	6601-7912
Zamboanga	06	54	122	04	988360	20	6901-7812

* WMO - World Meteorological Organization

Table 2

Mean Number Days With Total Cloud Amount
 $\leq 1/10$ And Visibility ≥ 6 Miles

PHILIPPINES

	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Clark AB	00-02	7	9	11	9	4	2	1	*	*	2	5	6
	03-05	8	11	11	10	5	2	2	1	1	3	5	7
	06-08	4	5	6	4	2	*	*	*	*	1	2	2
	09-11	3	3	3	3	1	*	*	*	*	1	2	*
	12-14	1	1	1	1	*	*	*	*	*	*	*	*
	15-17	1	1	2	2	*	*	*	*	*	*	*	*
	18-20	3	3	6	4	2	*	*	*	*	1	2	2
Cebu	21-23	5	6	9	6	2	1	*	*	*	1	3	4
	00-02	1	*	*	*	1	0	0	*	0	0	*	*
	03-05	1	*	*	*	*	0	0	*	*	0	*	0
	06-08	*	*	1	*	*	*	0	*	*	*	*	*
	09-11	*	*	*	*	*	*	0	0	*	*	*	*
	12-14	*	*	1	1	1	*	0	0	*	*	*	*
	15-17	*	1	1	1	1	*	0	0	*	*	*	*
Cubi Point	18-20	1	*	2	1	1	*	0	0	*	*	*	0
	21-23	*	*	1	1	1	*	0	0	0	*	1	0
	00-02	7	9	7	10	3	1	*	*	*	2	6	6
	03-05	8	9	8	10	3	1	1	*	*	3	7	6
	06-08	4	5	6	5	3	*	*	*	*	2	2	2
	09-11	4	4	4	4	1	*	*	*	*	2	2	1
	12-14	2	2	3	2	1	*	*	0	*	1	1	1
	15-17	2	2	3	2	1	*	0	0	*	*	2	2
	18-20	2	3	4	4	2	*	0	0	*	1	1	1
	21-23	5	6	7	8	3	*	0	0	*	2	4	4

Note: * equals less than 0.5 day

Table 2

PHILIPPINES (cont)

LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cuyo Is.												
0200	0	*	*	1	*	0	*	0	0	*	*	*
0500	0	0	*	0	0	0	0	0	0	0	0	0
0800	*	1	1	*	0	*	0	*	0	0	*	*
1100	*	1	2	*	0	0	0	0	0	*	*	1
1400	*	1	1	*	0	0	0	0	0	0	1	2
1700	1	0	2	*	0	0	0	0	0	0	0	*
2000	1	0	2	*	1	0	0	0	0	0	0	0
2300	0	0	*	1	1	0	0	0	0	0	0	0
Casiguran												
0200	6	7	12	12	12	10	10	8	9	12	10	7
0500	3	5	10	8	13	6	4	4	6	10	8	6
0800	4	4	7	7	6	3	3	3	2	5	4	4
1100	1	1	2	2	1	1	0	1	1	3	2	1
1400	1	1	2	2	2	1	*	1	0	1	1	1
1700	2	3	3	3	4	3	1	1	5	2	2	2
2000	6	6	9	9	8	8	5	5	6	9	8	6
2300	6	6	8	9	8	10	6	6	5	9	9	6
Baguio												
0200	7	6	6	5	3	1	*	*	*	2	6	6
0500	6	7	6	4	2	1	*	*	1	2	4	5
0800	8	6	8	3	3	1	1	0	1	2	3	3
1100	5	3	2	1	1	*	0	0	0	*	1	2
1400	*	*	*	0	0	0	0	0	0	0	*	0
1700	*	1	0	0	0	0	0	0	0	0	1	4
2000	4	4	3	2	1	*	0	0	*	2	3	5
2300	5	5	5	4	2	1	0	*	1	5	5	5
Aparrí												
0200	5	8	12	13	16	9	9	4	6	5	5	5
0500	4	7	11	14	16	6	7	5	4	6	6	6
0800	3	5	10	12	12	4	5	3	3	3	3	3
1100	3	4	7	10	9	2	2	1	2	3	3	2
1400	3	5	10	10	7	2	2	1	2	3	4	2
1700	3	5	11	8	5	2	2	1	2	3	4	3
2000	5	8	13	12	11	5	4	2	5	5	5	5
2300	4	9	12	15	15	8	7	4	6	5	6	5

Note: * equals less than 0.5 day

Table 2

PHILIPPINES (cont)

	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Dumaguete	0200	*	*	*	1	0	*	0	0	*	*	*	*
	0500	0	0	0	0	0	0	0	0	0	0	0	0
	0800	0	0	0	*	0	1	0	0	0	0	0	0
	1100	0	0	0	0	0	*	0	0	0	0	0	0
	1400	0	0	0	0	0	0	0	0	0	0	0	0
	1700	0	0	0	0	0	0	0	0	0	0	0	0
	2000	1	1	2	0	1	0	*	*	*	*	*	1
Dipolog	2300	0	0	0	0	0	0	0	0	0	0	0	0
	0200	2	2	3	2	2	1	1	2	1	2	3	1
	0800	1	1	2	1	1	2	1	2	2	2	2	1
	1400	1	2	4	8	1	1	1	2	*	1	3	1
	2000	4	4	8	8	3	1	2	2	*	1	3	3
Davao	0200	1	1	3	2	*	0	*	*	0	1	2	2
	0500	1	0	1	1	1	1	*	1	1	2	1	3
	0800	1	2	*	1	2	1	*	1	1	*	2	2
	1100	1	*	*	1	*	*	*	*	1	*	*	*
	1400	*	0	*	1	*	0	*	*	0	*	*	*
	1700	*	*	*	1	*	*	*	*	0	*	*	*
	2000	1	1	1	1	*	*	0	1	0	0	1	1
Dart	2300	1	1	2	1	*	*	0	1	*	0	1	1
	0200	1	2	2	3	3	1	1	1	1	1	*	*
	0500	1	1	2	3	3	1	*	1	*	1	0	*
	0800	1	1	1	1	1	1	*	1	*	*	*	*
	1100	0	*	*	*	1	0	*	*	0	*	*	0
	1400	*	*	2	1	1	0	*	0	*	*	*	0
	1700	0	1	1	*	1	0	*	*	*	*	*	*
Davao	2000	*	1	2	2	1	0	*	*	*	*	*	*
	2300	1	1	3	2	1	1	*	*	*	*	*	0

Note: * equals less than 0.5 day

Table 2
PHILIPPINES (cont.)

LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Laog												
00-02	11	16	18	18	14	4	2	2	2	9	14	15
03-05	15	16	14	16	14	4	3	1	3	9	15	15
06-08	13	13	16	15	13	3	3	1	2	7	12	12
09-11	13	13	16	16	11	2	2	1	2	8	12	12
12-14	12	13	16	13	6	1	1	1	1	6	10	11
15-17	12	12	12	9	2	*	*	*	1	6	11	11
18-20	12	13	13	11	4	*	*	*	*	7	12	11
21-23	14	16	18	17	10	2	1	1	1	10	14	15
Legaspi												
00-02	0	*	1	*	*	*	*	0	0	*	*	*
03-05	*	*	1	*	0	*	0	0	0	*	0	*
06-08	*	*	1	*	*	1	*	*	*	1	*	*
09-11	*	*	*	*	*	*	0	*	0	*	*	*
12-14	*	*	*	*	*	0	*	0	0	0	*	*
15-17	1	*	1	1	1	*	*	*	*	*	*	*
18-20	*	*	1	1	1	*	*	*	*	*	*	*
21-23	*	*	1	*	0	*	0	0	0	0	*	*
Mactan Isle												
00-02	3	2	6	6	2	1	1	*	1	1	3	2
03-05	3	1	5	5	2	1	1	*	1	1	3	2
06-08	1	1	1	2	1	*	0	*	*	1	1	*
09-11	1	0	*	2	*	0	*	0	0	1	*	*
12-14	1	*	2	3	1	*	*	0	*	1	*	*
15-17	1	1	2	3	*	*	0	0	0	1	*	*
18-20	1	1	3	4	1	*	0	0	1	*	1	1
21-23	1	1	6	6	2	1	*	*	1	1	2	3
Manila Int												
00-02	3	5	9	8	5	1	*	*	*	2	3	3
03-05	3	5	5	6	3	1	*	*	*	2	3	2
06-08	2	3	5	5	3	*	*	*	*	1	2	2
09-11	3	3	5	5	3	*	*	*	*	1	2	1
12-14	2	3	5	4	2	*	*	*	*	1	1	2
15-17	2	3	5	5	3	*	*	*	*	1	1	3
18-20	2	3	5	6	3	*	*	*	*	2	2	2
21-23	4	6	9	9	4	1	*	*	*	2	4	2

Note: * equals less than 0.5 day

Table 2

PHILIPPINES (cont)

	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Jolo	0200	*	1	1	1	*	*	*	*	*	*	*	*
	0500	*	*	*	*	0	*	*	0	*	*	0	0
	0800	*	*	*	1	*	*	*	*	*	*	*	*
	1100	*	0	0	0	0	0	0	0	0	0	0	0
	1400	*	0	0	0	0	*	0	0	0	0	0	0
	1700	*	*	*	0	0	*	0	0	0	0	0	0
	2000	*	*	*	0	*	*	0	0	0	0	*	*
Mayababay	2300	*	*	1	1	1	*	*	0	0	0	*	*
	0200	5	4	8	8	3	3	1	2	2	3	5	6
	0800	4	3	7	10	5	3	3	2	2	5	4	5
	1400	*	*	1	1	0	0	*	*	0	*	*	*
	2000	3	4	4	4	1	*	*	*	*	1	3	3
	0200	0	0	*	1	1	2	1	1	*	1	1	1
	0800	*	0	0	1	*	1	*	*	*	1	*	*
Himastuan	1400	0	0	*	2	0	0	0	0	0	0	*	0
	2000	0	1	1	*	*	0	0	0	0	0	*	0
	0200	1	2	1	2	1	0	*	0	0	0	1	1
	0500	1	1	1	2	1	0	0	0	*	0	1	1
	0800	0	*	1	1	0	0	0	0	*	*	*	0
	1100	*	0	1	*	*	*	0	0	*	*	*	0
	1400	*	*	1	*	0	0	0	0	0	0	*	*
Iloilo	1700	1	1	1	1	*	*	0	0	*	*	*	*
	2000	1	1	2	3	1	0	0	0	0	0	1	1
	2300	1	2	2	4	1	0	0	0	0	1	1	2
	0200	4	1	3	4	3	1	1	1	*	2	2	3
	0800	3	3	4	2	2	0	*	1	1	1	2	3
	1400	1	1	2	2	1	0	0	1	*	*	1	1
	2000	3	1	5	5	2	*	0	*	*	*	1	4
Coron	0200	4	1	3	4	3	1	1	1	*	2	2	3
	0800	3	3	4	2	2	0	*	1	1	1	2	3
	1400	1	1	2	2	1	0	0	1	*	*	1	1
	2000	3	1	5	5	2	*	0	*	*	*	1	4

Note: * equals less than 0.5 day

Table 2

PHILIPPINES (cont)

LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Borongan												
0200	1	1	1	2	1	2	2	1	2	2	2	1
0800	1	1	1	1	0	2	2	2	1	2	1	1
1400	*	*	1	1	1	*	*	*	*	*	*	1
2000	1	1	1	2	1	2	1	2	1	2	2	1
Surigao												
0200	0	0	0	1	*	1	0	*	1	1	*	*
0800	*	*	*	1	*	1	1	*	0	*	0	*
1400	*	*	*	1	*	*	1	*	*	*	1	0
2000	*	*	1	1	1	1	*	1	1	1	2	*
Cagayan De Oro												
0200	2	2	3	2	1	1	1	*	*	*	1	1
0800	2	2	3	2	2	1	1	1	1	1	2	1
1400	*	1	1	1	*	*	*	0	0	0	0	*
2000	1	1	1	*	*	0	0	0	*	*	*	*

Note: * equals less than 0.5 day

Table 2

PHILIPPINES (cont)

LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Sangley Point												
00-02	3	6	8	7	3	1	*	*	*	1	2	2
03-05	3	5	7	6	3	1	*	*	*	1	2	2
06-08	1	2	3	3	1	1	*	0	*	*	1	*
09-11	1	2	3	3	1	1	*	0	*	*	1	*
12-14	1	1	2	2	1	0	*	0	*	*	1	*
15-17	1	1	3	2	1	1	*	0	*	*	1	2
18-20	1	4	5	3	2	1	*	0	*	1	1	2
21-23	3	4	8	5	2	1	*	*	1	1	2	2
Zamboanga												
00-02	3	1	3	3	1	1	*	1	1	1	2	1
03-05	1	1	3	1	1	*	1	1	1	1	2	1
06-08	2	1	3	2	1	*	1	1	1	1	2	1
09-11	1	1	3	1	1	*	1	1	1	1	2	1
12-14	1	1	2	1	1	*	0	1	1	1	2	2
15-17	1	1	2	1	1	*	0	1	1	1	2	2
18-20	2	2	3	2	1	*	0	1	1	1	2	2
21-23	2	2	3	4	2	*	0	1	1	1	2	3
Puerto Princessa												
0200	1	2	2	1	1	*	0	0	*	*	1	1
0500	*	1	2	3	2	0	0	0	*	2	1	1
0800	1	1	3	1	1	0	0	0	*	*	0	*
1100	1	1	1	1	1	0	0	0	*	*	0	*
1400	1	1	1	1	1	0	0	0	*	*	0	*
1700	2	2	1	2	2	0	0	0	*	1	2	2
2000	3	2	3	2	2	0	0	0	*	2	2	2
2300	2	3	5	5	2	1	1	0	*	2	2	2
Masbate												
0200	2	3	5	1	2	1	1	0	*	1	2	2
0500	1	1	2	1	1	0	0	0	*	1	1	1
0800	1	1	2	1	1	0	0	0	*	1	1	1
1100	1	1	2	1	1	0	0	0	*	1	1	1
1400	1	1	2	1	1	0	0	0	*	1	1	1
1700	1	1	2	1	1	0	0	0	*	1	1	1
2000	1	1	2	1	1	0	0	0	*	1	1	1
2300	1	1	4	7	2	0	2	2	*	3	5	4

Note: * equals less than 0.5 day

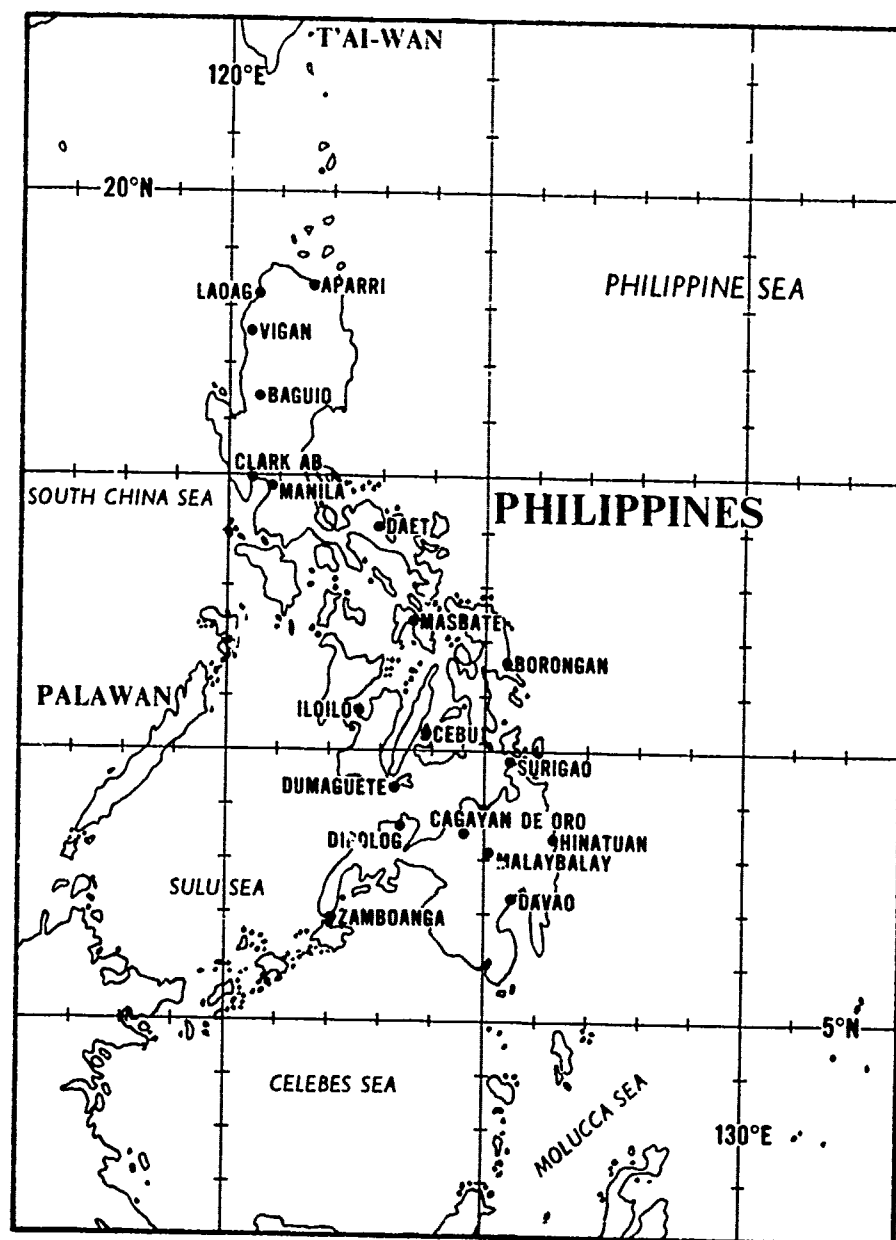


Figure 1. Map of Philippines Showing Stations Used in Study.