

SUMMARY OF PHASE I

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The following brief summary is written to provide a quick overview of Phase I for the U.S. Chief Scientists and other interested scientists. In the interest of being concise, I have filtered out many of the details from the record. This summary is centered on the aircraft program and I will provide an integrated summary after the ship Chief Scientists reports are in.

A. Overview of the Meteorological Situation

A detailed review of Phase I meteorology is being prepared by R. Burpee. For a quick look, I have reduced the picture to the following:

(1) A daily classification of weather conditions over the A/B area. The classification is based largely on satellite data with as much input from ship data (e.g. convective code) as possible. The classification scheme is:

- E Enhanced Convection
- E - Weakly enhanced convection
- S - Suppressed convection

Figure 1 shows the time sequence of this classification.

(2) A three hourly evaluation of cloud cover over the A/B area was done by the GATE Special Analysis Group from SMS IR data. I have smoothed this three hourly data into a daily estimate of the percent of the A/B area covered by:

- (a) all clouds
- (b) cold.- high clouds

Figure 1 also contains this estimate.

B. The intensive ship observation periods and the BLIS schedule are shown in Figure 1. A more detailed description and evaluation of these programs will be possible after the ship reports are in. Each of the intensive periods covers a change from suppressed to enhanced convection and two of the three intensive periods also cover the return to suppressed conditions.

C. The chronology of GATE aircraft operations in Phase I is shown in Figure 1. Table 1 gives more detail regarding each mission. A schematic of the flight patterns is also given for each day's operation. Very

detailed flight tracks, as well as reports from the Mission Scientists, are available in the data management section of the GOCC. The aircraft program priority table prepared prior to GATE was largely followed. The plan for three good Basic GATE missions was not quite achieved. Three Basic GATE missions were flown, but pattern and instrument problems detract from their total success. The objective of studying the life cycle of a cluster was not achieved and, given the aircraft resources and amount of down time necessary to keep the systems going, this objective should probably be abandoned. No Saharan dust mission was flown, but many samples of the dust layer were obtained. More Boundary Layer Flux missions in suppressed conditions were flown than we had planned. The radiation objectives were met. I propose that no changes in our plan for Phase II except that the Boundary Layer Flux missions should concentrate on more disturbed conditions and that we should place a high priority on obtaining one Saharan Dust Case. Continuing highest priority on Basic GATE missions necessary.

The aircraft to ship and GOCC to ship communications problem is serious. Each mission we attempted to radio over VHF frequencies to have the ships not near the pattern resume BLIS operations. No success was reported except with the QUADRA. In order to attain coordinated ship and aircraft operations, this problem must be solved.

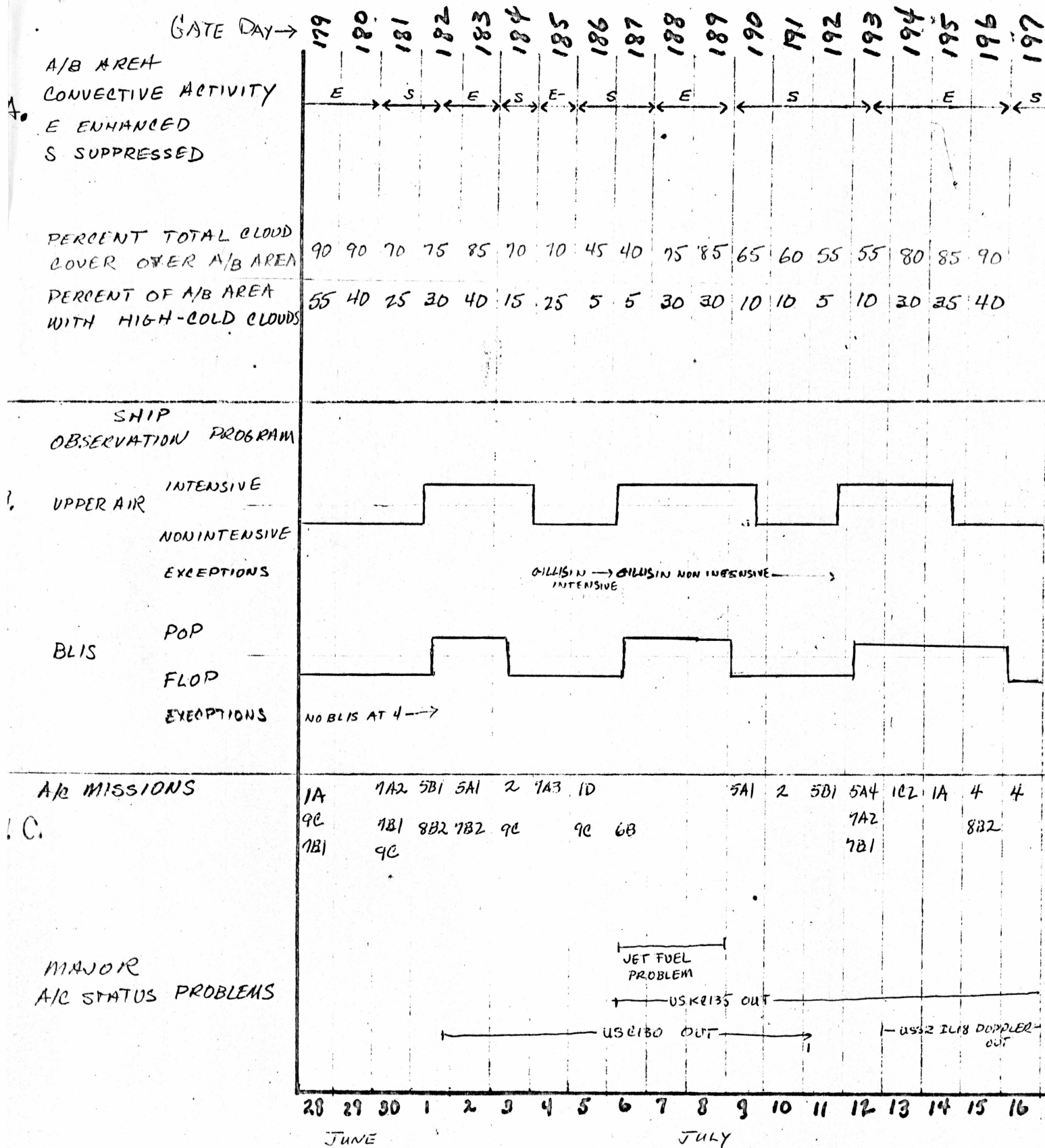


FIGURE 1. SUMMARY OF PHASE ONE

SUMMARY OF AIRCRAFT MISSIONS PHASE I

EVALUATION 0 = GOOD 1 = $\geq \frac{2}{3}$ OBJECTIVES MET

2 = $\frac{2}{3}$ 1/3 OF OBJECTIVES MET

3 = LESS THAN 1/3 OF OBJ MET

4 = BAD

NO	DATE	TYPE	MISSION SUBJECT	AIRBORNE MIS.	AIRCRAFT										EVALUATION	
					DC-6	SL-1	SL-2	SL-3	SL-4	SL-5	SL-6	SL-7	SL-8	SL-9		
179-1	6/28	9C	ZIPSER	GOVIND										X	Some sonde problems - Intercomparison w/ USSR SHIP	2
179-2	6/28	1A	ZIPSER	BETTS	X	X	X	X		X	X	X			Radiation objectives met. Pattern too large for goalpost	2
179-3	6/28	7B1	ZIPSER	ZHVALEV					X							0
181-1	6/30	9C	KRAUS	HOUGHTON										X	RFI PROBLEMS ON SOUNDINGS - SHIP SONDES	4
181-2	6/30	Tower	KRAUS	NICHOLS			X									
181-3	6/30	7B1	KRAUS	SMITH										X	CLOUD CENSUS	0
181-4	6/30	7A2	KRAUS	COX	X				X		X				DC-6 GUST PROBE INOP. NO B.L. OBJECTIVES MET.	0
182-1161	7/1	5B1	HOLLAND	NICHOLS			X								MISSION COORDINATED WITH QUADRA BLIP	0
182-1161	7/1	8B2	HOLLAND	BOROVNIKOV						X					MANY CLOUD PENETRATIONS	0
183-1	7/2	5A1	RASMUSSEN	BEAN	X	X		X	X						MISSION DONE IN SUPPRESSED AREA BETWEEN CB SYSTEMS RADIATION OBJECTIVES MET CURRIS PROFILE	0
183-2	7/2	7B2	RASMUSSEN	SMITH										X	CLEAR ATMOS. PROFILE	0
184-1	7/3	9C	COX	HOUGHTON										X	RFL ON SONDES NEAR B AREA	2
184-2	7/3	2	COX	HOLLAND	X	X	X	X					X		SEA SFC TEMP MAPPING DONE ON JTR FLIGHT, NOT A REALLY GOOD JTR	1
185-1	7/4	7A3	VASILYEV	TER- MARKVANNIC					X	X						0
186-1	7/5	9C	BETTS	KRAUS										X	DROPSONDE MISSION	1
186-2	7/5	TOWER	BETTS	BEAN	X											
186-3	7/5	1A/1D	BETTS	ZIPSER		X	X	X		X		X			WORKED A SMALL LINE OF CU, W/OUT ON DROPSO BOUNDARY LAYER OBJECTIVES SEA SURFACE TEMP MAPPING FLT ALT 4000'	2
187-1	7/6	6B	VASILYEV	ZHVALEV					X							2
187-2	7/1	9C	RASMUSSEN	GOVIND										X	NO ABORTED AFTER ONE SONDE	4
190-1	7/9	5A1	BOROVNIKOV	WEICKMAN	X	X	X	X	X		X				ORIGINALLY A 1A. NO CONVECTION PATTERN AND ALTITUDE STARK AND FOR BOUNDARY LAYER STUDY Some what suppressed JTR	3
191-1	7/10	2	BETTS	ZIPSER	X	X		X	X		X					2
192-1	7/11	5B1	COX	BEAN	X											0
193-1	7/12	5A4	ZIPSER	NICHOLS	X		X	X							ELECTRO ABORTED BEFORE TO. RAILROAD PATTERN W/OUT 4A2.	2
193-2	7/12	7A2	ZIPSER	KUNN							X	X			C130 ABORTED	2
193-3	7/12	7B1	ZIPSER	ZHVALEV					X							0

NO	DATE	TYPE	MISSION SCIENTIST	AIRCRAFT M.S.	DE6	LIS	UK 0130	DE7	ILIS1	ILIS2	US0130	CV440	K0135		
194-1	7/13	102	RASHMUSSEN	BETTS		X	X	X		X		X		LIS8 HAD INS PROBLEMS, ILIS8 HAD NO DOPPLER - GROUND LINE OF OBS.	2
195-1	7/14	1A	KUETTNER	COX	X		X		X		X	X		DO-6 ABORT, ILIS8 ABORT UK 0130 WORKED WELL	1
196-1	7/15	4	BETTS	ZIPSER		V		V		V	V			US0130 FLEW DROPSIDE MISSION GROUNDING TROPICAL (CYCLONE?)	1
197-1	7/16	4/8A	RASHMUSSEN/ REED	COX	X	X		X			X			STUDY THE SYSTEM LE 196-1 SUPPRESSED CONVECTION - RING CONVECTION REPORTED	1