



INFORMATION BULLETIN

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Number 1

25 October 1974

GATE INFORMATION BULLETIN is a successor to GATE NEWS, which was prepared in the US GATE Project Office, NOAA, and distributed to inform participants in GATE of the specific planning details for the field effort. Now that the field effort is terminated, and the tasks of completing the data collection and processing the data are underway, there is a continuing need to keep all those interested in GATE informed as to the status of production and availability of the preliminary and final data sets. Moreover, it will also be useful to inform readers of plans for GATE working group meetings, seminars, scientific sessions, establishment of research activities, and such other matters as are thought to be useful, or are requested by the readers. This last category might include, for example, brief unrefereed scientific contributions of a preliminary nature that would serve to bring interesting or debatable results to the attention of the GATE community; these contributions, however, should not substitute for formal publication in the scientific literature, and they will be accepted for the BULLETIN on the understanding that they are not appropriate for citation in the literature, either by the author or by readers.

To serve the above-mentioned purposes, the BULLETIN is being prepared at NCAR in close coordination with the several USA Agencies that are participating in GATE; this first issue is a trial, and we earnestly solicit your reactions and suggestions. It will be distributed to those who received GATE NEWS and to a wide segment of the scientific community. We will be pleased to extend this distribution to all who are interested in following the progress of GATE research. We request the recipients of this first issue to ask your colleagues who wish to receive the BULLETIN to send names and addresses to:

GATE INFORMATION BULLETIN
Stan Ruttenberg, Editor
NCAR, P.O. Box 3000
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Contents, No. 1:

Schedule of Availability of GATE Data Sets and Information
Description of GATE Preliminary Data Sets
Announcement of ISMG Publication on GATE Preliminary Results
Summary of GATE Phase I and Phase II Observing Periods

The first issue of the GATE INFORMATION BULLETIN contains summaries of the first two observing periods of GATE (Phase I, 26 June-16 July and Phase II, 28 July-17 August) showing periods of convection, intensive observations, modes of boundary-layer observations, radar coverage, statistics on upper-air flights, and a brief catalogue of aircraft missions and their flight tracks.

Future issues of the BULLETIN will contain a similar summary for Phase III, 30 August-19 September and also a detailed description of "One Day in the Life of Phase I" (10 July), and the same for selected days of the other two Phases (10 August, 5 September). These one-day summaries will include the Mission Selection Team minutes from the previous evening (containing operational summaries, weather summary and outlook, and the mission strategy for the next day), the aircraft flight tracks in detail, the reports from the mission and aircraft scientists, and the A- and B-scale maps as appropriate for the day. These summaries of one day for each Phase will include examples of data included in the preliminary data sets to be available later, as described below. We also plan to present other material descriptive of the operational and scientific work of the GATE period, including detailed reports on many special activities, such as the dropwind-sonde program, and also status reports on the Subprogram Data Centers' progress toward completion of their data sets.

As described in the GATE Data Management Plan (GATE Report No. 13), a massive effort has been organized to insure that the GATE data will be fully documented, validated by the nations responsible for the observing systems, collated and made available as soon as possible. A summary of the documentation plan and time schedule is included here. It will be seen that a considerable time must elapse before the full data sets needed for detailed research investigations will be available. To fill that gap, several interim measures are being undertaken, as described below. This BULLETIN is intended to speed information flow even further.

The reader of this issue will perceive that this BULLETIN is essentially addressed to the "in" GATE community - to those already familiar with the GATE terminology and details of the GATE plan. Others who wish to inform themselves of the details of the GATE planning can do so by referring to the various GATE documents produced by the GATE International and Scientific Management Group (ISMG). Volumes 1 through 13 are now available. In a future issue we will publish a title list and short description of these reports. A very limited number of copies for distribution exist at NCAR and at the USA GATE Project Office, NOAA Headquarters Code EM-6, Rockville, MD. 20852 (phone 301-496-8841). When this supply is exhausted, further copies can be purchased from UNIPUB, Inc., 650 First Ave., New York 10016 (phone 212 Murryhill 6-4707). A good survey article on the GATE was recently published in the BULLETIN of the American Meteorological Society, Vol. 55, No. 7, July 1974.

GATE SET OF PRELIMINARY DATA

In Dakar and at the Synoptic-Scale Subprogram Data Center (Bracknell, U.K.) the ISMG has collected sets of preliminary data that will be valuable

to researchers in the time prior to the availability of the final, complete, validated data sets. The inputs to this particular data collection effort were only those types and quantities of data required operationally and scientifically to direct the experiment at GOCC. These preliminary products will be a valuable basis for some preliminary investigations and will also serve as an indicator to various researchers of the more interesting periods of GATE; however, they will not be representative of all measurements made during GATE or of the time-space resolution of the total collection effort. These sets of preliminary data will be sent to the World Data Centers: WDC-A in Asheville, N.C., USA and WDC-B in Moscow, USSR, and will be available only from them.

The sets will contain the following material:

1. Special Analysis Products.

1.1 A-scale Map Series.

- A-scale maps: maps prepared for the daily observational forecasts have been re-analyzed after late data was entered and data plots checked. Map levels are: surface (pressure); surface (wind over ocean area); 500 m (wind over land) (note: these last two maps were combined for Phases II and III); winds at 850, 700, 500 and 200 mb. These maps (about 2500 in number) cover the area 10°E to 40°W, 5°S to 25°N; scale 1:7.5 million.
- Some selected time/height cross sections
- Narrative weather summary for the GATE period (provisional)

1.2 B-Scale Map Series.

- B-scale maps: for days of enhanced convection in the B array, or when important aircraft missions were undertaken. Maps include winds at surface, 850, 700 and 200 mb; nephanalyses from satellite and radar observations. There will be about 320 maps in this series. The area covered is centered on the B-scale array and is typically a few degrees larger than the A/B hexagon, as shown on the maps in this document; the scale is 1:3.75 million.
- Some upper-air soundings plotted on skew-T diagrams for soundings nearest to intense convective areas.
- Some times series analyses of cloud cover, ship convective codes, etc.

1.3 Availability of These Data.

The A-scale Map Series and the B-scale Map Series will be microfilmed as complete series sets for Phases I, II, and III on four rolls of 35-mm microfilm.

2. Preliminary Unvalidated Data Sets.

2.1 Data on Digital Magnetic Tape. (6 to 10 reels standard computer tape.)

- o WWW and GATE ship surface and upper-air observations at synoptic hours that were collected over the GTS at Bracknell, with some gross quality checks applied, in standard GATE format (see GATE Report 13, Part III).

2.2 Data on Microfilm.

- B-scale ship surface observations every hour.
- Selected radar photographs (polaroid) for Phases I, II.
(One reel of 16-mm microfilm for the above two data sets.)
- Satellite Photographs: $\frac{1}{2}$ -, 1-, and 2-mile resolution partial disc and IR full disc, on approximately one reel 16-mm microfilm.
- Aircraft Missions Documentation and Catalogue: for each mission, the summary will include the operations plan; plots of track lines with some winds plotted; reports of the Mission and Aircraft Scientists; tables of preliminary values of wind, temperature, dew-point temperature, altitude, time, longitude and latitude, for approximately every 10 to 30 minutes of flight, as appropriate to the individual mission and aircraft; on two reels of 16-mm microfilm.

It is expected that the microfilming will be completed by the end of 1974 and available through the WDC-A and WDC-N in January 1975. The magnetic tapes, containing ship- and land-based surface and upper-air data will also be completed and available through the WDCs in January 1975.

GATE PRELIMINARY SCIENTIFIC REPORT

The ISMG is organizing a GATE publication which will contain many brief impressions on the scientific aspects of individual projects and subprograms. As described in the ISMG call for contributions to this report..."these reports are not expected to be of the scientific quality and formality normally required for scientific journals. Each report should be a short, concise description of the topic, up to three single-spaced pages of text plus Tables and Figures. It should NOT be a description of field operations, nor a compilation of data sets, nor a summary report of a Sub-program."

All national participants in GATE have been invited to contribute; it is expected to close the volume in November and have it available in early 1975.

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Expected Time Schedule of GATE Publications

Code: I = Input
C = Complete Copy
D = Distribution
A = Available

DOCUMENT AND CONTENTS	1974					1975		1976	1977
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Mar.
I. Microfilm series: A-scale maps; B-scale maps; aircraft mission catalogue; surface meteorology; selected radar pictures; selected satellite pictures		C----	D----	A					
II. Quick-look UNVALIDATED data on magnetic tape: WWW and ship station surface and upper-air data at synoptic hours		C----	D----	A					
III. ISMG GATE Document on preliminary scientific results	I----	C----	D----	A					
IV. ISMG GATE Document on field phase (operations report, subprogram reports, data inventory, assessment)	I----	Cdraft	C----	Pub.	D----	A			
V. Nationally validated intercomparison data sent to WDCs & SDCs					D-----	A to scientists			
VI. First high-priority period nationally validated data to WDCs and SDCs								D--A	
VII. All remaining nationally validated data to WDCs and SDCs									D-A
VIII. Collated subprogram data sets to WDCs									D--A
IX. Proposed GATE Information Bulletin									
No. 1: Summary of weather, convection, intensive/non-intensive observation mode, radar coverage, upper-air statistics, aircraft flight tracks and types of missions, etc. Phase I, Phase II									
No. 2: Summary as above for Phase III; one day in the life of Phase I: minutes mission selection team, aircraft ops plan, mission and aircraft scientists' reports, detailed flight tracks with some data, A- and B-scale maps as available; etc.	D								
No. 3: One day in the life of Phase II; drop-sonde report; etc.		D?							
No. 4: One day in the life of Phase III; ship reports; etc.			D?						
et sequia: Status of data processing, convection subprogram, aircraft, plus any information from other SDCs, etc.									
Further interim data status reports; catalogues, etc.									
Notices of GATE scientific meetings, etc.									

SUMMARY OF FIRST AND SECOND GATE OBSERVING PERIODS

This summary provides a quick overview of GATE Phases I and II. It was written at the GATE Operations Control Center and is based on ship and aircraft status reports and material gleaned from operational reports submitted by ship and aircraft scientists. It was intended principally to provide a timely link to U.S.A. scientists who are interested in GATE but who did not participate directly in the field program. A secondary purpose is to provide a reference for initial planning of analysis projects by U.S.A. scientists. This summary does not treat every type of observation, nor can it provide the detail necessary to obtain an accurate and complete picture of the observational program. Subsequent official reports will provide the detailed data inventory and data quality assessment.

PHASE I 26 June - 16 July

Figure I-1 contains the daily sequence of convective activity over the B-scale area and a daily summary of radar, radiosonde, tethered-balloon and aircraft observational programs.

The measure of convective activity is based on the analysis of three-hourly SMS IR pictures done by the Special Analysis Group in Dakar. Broadly interpreted, values 3 and 4 denote enhanced convection and very enhanced convective conditions, respectively, and values 2 and 1 describe suppressed and very suppressed conditions, respectively.

The summary of 5-cm radar coverage is based on ship status reports as well as the end-of-phase data summary produced on each ship. Note should be made that considerable radar time on the QUADRA (ship position 3) was used to track upper-air balloons; this is not depicted in the summary. The 3-cm digitally recording radar on the METEOR (ship position 4) and the 3-cm radar on the VIZE (ship position 2) are not included in this summary but will add significantly to the data base. An updated radar summary including data from these ships will be provided when the ship summaries become available.

The upper-air observation program summarized in Figure I-1 show that the development stages of the enhanced convection in the B-scale area were nicely framed in the intensive observation periods. For only 15 percent of the time did fewer than six B-scale ships launch balloons at a scheduled observation time. A similar record was attained by the A/B ships. One nagging problem that was identified and addressed immediately was the assessment of the quality of the B-scale winds obtained by navigational aid techniques. A data set useful in this assessment will be the VANGUARD radar tracks of the OCEANOGRAPHER balloons during a six-day period at the beginning of Phase I and the data collected during intercomparison periods.

The mode of operation of the tethered balloon observations is also depicted in Figure I-1. This sophisticated observational technique is difficult to summarize, and perhaps it is improper to do so with a single variable, as done here. Variations on individual ships due to instrumentation problems and meteorological conditions are not included. This summary is intended to

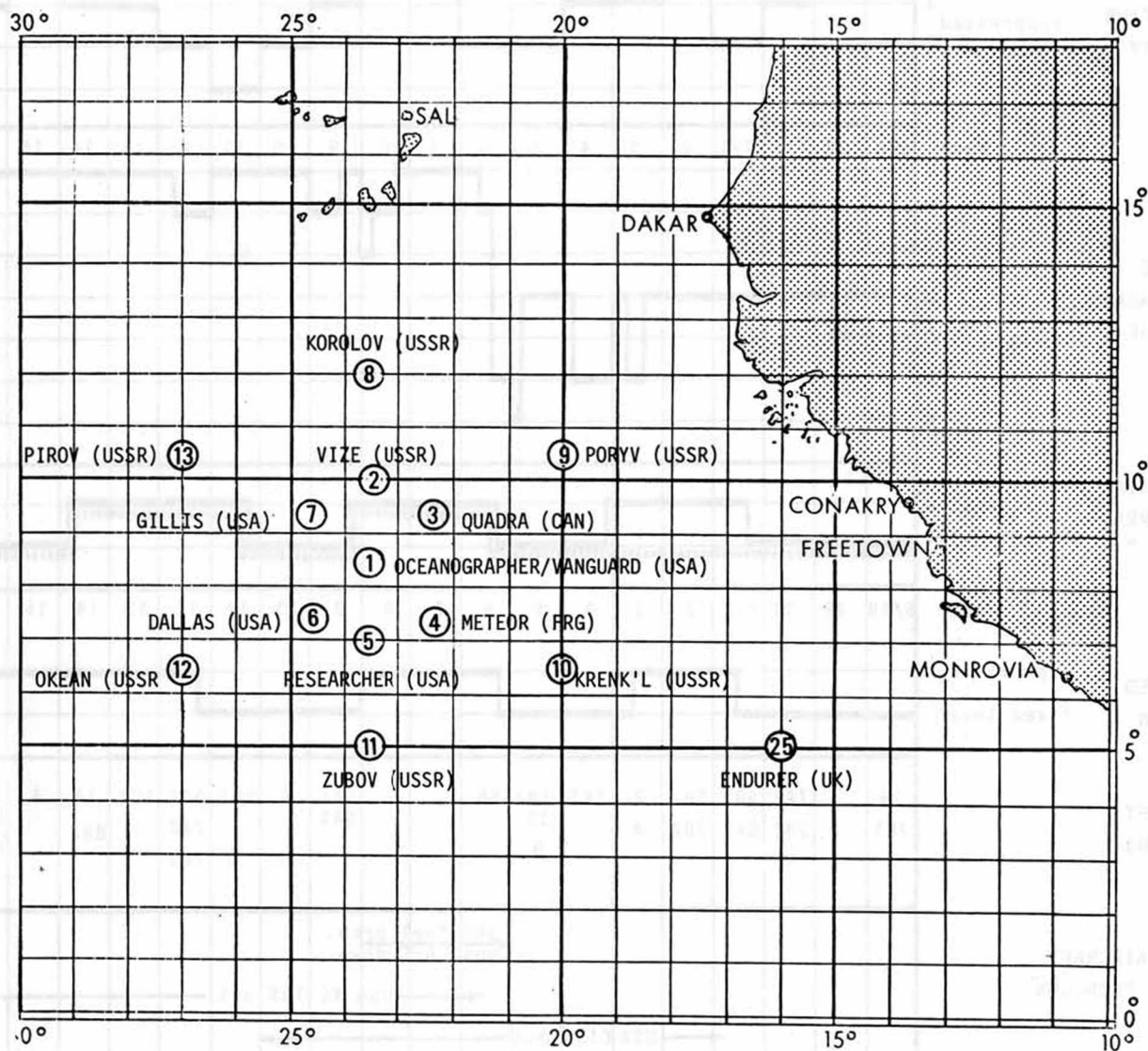
be used simply as a first-order guide to the observational program. The Phase I tethered balloon program was to some extent a "shakedown" period during which many sonde instrumentation problems were identified. Much useful and exciting data, however, were obtained.

Finally, Figure I-1 shows the chronology of aircraft missions flown in Phase I. Table I-1 provides more detail for each mission, and schematic track charts of the flight patterns are also included. Very detailed flight tracks, reports from the mission scientists and detailed meteorological analyses (including nephelometry and radar echoes) for some days will be available in early 1975: the GATE Preliminary Data Set will be produced at the ISMG and based on the work of the Data Management and Special Analysis groups in Dakar. Evaluation of the flight program at the end of Phase I showed the following:

- 1) The objective of obtaining three good basic GATE cloud-cluster missions was not quite achieved. Three such missions were flown but pattern and instrument problems detracted from their total success. Continued highest priority on cloud cluster mission was assigned to the two following phases.
- 2) Aircraft-to-ship and GOCC-to-ship coordination procedures were not adequate in Phase I. The problem was related to communications capabilities and radio frequency interference with scientific observation equipment on both ships and aircraft. Plans to use improved VHF radio capabilities and ATS-3 satellite communications gear were developed between Phase I and II.
- 3) Boundary layer flights in Phase I were heavily weighted toward suppressed conditions and for Phase II it was clear that the sampling should be slanted toward conditions of more disturbed weather.
- 4) No Saharan dust mission was flown, but many samples of the dust layer were obtained. A high priority was placed on one Saharan dust mission for Phase II.
- 5) The objective of studying the life cycle of a single cluster was not achieved and, given the aircraft resources and amount of down time experienced in Phase I, it was recognized that this objective may have to be abandoned. Missions into the developing, mature and dissipating stages of different clusters are possible, however, so the objective may yet be partially satisfied.

Moreover, the A-scale ship- and land-station observations may be summarized as being inadequate during Phase I. Instrumentation and ship mechanical problems plagued the ships in the Western Atlantic. A final evaluation will be included in the synoptic subprogram report on the field program. During the first import period a program to improve the ship equipment for Phase II was planned.

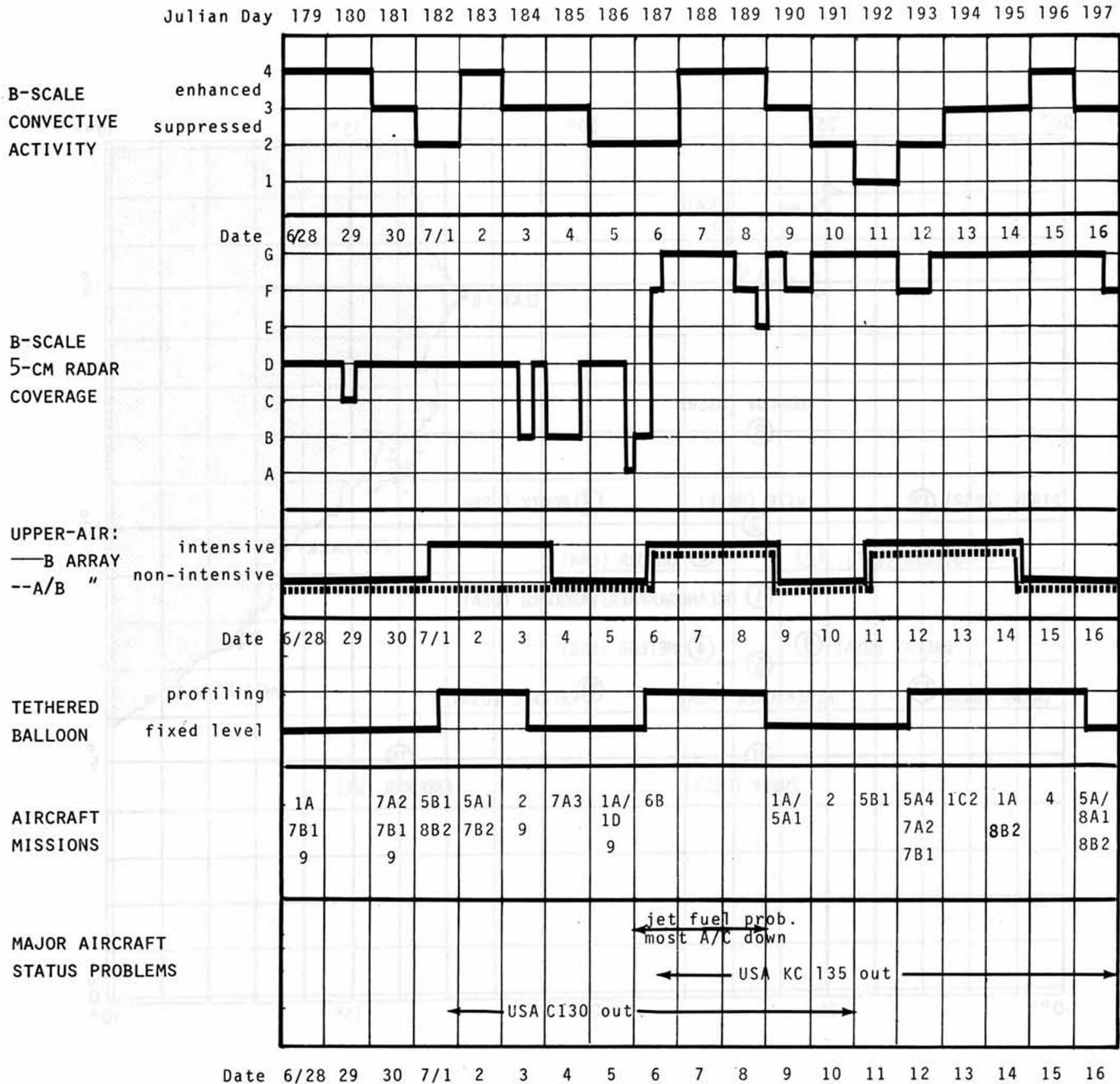
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US GATE Project Office, NOAA
Rockville, MD. 20852



PHASE I JUNE 26 - JULY 16. LOCATION OF A/B- AND B-SCALE SHIPS

Numbers refer to ship locations as given in the Ship Operation Plan, GATE Report No. 10. Note that ships made intercomparisons June 26/27 and commenced observations on station on June 28.

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RADAR
COVERAGE
KEY

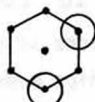
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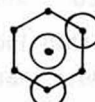
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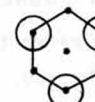
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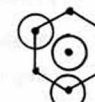
C



D



E



F



G

- 1 - OCEANOGRAPHER
- 3- QUADRA
- 5 - RESEARCHER
- 7 - GILLISS

FIGURE I-1 PHASE I OPERATIONAL SUMMARY

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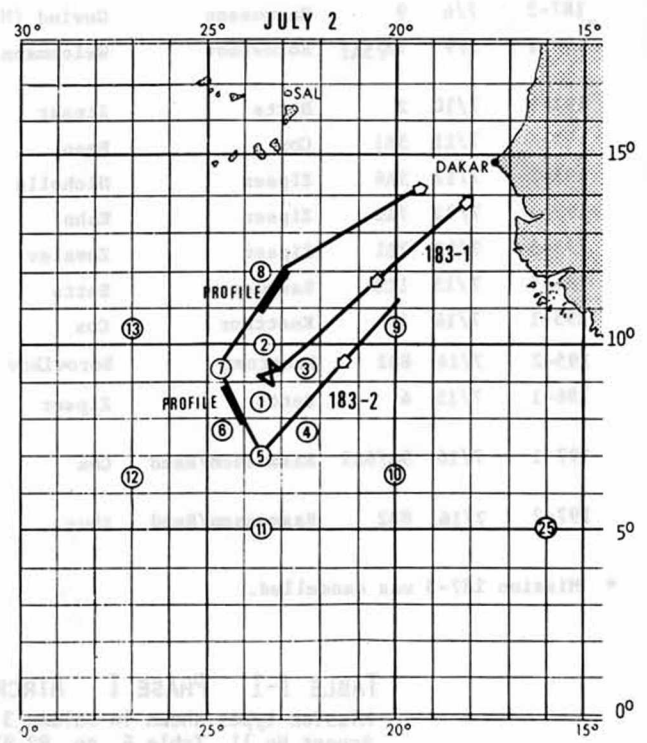
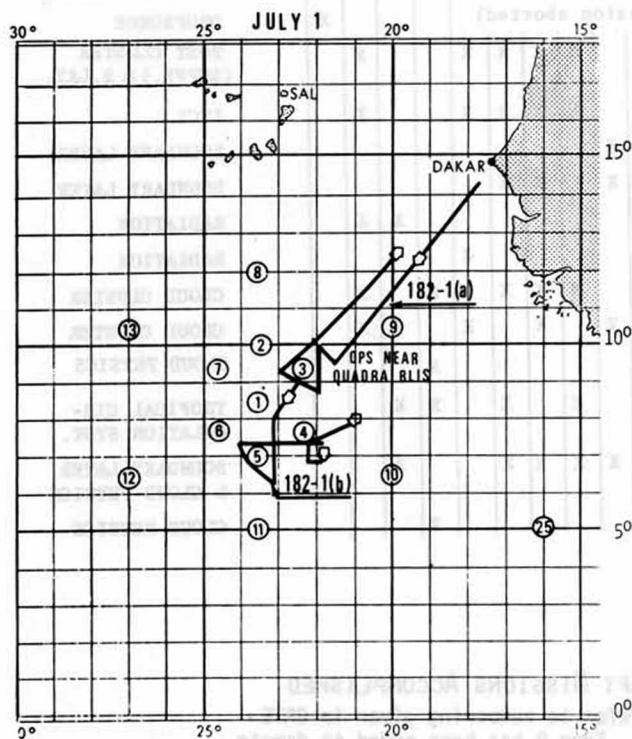
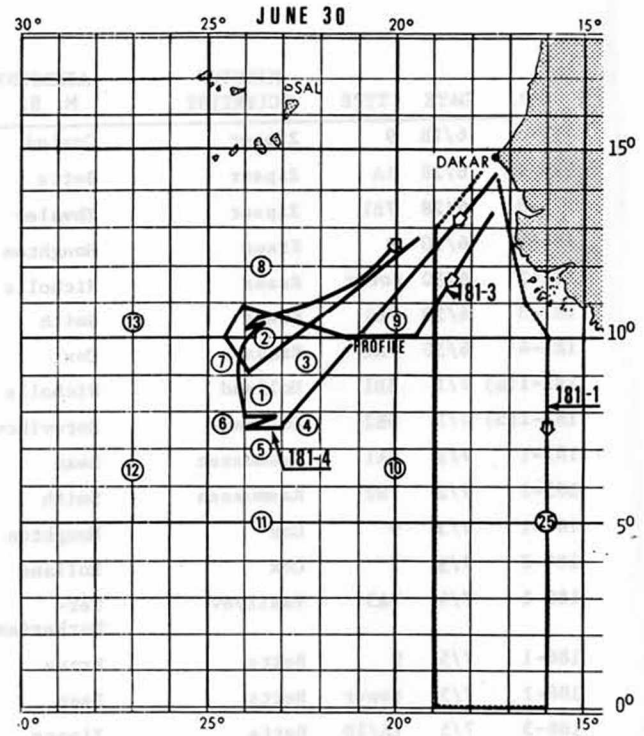
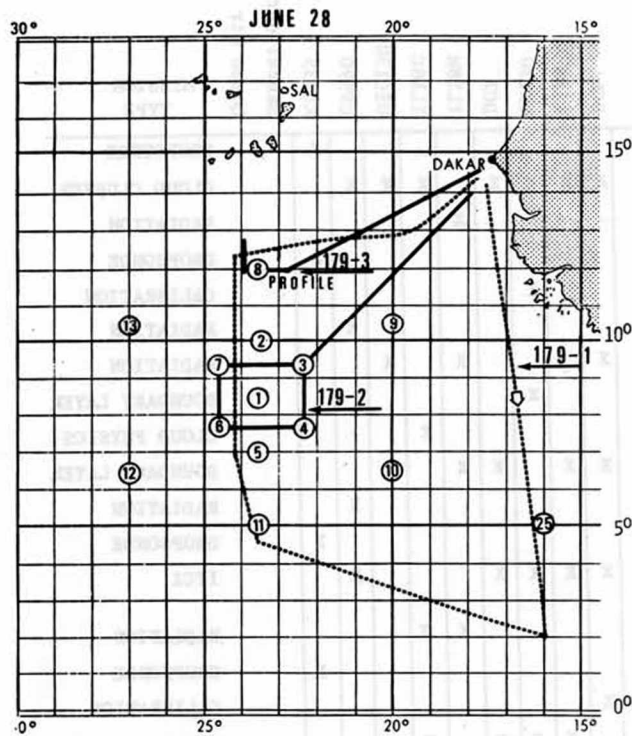
NO.	DATE	TYPE	MISSION SCIENTIST	AIRBORNE M. S.	DC6	L188	UK130	DC7	IL18M	IL18C	USC130	CV990	KC135	Sabreliner	Queen Air	MISSION TYPE
179-1	6/28	9	Zipser	Govind									X			DROPSONDE
179-2	6/28	1A	Zipser	Betts	X	X	X	X		X	X	X				CLOUD CLUSTER
179-3	6/28	7B1	Zipser	Zhvaley					X							RADIATION
181-1	6/30	9	Kraus	Houghton										X		DROPSONDE
181-2	6/30	tower	Kraus	Nicholls			X									CALIBRATION
181-3	6/30	7B1	Kraus	Smith								X				RADIATION
181-4	6/30	7A2	Kraus	Cox	X				X		X					RADIATION
182-1(a)	7/1	5B1	Holland	Nicholls			X									BOUNDARY LAYER
182-1(b)	7/1	8B2	Holland	Borovikov						X						CLOUD PHYSICS
183-1	7/2	5A1	Rasmussen	Bean	X	X		X	X							BOUNDARY LAYER
183-2	7/2	7B2	Rasmussen	Smith								X				RADIATION
184-1	7/3	9	Cox	Houghton										X		DROPSONDE
184-2	7/3	2	Cox	Holland	X	X	X	X				X				ITCZ
185-1	7/4	7A3	Vasilyev	Ter-Markarianz					X	X						RADIATION
186-1	7/5	9	Betts	Kraus										X		DROPSONDE
186-2	7/5	tower	Betts	Bean	X											CALIBRATION
186-3	7/5	1A/1D	Betts	Zipser		X	X	X		X						CLOUD CLUSTER
187-1	7/6	6B	Vasilyev	Zhvaley					X							SEA SURF. TEMP.
* 187-2	7/6	9	Rasmussen	Govind (Mission aborted)										X		DROPSONDE
190-1	7/9	1A/5A1	Borovikov	Weickmann		X	X	X	X			X				POST CLUSTER (SUPPR.) & B.LAY.
191-1	7/10	2	Betts	Zipser		X	X	X	X			X				ITCZ
192-1	7/11	5B1	Cox	Bean	X											BOUNDARY LAYER
193-1	7/12	5A4	Zipser	Nicholls	X		X	X								BOUNDARY LAYER
193-2	7/12	7A2	Zipser	Kuhn							X	X				RADIATION
193-3	7/12	7B1	Zipser	Zhvaley					X							RADIATION
194-1	7/13	1C2	Rasmussen	Betts		X	X	X		X		X				CLOUD CLUSTER
195-1	7/14	1A	Kuettner	Cox	X		X		X		X	X				CLOUD CLUSTER
195-2	7/14	8B2	Kuettner	Borovikov						X						CLOUD PHYSICS
196-1	7/15	4	Betts	Zipser		X		X		X	X					TROPICAL CIR- CULATION SYST.
197-1	7/16	5A/8A1	Rasmussen/Reed	Cox	X	X	X	X			X					BOUNDARY LAYER & CLOUD PHYSICS
197-2	7/16	8B2	Rasmussen/Reed	Shur						X						CLOUD PHYSICS

* Mission 187-3 was cancelled.

TABLE I-1 PHASE I AIRCRAFT MISSIONS ACCOMPLISHED

Mission types shown in column 3 refer to numbering given in GATE Report No.11, Table 5, pp. 82-83. Type 9 has been added to denote dropsonde missions; type 10 denotes reconnaissance or synoptic missions.

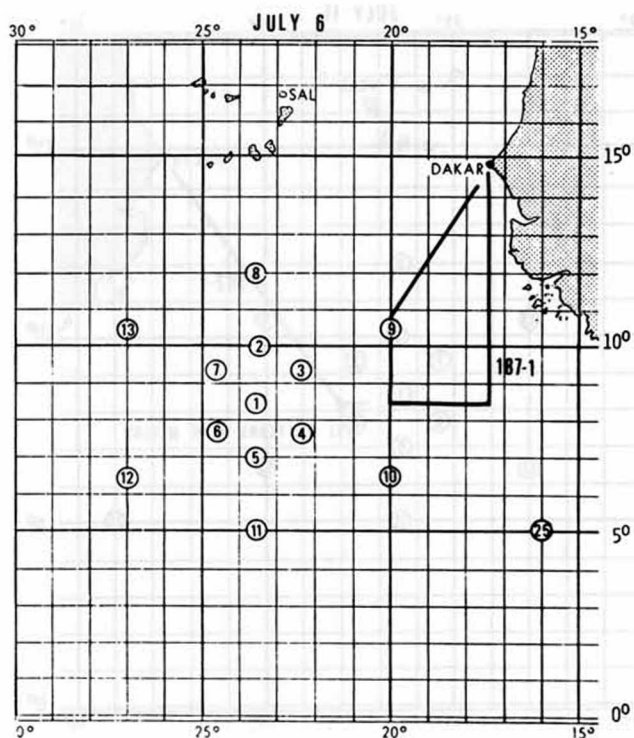
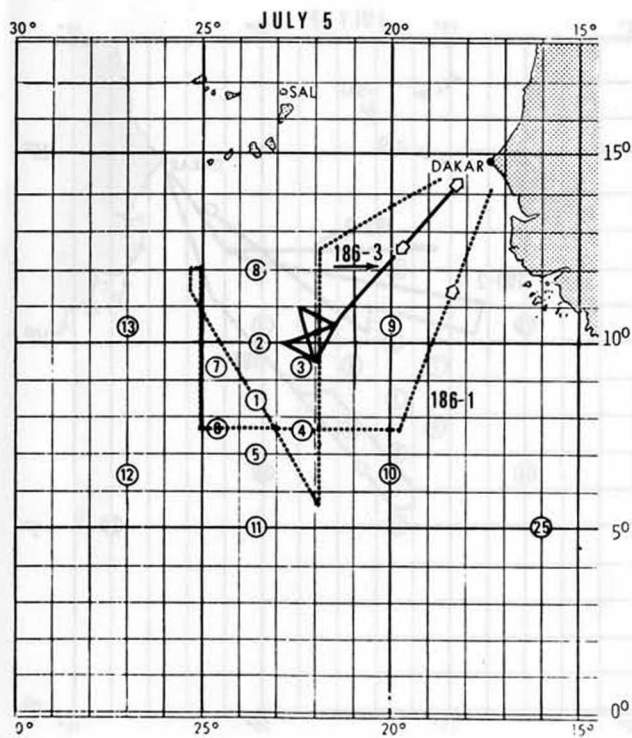
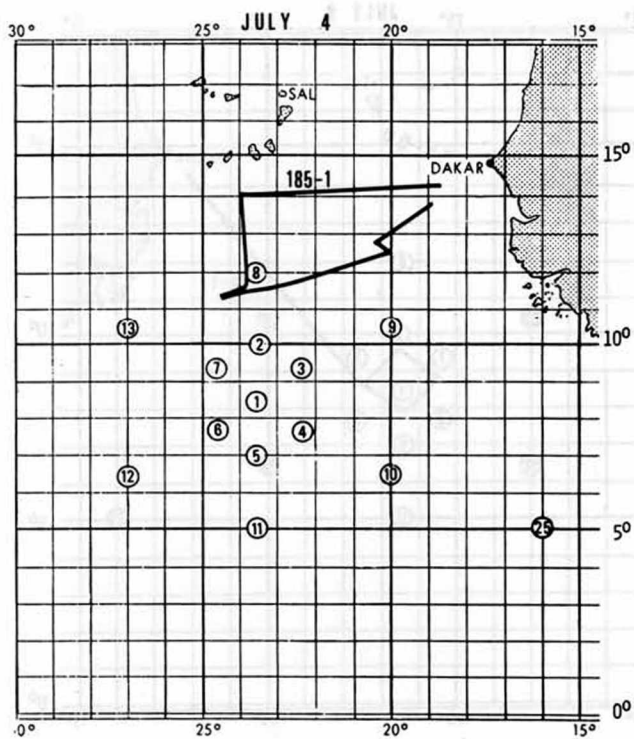
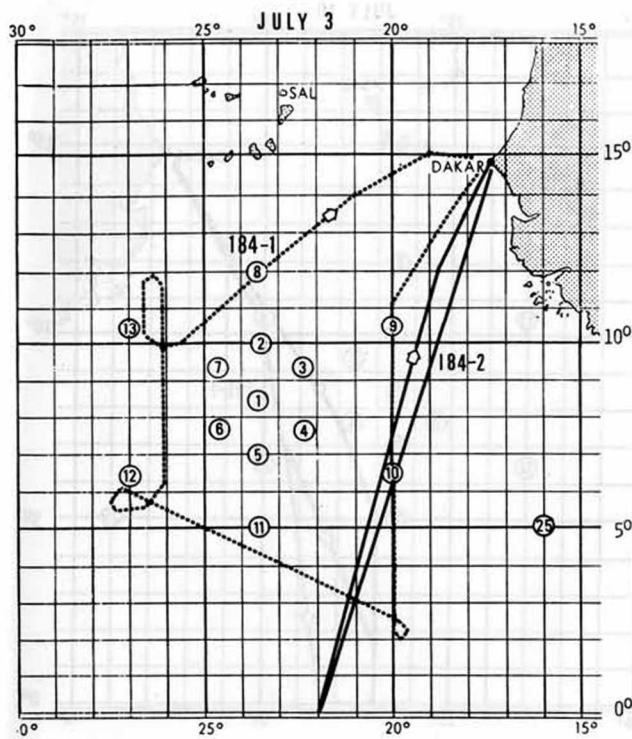
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PHASE I SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

DASHED TRACKS DENOTE DROPSONDE MISSIONS

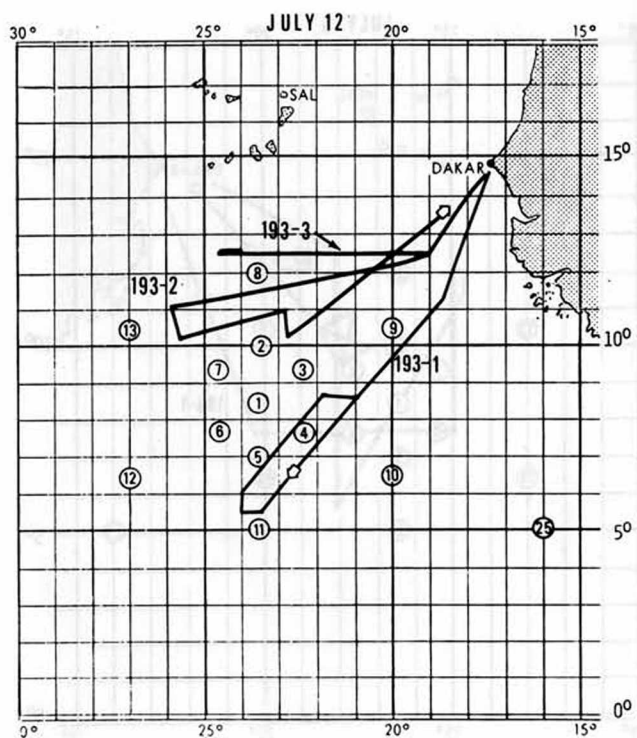
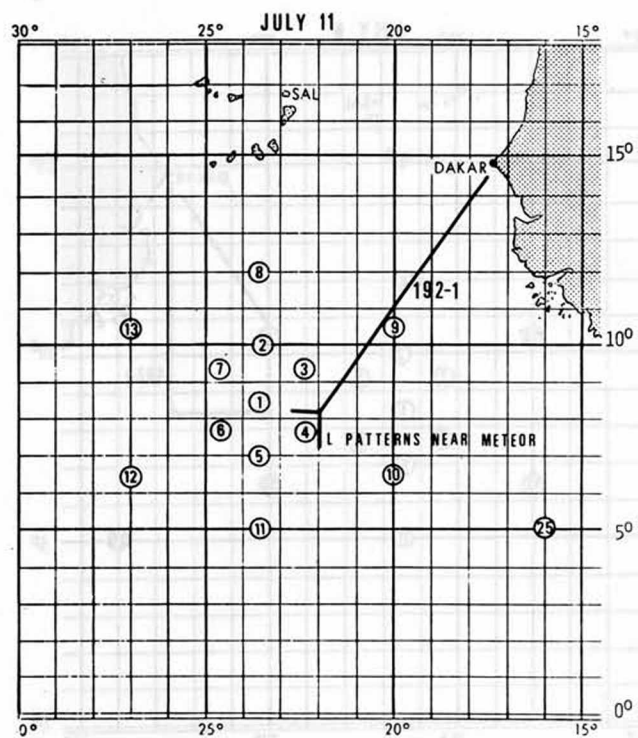
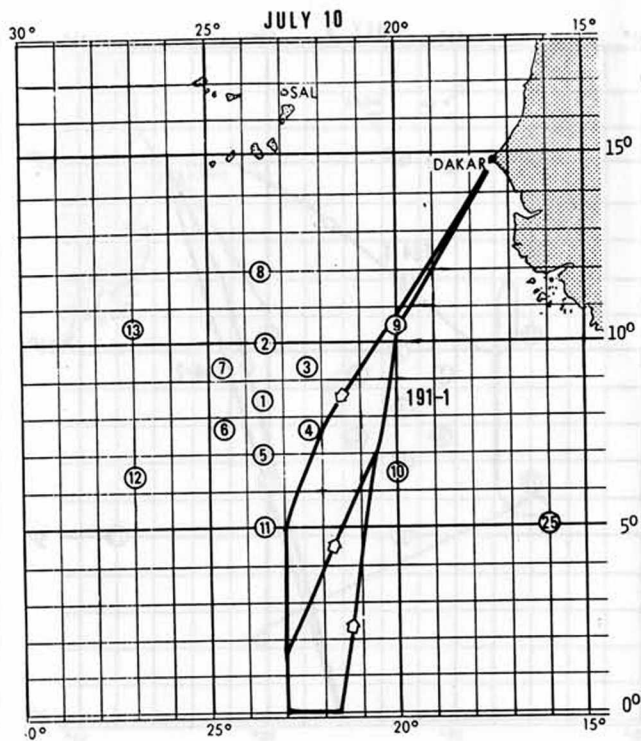
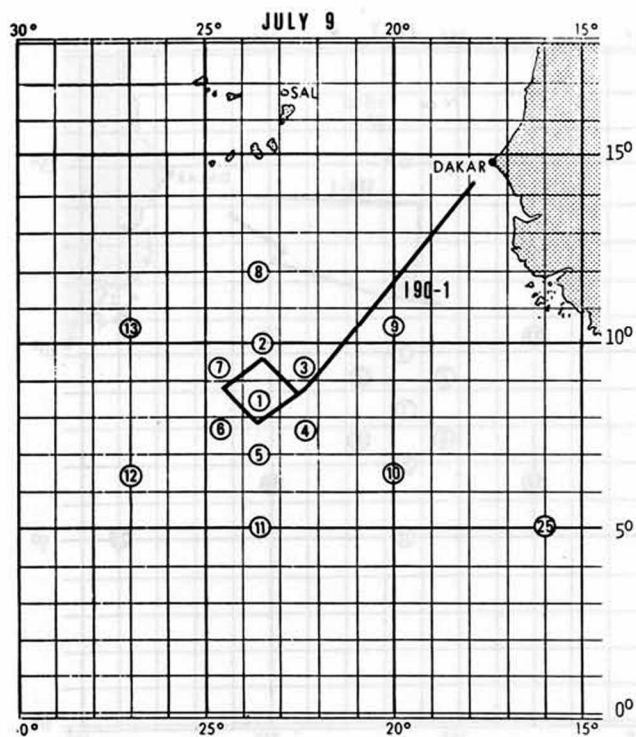
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PHASE I SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

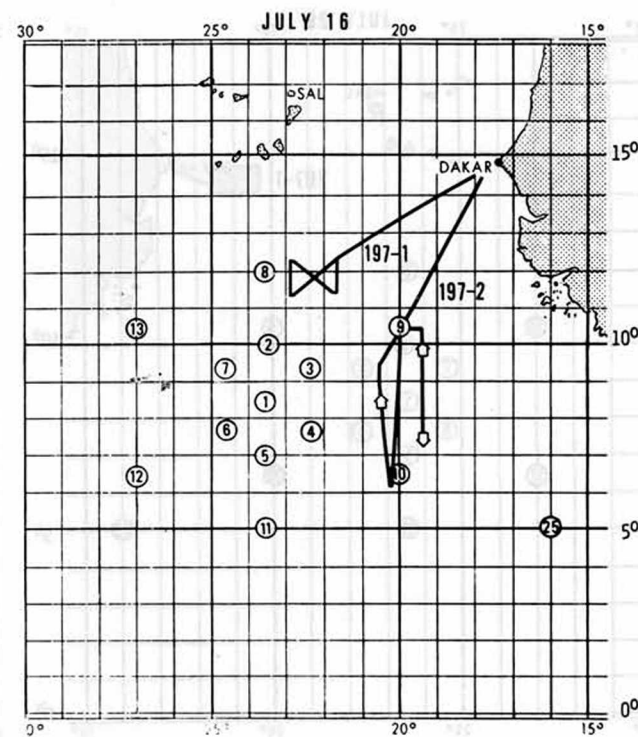
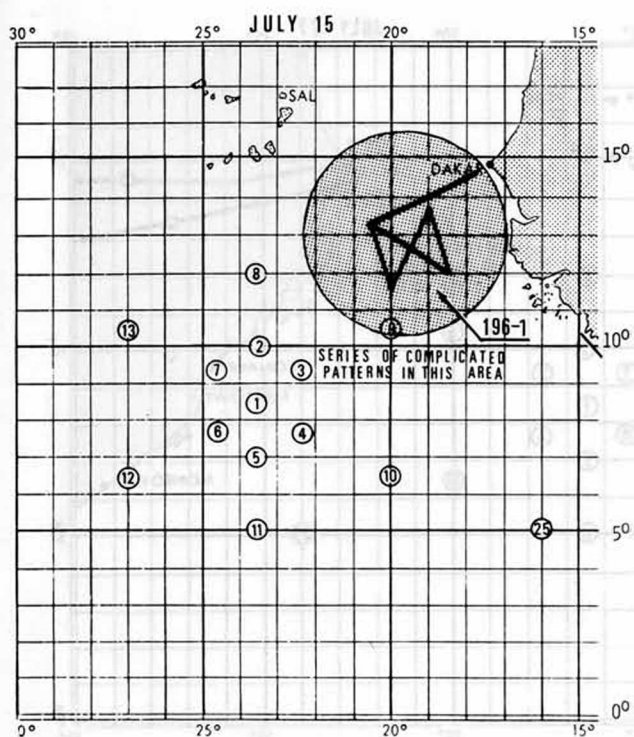
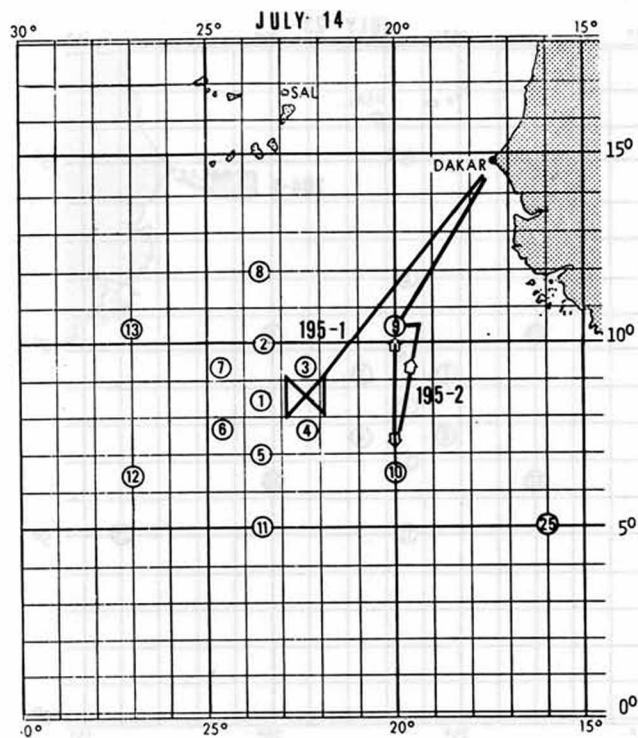
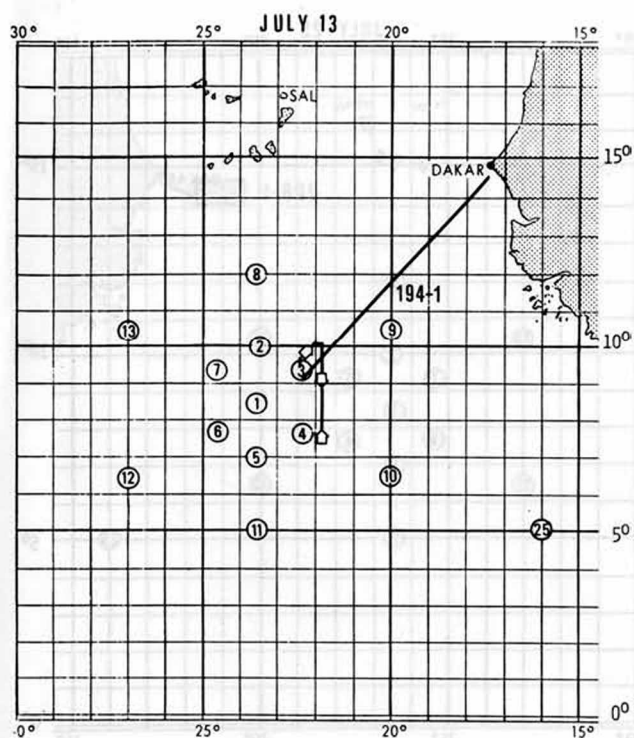
DASHED TRACKS DENOTE DROPSONDE MISSIONS

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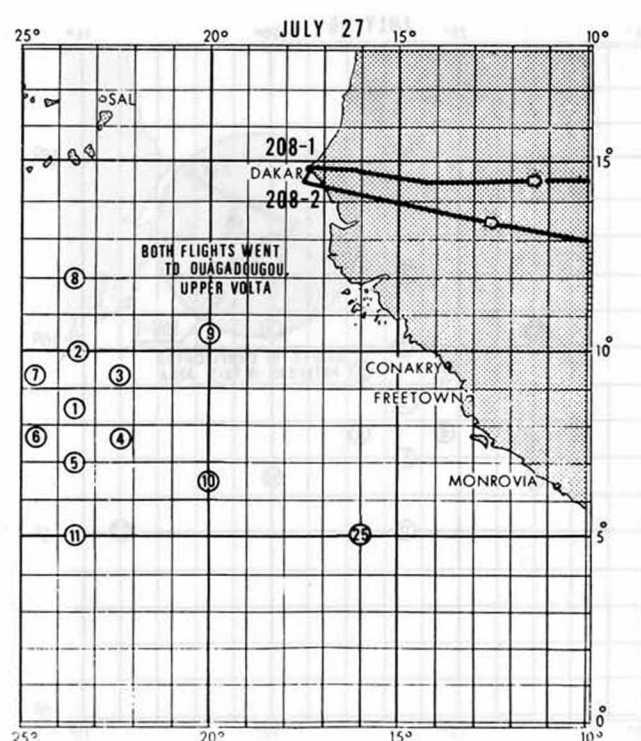
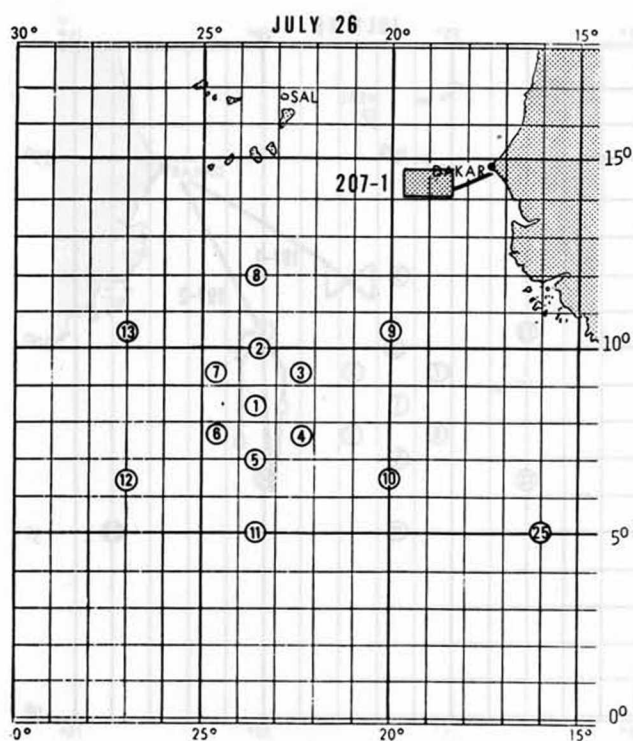
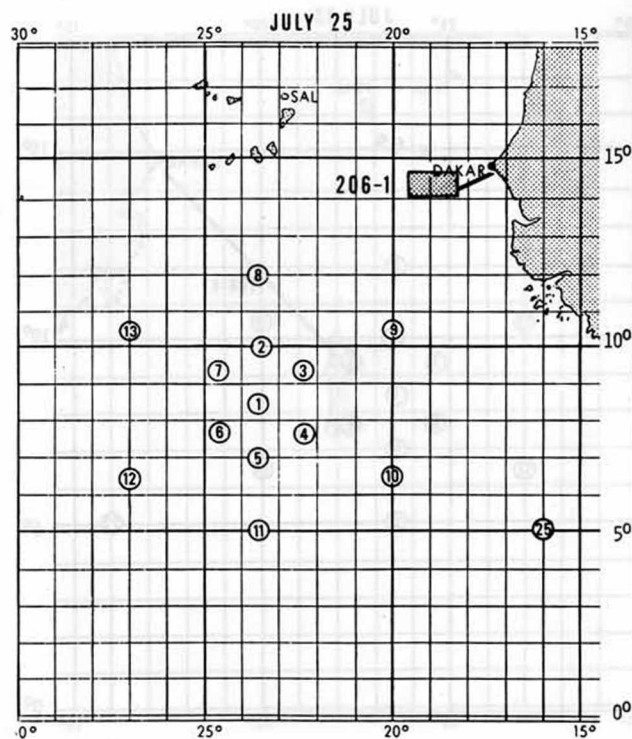
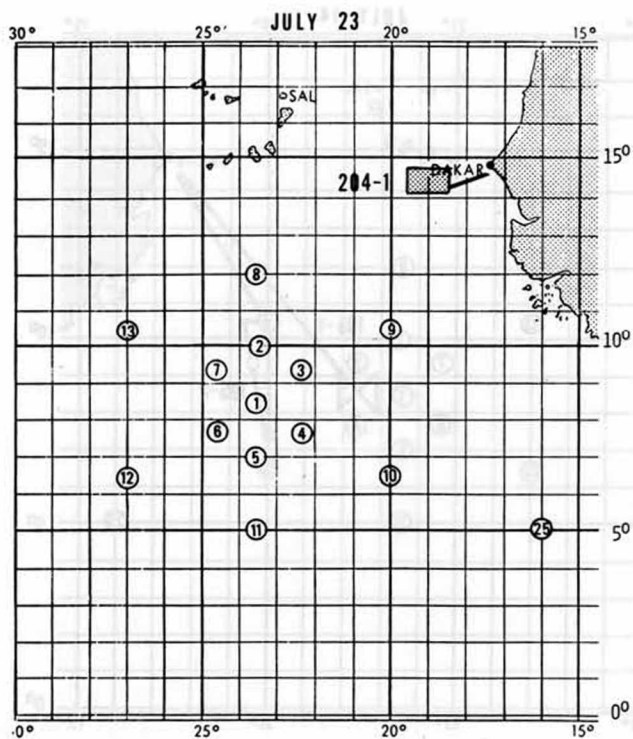


PHASE I SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

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GATE INFORMATION BULLETIN No.1 25 October 1974



PHASE I - PHASE II INTERIM SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

PHASE II 28 July - 17 August

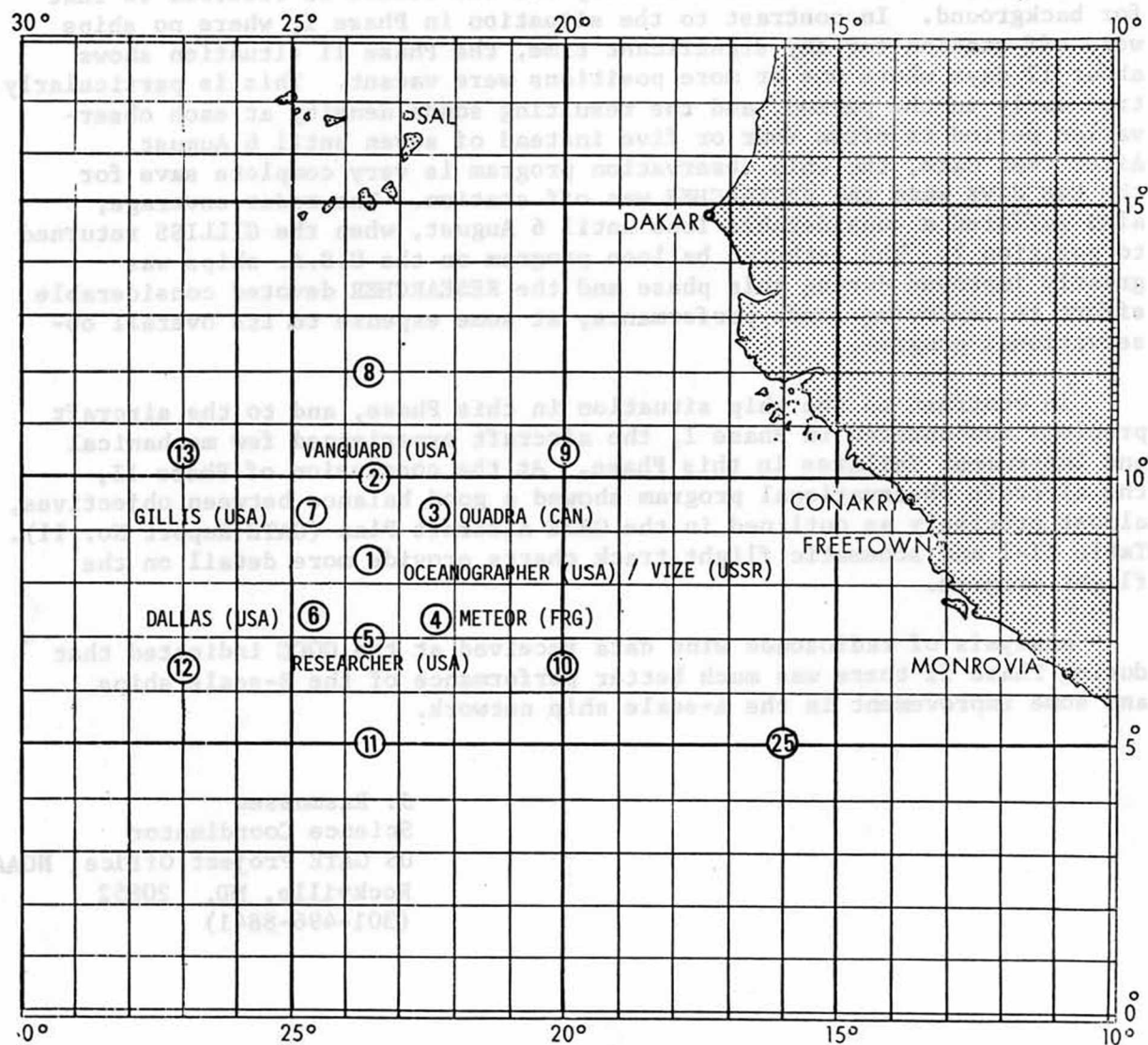
The material presented in Figure II-1 is parallel to that of the similar diagram in the Phase I summary and the reader is referred to that for background. In contrast to the situation in Phase I, where no ships were off station for any significant time, the Phase II situation shows about 12 days where one or more positions were vacant. This is particularly true early in the period, and the resulting sonde density at each observation period is often four or five instead of seven until 6 August. After that date, the ship observation program is very complete save for the two days when the RESEARCHER was off station. The radar coverage, also suffered a considerable loss until 6 August, when the GILLISS returned to position 7. The tethered balloon program on the U.S.A. ships was greatly improved during this phase and the RESEARCHER devoted considerable effort to improving sonde performance, at some expense to its overall observational program.

In contrast to the ship situation in this Phase, and to the aircraft problems encountered in Phase I, the aircraft experienced few mechanical and instrument failures in this Phase. At the conclusion of Phase II, the aircraft observational program showed a good balance between objectives, almost precisely as outlined in the GATE Aircraft Plan (GATE Report No. 11). Table II-1 and schematic flight track charts provide more detail on the flight program.

Analysis of radiosonde wind data received at the GOCC indicated that during Phase II there was much better performance of the B-scale ships and some improvement in the A-scale ship network.

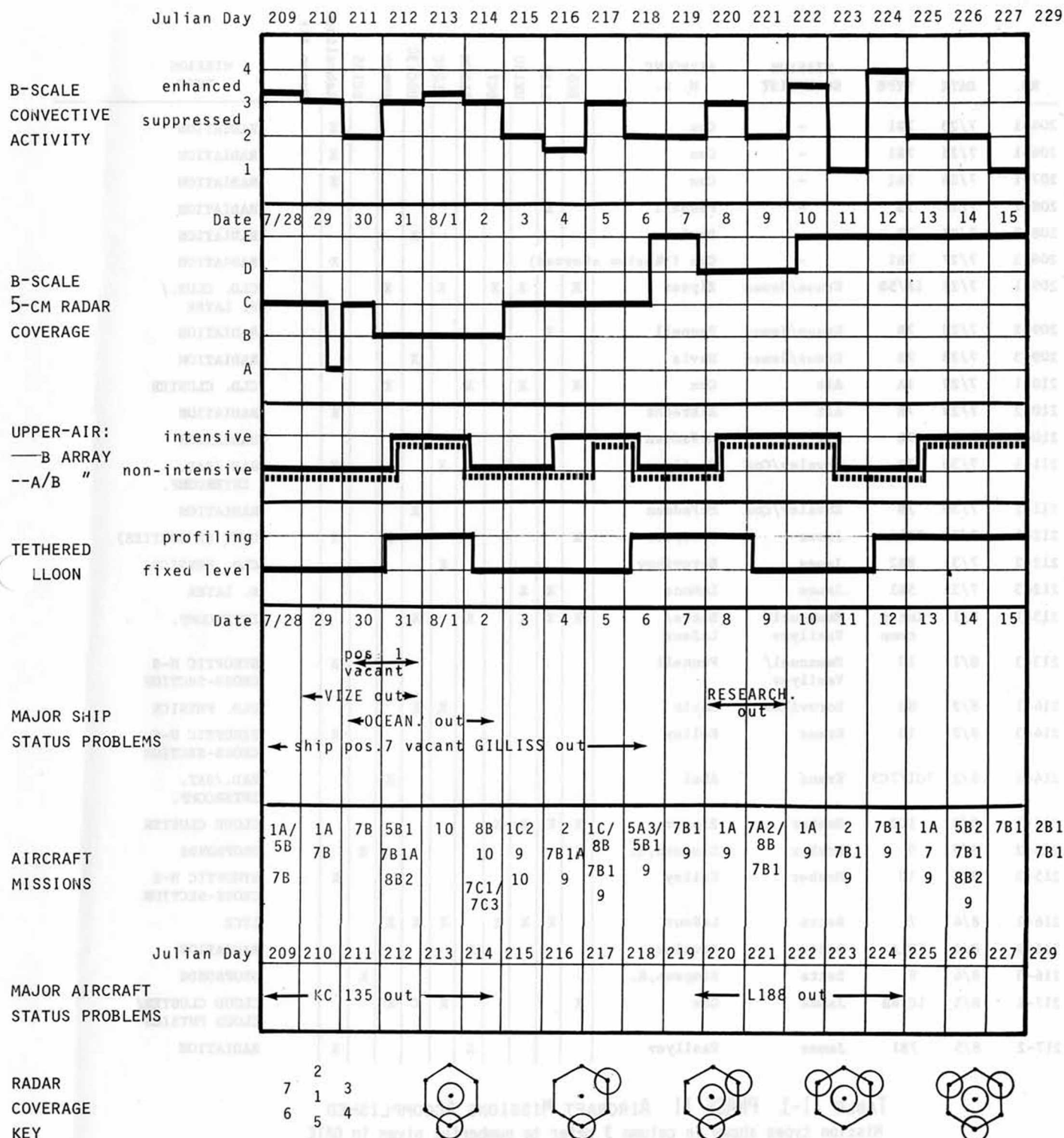
J. Rasmussen
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Rockville, MD. 20852
(301-496-8841)

PHASE II JULY 28 - AUG 17 LOCATION OF B-SCALE SHIPS
All ships were the same as for Phase I. Numbers refer to ship
locations as given in GATE Report No. 10. Note that on August
16-17 ships were off station making observations.



PHASE II JULY 28 - AUG 17' LOCATION OF B-SCALE SHIPS
A/B ships were the same as for Phase I. Numbers refer to ship
locations as given in GATE Report No. 10. Note that on August
16/17 ships were off station making intercomparisons.

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- 1 - OCEANOGRAPHER
- 3 - QUADRA
- 5 - RESEARCHER
- 7 - GILLISS

FIGURE II-1 PHASE II OPERATIONAL SUMMARY

Note that ships were off station days 228/229 to make intercalibrations; aircraft intercalibration flights were made on day 228 and missions were flown on day 229, the last day of Phase II.

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NO.	DATE	TYPE	MISSION SCIENTIST	AIRBORNE M. S.	DC6	LI88	UK130	DC7	IL18M	IL18C	USC130	CV990	KC135	Sabreliner	Queen Air	MISSION TYPE
204-1	7/23	7B1	-	Cox										X		RADIATION
206-1	7/25	7B1	-	Cox										X		RADIATION
207-1	7/26	7B1	-	Cox										X		RADIATION
208-1	7/27	7B	-	Pennell		X										RADIATION
208-2	7/27	7B	-	Davis							X					RADIATION
208-3	7/27	7B1	-	Cox (Mission aborted)										X		RADIATION
209-1	7/28	1A/5B	Kraus/James	Zipser	X		X	X		X		X				CLD. CLUS./ B. LAYER
209-2	7/28	7B	Kraus/James	Pennell		X										RADIATION
209-3	7/28	7B	Kraus/James	Davis							X					RADIATION
210-1	7/29	1A	Alt	Cox	X		X		X			X				CLD. CLUSTER
210-2	7/29	7B	Alt	Albrecht										X		RADIATION
210-3	7/29	7B	Alt	McFadden							X					RADIATION
211-1	7/30	7B	Zhvaley/Cox	Vasilyev					X	X				X		RAD./RAD. INTERCOMP.
211-2	7/30	7B	Zhvaley/Cox	McFadden							X					RADIATION
212-1	7/31	7B1A	James	Prospero	X							X		X		DUST (2 SORTIES)
212-2	7/31	8B2	James	Borovikov						X						CLD. PHYSICS
212-3	7/31	5B1	James	LeMone		X	X									B. LAYER
213-1	8/1	Inter comp	Emmanuel/ Vasilyev	Betts/ LaSeur	X	X	X		X		X					INTERCOMP.
213-3	8/1	10	Emmanuel/ Vasilyev	Pennell										X		SYNOPTIC N-S CROSS-SECTION
214-1	8/2	8B	Borovikov	Mazin						X	X					CLD. PHYSICS
214-3	8/2	10	Kraus	Kelley										X		SYNOPTIC N-S CROSS-SECTION
214-4	8/2	7C1/7C3	Kraus	Abel								X				RAD./SAT. INTERCOMP.
215-1	8/3	1C2	Hoeber	Zipser	X	X	X	X								CLOUD CLUSTER
215-2	8/3	9	Hoeber	Simpson, R.										X		DROPSONDE
215-3	8/3	10	Hoeber	Kelley										X		SYNOPTIC N-S CROSS-SECTION
216-1	8/4	2	Betts	LaSeur		X	X	X		X	X	X				ITCZ
216-2	8/4	7B1A	Betts	Zhvaley					X							RADIATION
216-3	8/4	9	Betts	Simpson, R.										X		DROPSONDE
217-1	8/5	1C/8B	James	Cox	X					X	X	X				CLOUD CLUSTER/ CLOUD PHYSICS
217-2	8/5	7B1	James	Vasilyev					X					X		RADIATION

TABLE II-1 PHASE II AIRCRAFT MISSIONS ACCOMPLISHED

Mission types shown in column 3 refer to numbering given in GATE Report No.11, Table 5, pp. 82-83. Type 9 has been added to denote dropsonde missions; type 10 denotes reconnaissance or synoptic mission.

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NO.	DATE	TYPE	MISSION SCIENTIST	AIRBORNE M. S.	DC6	L188	UK130	DC7	IL18M	IL18C	USC130	CV990	KC135	Sabreliner	Queen Air	MISSION TYPE
217-3	8/5	9	James	Simpson, R.									X			DROPSONDE
218-1	8/6	5A3/5B1	Betts	Bean	X	X	X	X								BOUNDARY LAYER
* 218-2	8/6	9	Betts	Simpson, R.									X			DROPSONDE
219-2	8/7	7B1	Cotton	Zhvaley					X							RADIATION
* 219-3	8/7	9	Cotton	Simpson, R.							X					DROPSONDE
* 220-2	8/8	1A	Emmanuel	Zipser	X		X	X		X	X	X				CLOUD CLUSTER
220-3	8/8	9	Emmanuel	Simpson, R.									X	X		DROPSONDE
* 221-1	8/9	7B1	LaSeur	Cox										X		RADIATION
221-4	8/9	7A2/8B	LaSeur	Zhvaley					X	X						RAD/CLD PHYSICS
222-1	8/10	1A	Betts	Pennell	X		X	X			X	X		X		CLOUD CLUSTER
222-2	8/10	9	Betts	Simpson, R.									X			DROPSONDE
223-1	8/11	Mod 2	Grossman	Emmanuel	X		X	X		X	X	X				ITCZ
223-2	8/11	7B1	Grossman	Ter-Markarianz					X							RADIATION
223-3	8/11	7B1	Grossman	Albrecht										X		RADIATION
223-4	8/11	9	Grossman	Simpson, R.									X			DROPSONDE
224-1	8/12	7B1	Cox	Cox										X		RADIATION (2 SORTIES)
224-2	8/12	9	Simpson, R.	Simpson, R.									X			DROPSONDE
225-1	8/13	1A	LaSeur	Betts	X		X	X		X	X	X				CLOUD CLUSTER
225-2	8/13	7	LaSeur	Zhvaley					X							RADIATION
225-3	8/13	9	LaSeur	Simpson, R.									X			DROPSONDE
226-1	8/14	5B2	LeMone	Pennell	X	X	X	X								BOUNDARY LAYER
226-2	8/14	7B1	LeMone	Cox										X		RADIATION
226-3	8/14	7B1	LeMone	Vasilyev					X							RADIATION
226-4	8/14	8B2	LeMone	Mazin						X	X					CLOUD PHYSICS
226-5	8/14	7B1	LeMone	Abel								X				RADIATION
226-6	8/14	9	LeMone	Simpson, R.									X			DROPSONDE
227-1a	8/15	7B1	Cox	Cox										X		RADIATION
227-1b	8/15	7B1	Ellingson	Ellingson		X										RADIATION
◇ 228-1	8/16	Inter-comp. A	James		X	X		X								INTERCOMPARISON
		B	James				X		X	X						INTERCOMPARISON
		C	James								X	X		X		INTERCOMPARISON
		D	James				X	X			X					INTERCOMPARISON
229-1	8/17	2B	Pennell	LaSeur	X	X	X			X	X	X				ITCZ
229-2	8/17	7B1	Pennell	Zhvaley					X							RADIATION
229-3	8/17	7B1	Pennell	Cox										X		RADIATION

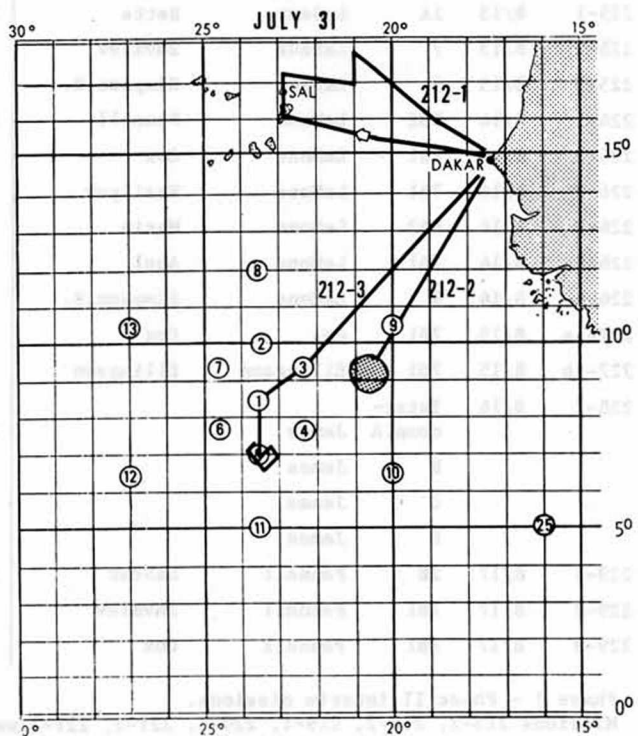
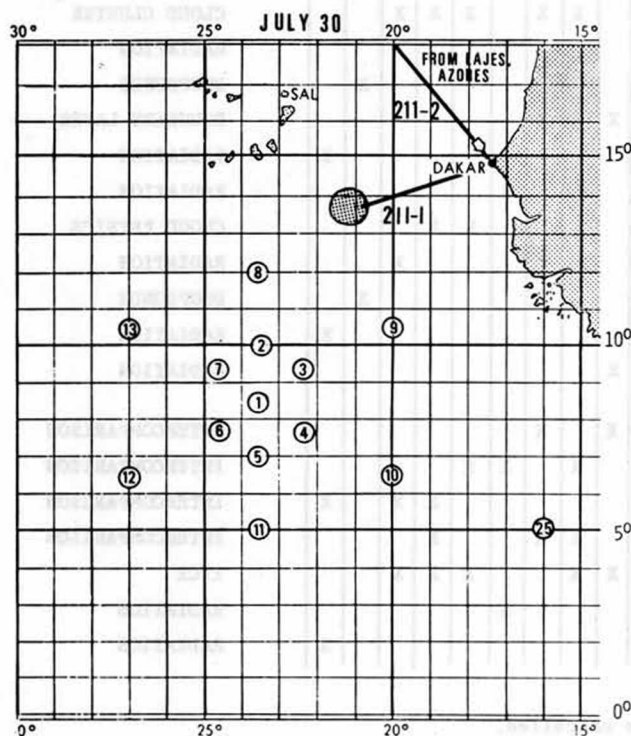
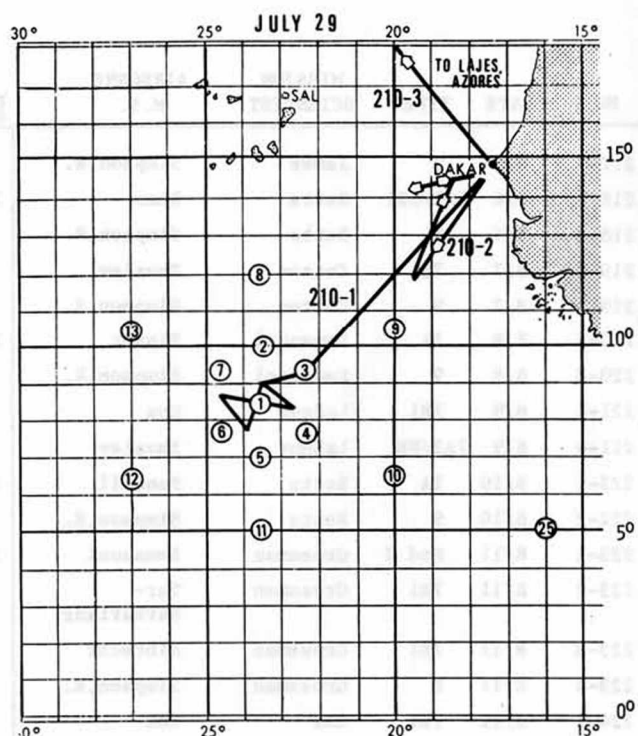
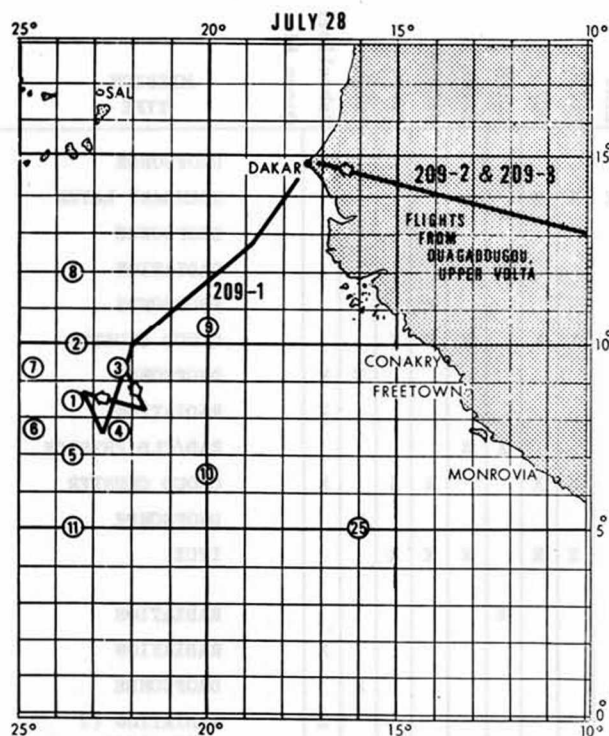
† Phase I - Phase II interim missions.

* Missions 213-2, 214-2, 219-1, 220-1, 221-2, 221-3 were cancelled.

◇ Some of the aircraft flew in two different intercomparison formations.

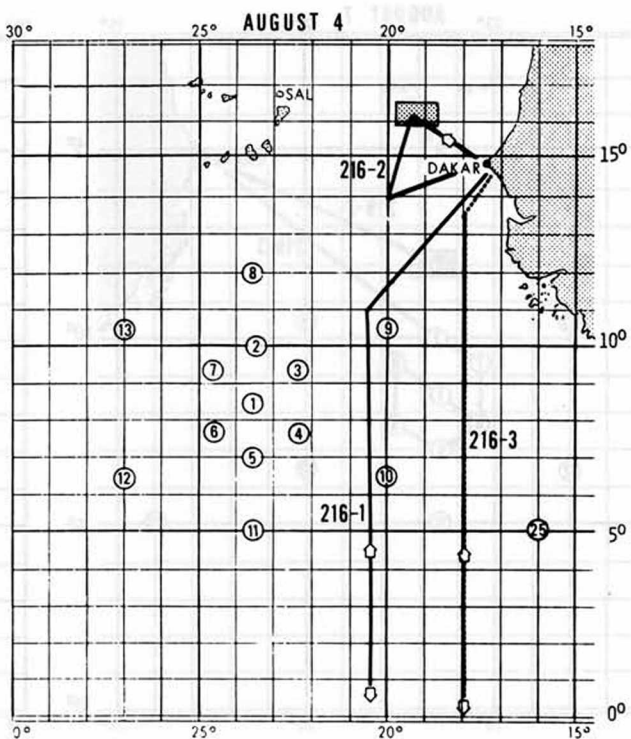
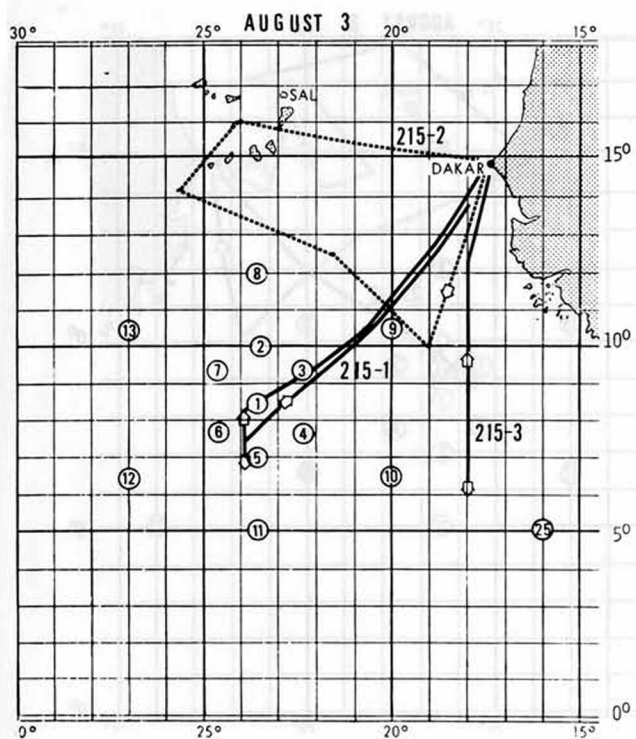
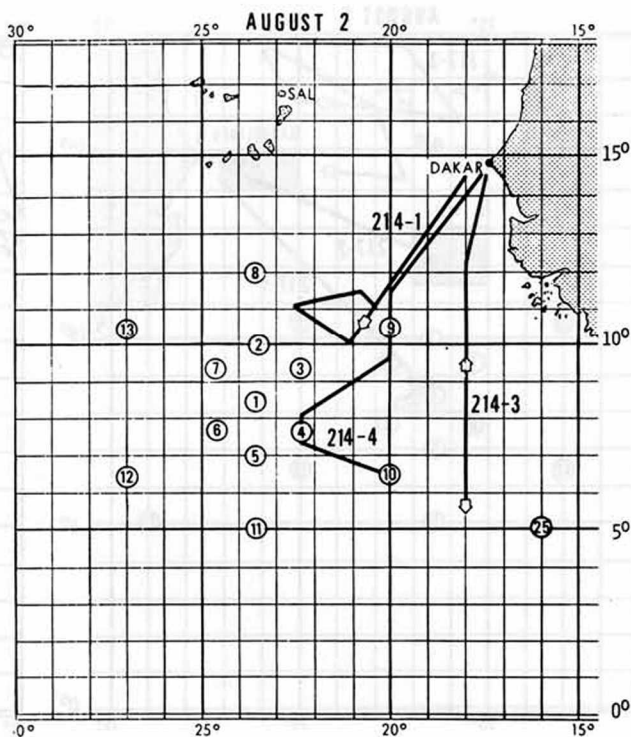
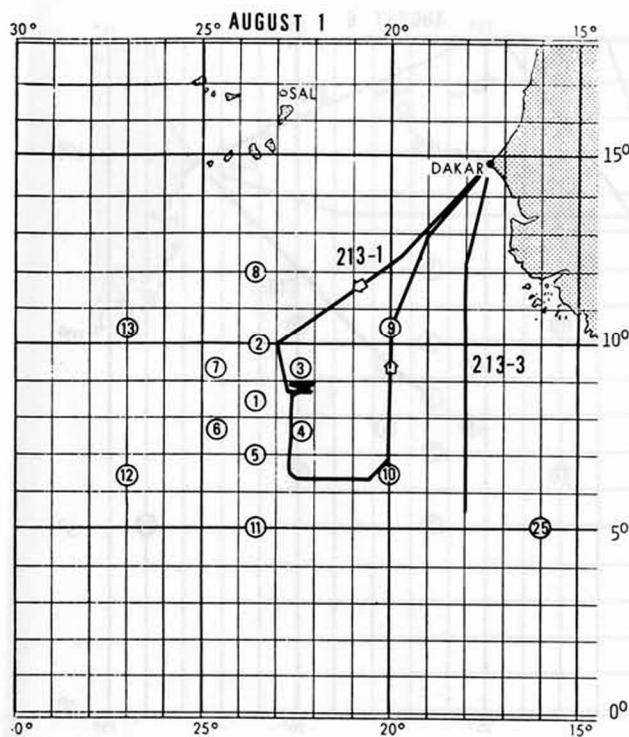
TABLE II-1 PHASE II AIRCRAFT MISSIONS ACCOMPLISHED
(CONTINUED)

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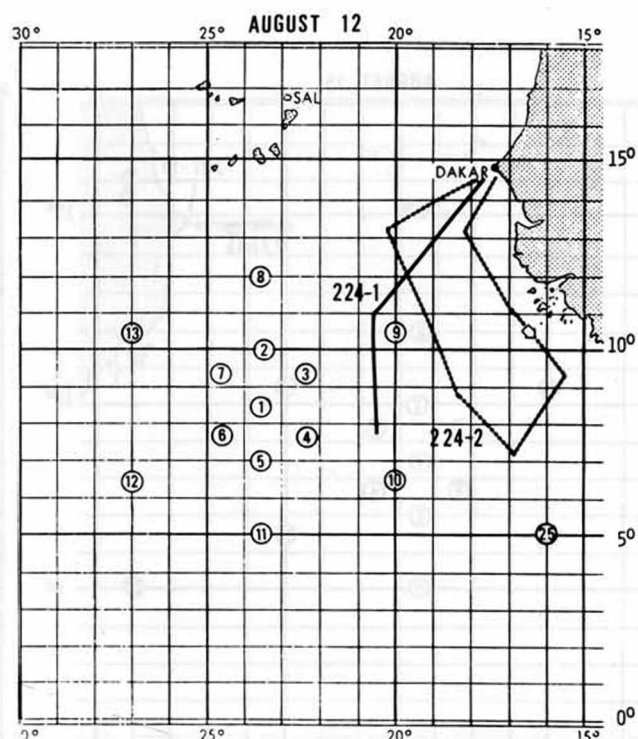
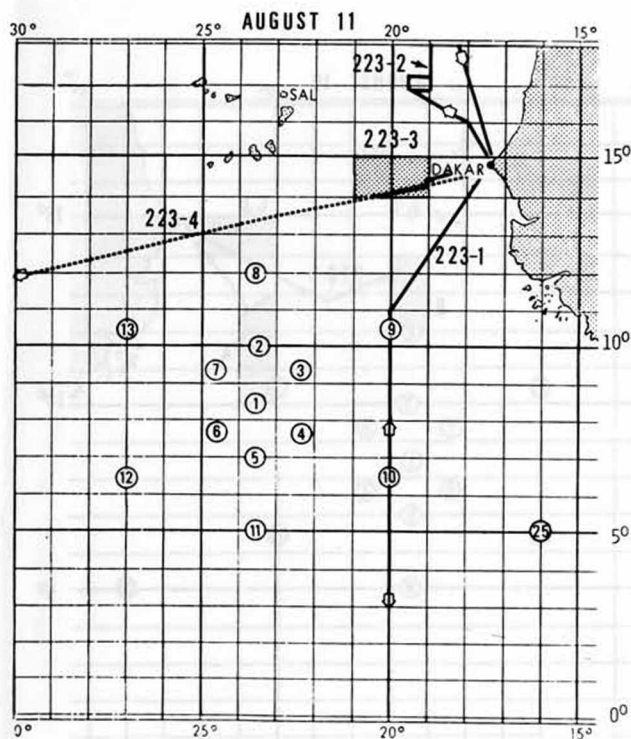
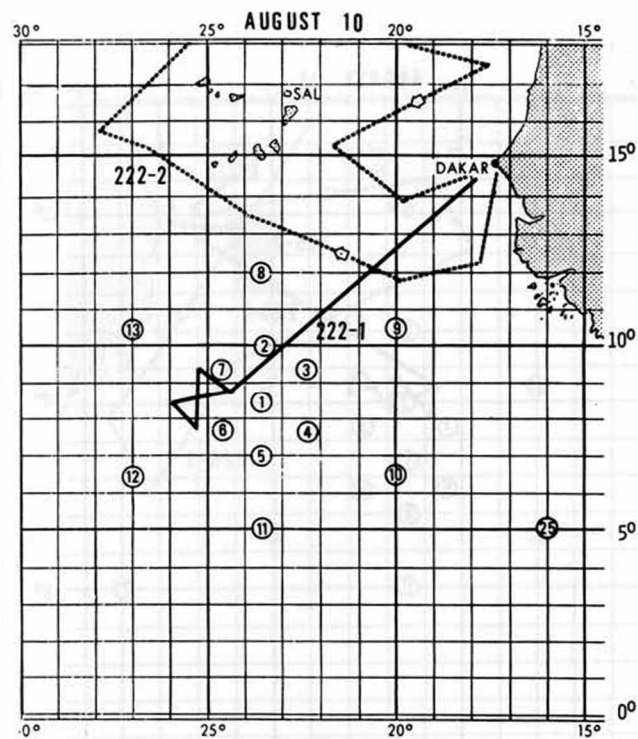
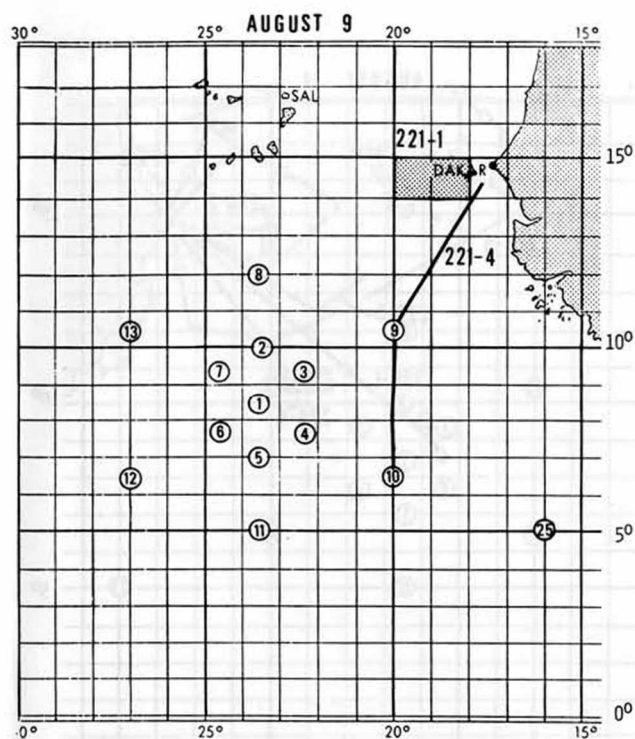
PHASE II SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

GATE INFORMATION BULLETIN No.1 25 October 1974



PHASE II SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

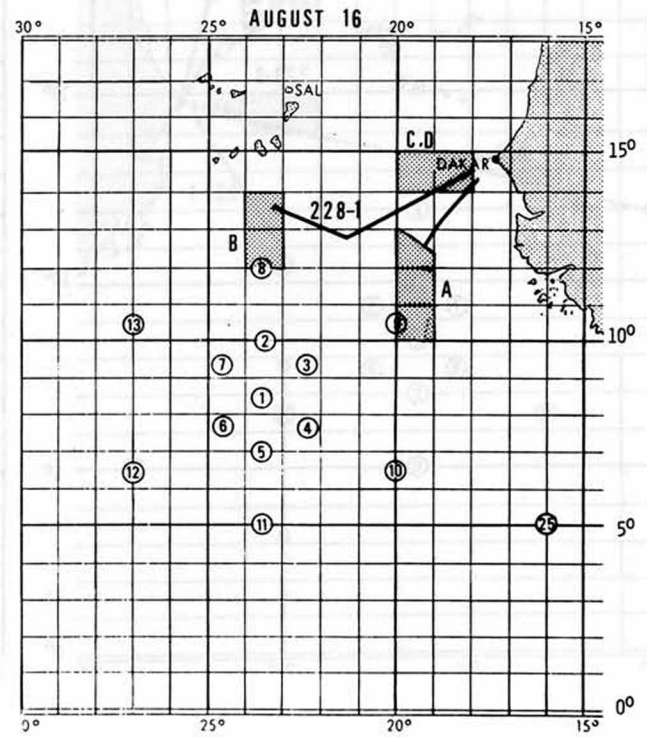
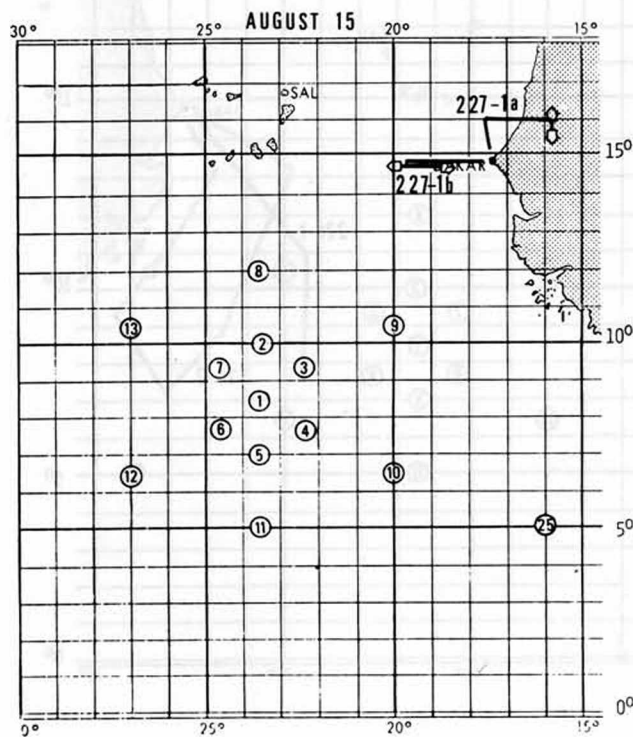
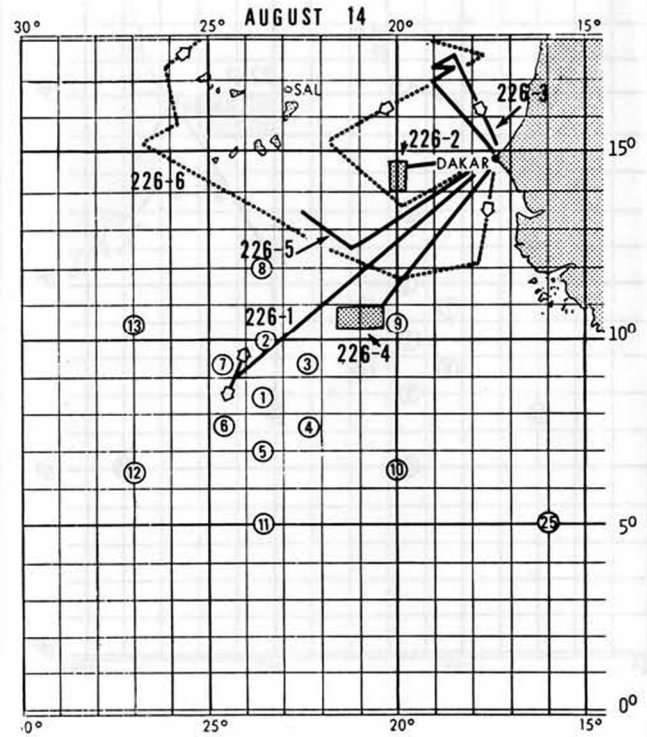
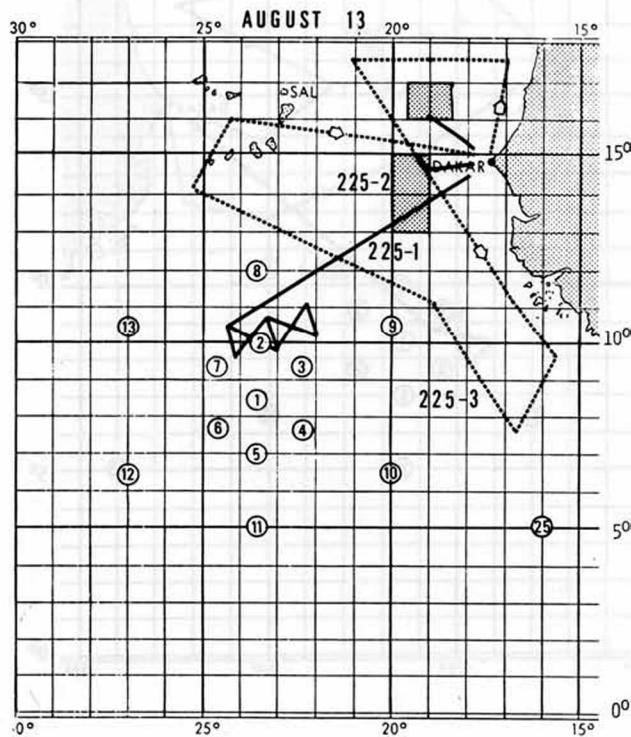
DASHED TRACKS DENOTE DROPSONDE MISSIONS



PHASE II SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

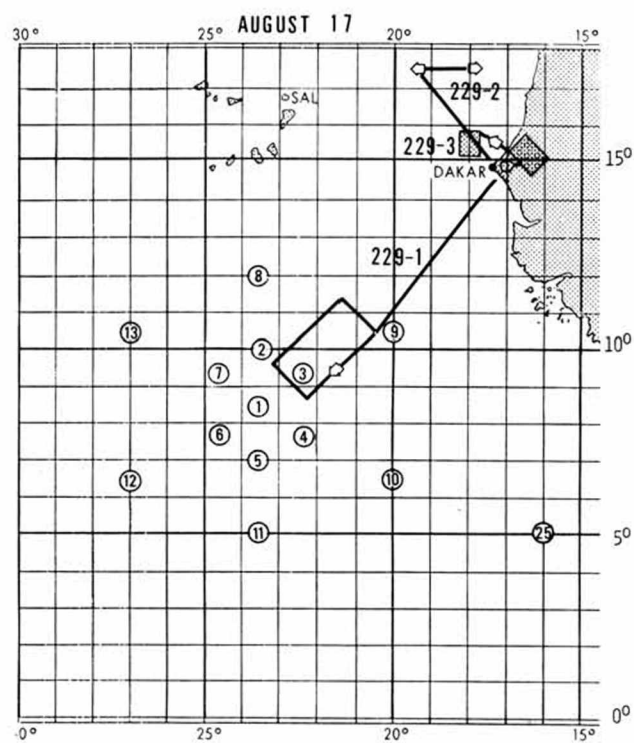
DASHED TRACKS DENOTE DROPSONDE MISSIONS

GATE INFORMATION BULLETIN No.1 25 October 1974



PHASE II SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS

DASHED TRACKS DENOTE DROPSONDE MISSIONS



PHASE II SCHEMATIC TRACK LINES OF AIRCRAFT MISSIONS