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(14) BESRL—Research Study-68-3

(6) CONTENTS OF BESRL AERIAL SURVEILLANCE FILM LIBRARY--1 JANUARY 1968

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Technical Support Branch

Research Study 68-3

CONTENTS OF BESRL AERIAL SURVEILLANCE FILM LIBRARY--1 JANUARY 1968

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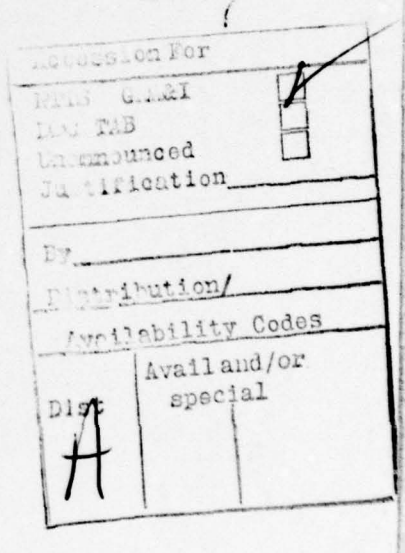

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Research studies are special reports to military management. They are usually prepared to meet requests for research results bearing on specific management problems. A limited distribution is made--primarily to the operating agencies directly involved.

FOREWORD

Four Tasks within the Support Systems Research Division of the Behavioral Science Research Laboratory are directly concerned with matters related to Army image interpretation: Interpreter Techniques, Image Interpretation Displays, Man-Computer Functions, and Component Integration.

The Technical Support Branch of the Division, among its other responsibilities, acquires and analyzes multi-sensor imagery for incorporation in performance measures designed to meet the research objectives of the Tasks, which in turn contribute to meeting the overall requirements of RDT&E Projects 2J620901A721, "Surveillance Systems: Ground Surveillance and Target Acquisition Interpreter Techniques," and 2J620901A732, "Image Characteristics and Interpreter Performance," FY 1968 Work Program.

The present publication lists and describes holdings of the BESRL Aerial Surveillance Film Library as of 1 January 1968.

J. E. UHLANER, Director
U. S. Army Behavioral Science
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CONTENTS OF BESRL AERIAL SURVEILLANCE FILM LIBRARY--1 JANUARY 1968

BRIEF

The Aerial Surveillance Film Library in the Technical Support Branch of the Behavioral Science Research Laboratory contains imagery collected and organized for measuring interpreter performance. The present publication provides a listing of imagery in the library as of 1 January 1968.

The imagery is organized by geographical areas and by imagery collection exercises, or projects, within each area. Amplifying information includes technical data on type of imagery, cameras or sensors used, time and weather conditions under which the imagery was obtained, description of the terrain and targets covered, and in most cases production status of ground truth or image truth keys developed by expert image interpreters.

The listing was prepared primarily to assist BESRL research scientists in finding appropriate imagery for laboratory experimentation on specific aspects of image interpretation performance. The listing is made available in its present form in the belief that it may be of value to other research laboratories within the United States government or to their contractors. Arrangements can be made for temporary loan of selected imagery for study or for reproduction.

CONTENTS OF BESRL AERIAL SURVEILLANCE FILM LIBRARY--1 JANUARY 1968

The U. S. Army Behavioral Science Research Laboratory (BESRL), as a member of the Interservice Image Acquisition Task Group, has participated in a number of multi-sensor acquisition exercises since 1961. In consequence, the BESRL Aerial Surveillance Film Library maintained by the Technical Support Branch now contains a substantial quantity of surveillance imagery of widely varying type, content, and quality. In addition, the library has obtained numerous imagery missions from other sources. These missions range in date from World War II to the present operation in Southeast Asia. The library includes records from side-looking radar (SLAR) and infrared (IR) sensors as well as conventional aerial film and paper prints.

The imagery in the library is used intensively by BESRL research scientists in the conduct of experimentation on image interpretation. The laboratory needs to have available a great variety of imagery in order to simulate interpretation tasks appropriate for specific research problems. The present listing was designed primarily to facilitate the search for imagery meeting content, quality, and scale specifications of the individual studies, and also to indicate the extent and kind of imagery in BESRL which can be made available to qualified users in other government research organizations. The listing of the imagery and amplifying information forms the major portion of the present Research Study.

The amount of amplifying information--photo specifications, conditions under which obtained, area coverage, and the like--varies from area to area and from mission to mission. Some missions are received bearing only a title. With others, there are photo plots, intelligence reports, maps, and data sheets. For many missions, BESRL image interpretation specialists have prepared interpretation reports, keys for scoring interpretation performance, and summaries of mission content. Information concerning the SLAR and IR records in the library is for the most part classified and is therefore necessarily limited. Additional information in the classified files of the Technical Support Branch will be provided to qualified personnel on request.

IMAGERY AVAILABLE AT OTHER FILM LIBRARIES

As a member of the Interservice Image Acquisition Task Group, BESRL has access to the master files maintained for each imagery collecting exercise. These files contain much imagery not selected by BESRL for the Aerial Surveillance Film Library. The procedure is as follows: After an exercise has been completed, the imagery is examined and catalogued by personnel of participating services (Army film is usually

received and stored at Fort Monmouth, New Jersey; Air Force film at Rome Air Development Center, Rome, New York; and Navy film at the Naval Reconnaissance and Technical Support Center, Suitland, Maryland). The process usually requires several weeks. Each service retains its original negatives and provides the other services with duplicate film. The Task Group then publishes a final report in which all missions are listed and described in terms of sensor, time of day, terrain and target coverage, and image quality. BESRL personnel review the imagery believed suitable for the film library and select the imagery they wish to have restricted to research use--usually not more than one-third the coverage from a given exercise. The final exercise report, together with designation of imagery restricted to research use, is maintained in the library files where it may be consulted in case the BESRL film library does not contain imagery meeting the specifications for a given research study. The desired imagery can then be ordered.

ORGANIZATION OF THE LISTING

The listing has been organized by geographical areas, with identification of the exercises, or projects, under which imagery cover of the area was obtained. To this extent, the listing corresponds to the overall organization of the imagery content of the Aerial Surveillance Film Library. Information on the number and generation of transparency rolls and paper prints for sets of imagery on file is maintained on index cards in the library. Under each geographical area, the amplifying material available is listed in the following order:

1. Identification by location, exercise or project, and date.
2. Terrain. Brief description of coverage.
3. Target types.
4. Controls exerted over the situation on the ground by project personnel.
5. Amount and type of concealment.
6. Weather conditions under which imagery was obtained.
7. Time of day for each type of imagery.
8. Amount and type of conventional (optical) imagery. Technical data including cameras used, type of imagery (black-and-white vs color; panoramic; camouflage detection), film format, photo scale, percentage of overlap, and estimated image quality.
9. Infrared imagery.
10. Radar imagery.

} Only number of missions in the file, sensors used, and format are shown in the present listing.

11. Keys status. BESRL image interpretation specialists on a continuing basis develop scoring keys and summary sheets for the imagery in the files. Keys completed as of 1 January 1968 are listed under this heading, with indications as to whether they represent ground truth. Progress on the development of keys may also be noted.

A summary of the imagery and supplementary materials in BESRL Aerial Surveillance Film Library is presented in the following pages.

CATALOG OF IMAGERY IN THE BESRL AERIAL SURVEILLANCE FILM LIBRARY

BALTIMORE-WASHINGTON

1. PROJECT: HEADSTRONG (10-19 December 1963)

2. TERRAIN: Urban areas, military posts, and sections of countryside from Aberdeen, Maryland to Fort Belvoir, Virginia. Includes conventional coverage of Aberdeen Proving Ground, Andrews Air Force Base, Fort Belvoir, Fort Meade, Friendship Airport, and the Baltimore industrial complex.

3. TARGET TYPES: Most of the areas flown are primarily of strategic rather than tactical interest. There is good coverage of civilian and military airfields, urban areas, industries (including the Martin aircraft factory and the Sparrow's Point steel plant), transportation and other targets. Tactical targets include a wide variety of vehicles and guns at Aberdeen Proving Ground (poor quality) and military equipment at Fort Meade, Fort Belvoir, and Andrews Air Force Base.

4. CONTROL: There was one array of 45 vehicles and guns under BESRL control at the Aberdeen Proving Ground. Ground truth is also known for a fixed display of 40 tracked vehicles along the median of an access road at Aberdeen. Other target areas were uncontrolled.

5. CONCEALMENT: Controlled arrays were in the open. No artificial camouflage was used on this exercise.

6. WEATHER: Mostly clear; some cloudy.

7. TIME: Daylight (optical; IR; SLAR); Night (IR; SLAR).

8. CONVENTIONAL (Optical) IMAGERY:

Number of missions on file: 17

Cameras: KA-20; some not listed

Type: Black-and-white; panoramic; camouflage detection; color

Format: 9" x 9" - 11 missions; 70mm - 4 missions; $4\frac{1}{2}$" x $4\frac{1}{2}$" - 2 missions

Scale: 1:1,000 to 1:16,500 (some to be determined)

Overlap: 15% to 70%

Quality: Poor to good (interpreter's estimate)

9. INFRARED IMAGERY:

Number of missions on file: 7

Sensors: UAS-4; UAS-5

Format: 5" (UAS-4); 70mm (UAS-5)

10. RADAR IMAGERY:

Number of missions on file: 4

Sensors: APQ-86; probably one other

Format: 5"

11. KEYS STATUS: None completed. Ground truth is available for the Aberdeen array, but the coverage of this display was of inferior quality and has not been selected for BESRL use.

1. PROJECTS: TRAILBREAK (December 1961); ROAD (August, September 1964); SWIFTSTRIKE (one roll over Camp Drum, July 1962); SNOWFEX (February 1965) and DRUM (undesignated photography of September 1962).

2. TERRAIN: Army camp, airfield, and surrounding maneuver area. Thick woods, light woods, open fields, clearings, roads, trails, river. Some runs also show civilian targets nearby, e.g., town, railroad, bridges, industry. The terrain is generally flat to gently rolling; there are some low hills and river banks.

3. TARGET TYPES: Almost none at TRAILBREAK. At ROAD and DRUM 62 there were many trucks (primarily 2 1/2-ton, 3/4-ton, and 1/4-ton cargo and personnel), trailers, tents, and personnel. Some tanks, APC's, artillery, and miscellaneous vehicles. Operation SNOWFEX was a test of troops and materials in cold weather. 1700 combat Marines were deployed in the field; their equipment included approximately 180 wheeled and tracked vehicles (trucks, trailers, tanks, Ontos self-propelled anti-tank rifles), engineer equipment; also mortars, machine guns, rocket launchers, and miscellaneous items.

4. CONTROL: Project TRAILBREAK was primarily general area coverage. There were no controlled situations and few targets. Best use is for comparative cover. Project ROAD involved maneuvers of the 27th Armored Division. Much of the activity was uncontrolled, as there were an estimated 4000 vehicles in the area. At least ten tactical situations were controlled, of which seven were covered by one or more missions. At Project SNOWFEX, at least four target groupings were controlled. These included elements of the 2d Marine Division (vehicles and tents). There were no controlled situations during the single SWIFTSTRIKE mission.

5. CONCEALMENT: Artificial camouflage evidently was not used at Camp Drum. There are many wooded and partly wooded areas, and many of the target items are concealed by vegetation to varying degrees. The keys indicate the degree of concealment, as well as the target location.

6. WEATHER: More than 50% clear; otherwise partly cloudy or cloudy.

7. TIME: All conventional missions flown in daylight, except two night (Strobe) missions. 10 IR missions flown at night, others day. SLAR missions divided almost evenly, day and night.

8. CONVENTIONAL (Optical) IMAGERY:

Number of missions on file: 91 (TRAILBREAK - 3; DRUM 62 - 31; SWIFTSTRIKE - 1; ROAD - 38; SNOWFEX - 18)

Cameras: KA-20; KA-39; KA-45; KA-50; T-11

Type: All black-and-white, except for one color mission

Format: 9" x 9" - 75 missions; $4\frac{1}{2}$ x $4\frac{1}{2}$ - 11 missions; 70mm - 5 missions

Scale: Average scale is about 1:3000. For the majority of missions, scale ranges from 1:1000 to 1:4000. Maximum computed vertical scale is 1:800; minimum 1:20,000. There are 7 oblique missions.

Overlap: Varies widely (0 - 78%), but most missions were flown to yield 50% or 60% overlap.

Quality (interpreters' estimate): The majority of rolls are of fair or good quality; some are poor or very poor; a few exposures are considered very good or excellent. The quality of individual exposures varies within most missions.

9. INFRARED IMAGERY:

Number of missions on file: 17

Sensors: RFX-IV - 8 missions; RFX-VI - 5 missions; RS-7 - 4 missions

Format: 5" (RS-7); 70mm (RFX-IV, RFX-VI)

10. RADAR IMAGERY:

Number of missions on file: 15

Sensors: APQ-55 - 5 missions; APQ-86 - 4 missions; APS-94 - 3 missions; APS-73 - 2 missions; APQ-97 - 1 mission

Format: 9" (APS-94); all others 5"

11. KEYS STATUS: 70 completed; one partial; 19 not interpreted or intentionally omitted for reasons of poor quality or lack of targets.

EUROPE (FRANCE; GERMANY)

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1. PROJECT: World War II (combat photography); August, September 1944; January, April 1945.

2. TERRAIN: Farms, forests, villages, cities, rivers, and streams. Snow cover on some missions.

3. TARGET TYPES: German and U. S. equipment, predominantly tracked and wheeled vehicles, artillery, trenches, and revetments. Resolution is frequently too low or scale too small to permit detailed interpretations, e.g., type of truck. There are also many strategic targets--e.g., airfields, cities, towns, bridges, and transportation.

4. CONTROL: None

5. CONCEALMENT: Normandy hedgerows; other vegetation; camouflage paint

6. WEATHER: Clear or partly cloudy

7. TIME: Daylight

8. CONVENTIONAL (Optical) IMAGERY:

   Number of missions on file: 27

   Cameras: 24" and 40" focal length

   Type: Black-and-white vertical

   Format: 9" x 9"

   Scale: Approximately 1:5000 to 1:11,000. Most missions about 1:10,000

   Overlap: Averages 50% to 60%

   Quality: Poor to very good (mostly fair to good)

9. INFRARED IMAGERY: None

10. RADAR IMAGERY: None

11. KEYS STATUS: Keys developed on certain frames, e.g., Mortain, for specific performance measures. Also 1 - 2 interpretations on at least 6 rolls of France.

12. REMARKS: France cover includes three specific situations: Nancy-Metz; North and Northeast of Falaise; and Falaise pocket. Situation data, maps, and photo plots are available.

FORT HUACHUCA, ARIZONA

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1. PROJECT: Undesignated. 1961, 1962.

2. TERRAIN: Fort Huachuca and surrounding area; mostly semi-desert, with a few trees and shrubs.

3. TARGET TYPES: Sergeant Missile, military vehicles (tracked and wheeled), aircraft.

4. CONTROL: None

5. CONCEALMENT: Natural vegetation only. Most targets are in the open.

6. WEATHER: Clear

7. TIME: Daylight; possibly one night mission

8. CONVENTIONAL (Optical) IMAGERY:

   Number of missions on file: 13

   Cameras: KB-61; KS-61; some not listed

   Type: Conventional black-and-white; 2 Sonne strip

   Format: 9" x 9"; $4\frac{1}{4}$" x $4\frac{1}{2}$"; Sonne strip

   Scale: 1:1,000 to 1:5,000

   Overlap: 40% to 100%

   Quality: Fair to good

9. INFRARED IMAGERY: None

10. RADAR IMAGERY: None

11. KEYS STATUS: Keys developed for a few frames showing the Sergeant Missile complex.

FORT POLK, LOUISIANA

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1. PROJECT: PELICAN (15-17 May 1967)

2. TERRAIN: Fields, woods, partially wooded areas, and streams.

3. TARGET TYPES: Simulated VC villages, helicopter mock-ups, wheeled vehicles, tents, firepots.

4. CONTROL: Ground truth available on specific areas.

5. CONCEALMENT: Natural and cut vegetation

6. WEATHER: Clear

7. TIME: Night (2103 to 0015)

8. CONVENTIONAL (Optical) IMAGERY: None (see remarks)

9. INFRARED IMAGERY:

   Number of missions on file: 6

   Sensor: AN/AAS-10 (XE-1, 1 mission, XE-2, 3 missions); AN/UAS-4A (2 missions)

   Format: 5"

10. RADAR IMAGERY: None on file

11. KEYS STATUS: Final keys on certain runs; these have been used in testing.

12. REMARKS: Some paper prints (conventional vertical) also available, although there are no complete conventional missions on file.

FORT SILL, OKLAHOMA

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1. PROJECT: ARRAS (15-19 November 1965)

2. TERRAIN: Military camp and surrounding firing range area. Low hills; most targets are in open areas, some in partly wooded areas; partial seasonal defoliation.

3. TARGET TYPES: Mainly towed and self-propelled artillery, supporting vehicles (trucks and trailers), and firing ranges; motor pools, radar, missiles, drone system, airfield, aircraft, APC's, ammo storage, tents, barracks.

4. CONTROL: Many situations were controlled to the maximum degree consistent with the operation. Individual item movement was not under operational control of the surveillance group, but was recorded insofar as possible. BESRL released 15 controlled situations for other than research use, but restricted 13 situations; the latter group is covered by library holdings. Ground truth sheets are available on all controlled situations.

5. CONCEALMENT: No artificial camouflage. Natural vegetation used to conceal vehicles in a few instances.

6. WEATHER: Clear or partly cloudy

7. TIME: Mostly daylight; one night mission

8. CONVENTIONAL (Optical) IMAGERY:

   Number of missions on file: 16

   Cameras: KA-30; KA-56; KS-41; KA-39; KA-50, KA-50A; KA-50H

   Type: Conventional black-and-white; one strobe mission; four color missions reproduced on black-and-white film.

   Format: 9" x 9" - 4 missions; $4\frac{1}{2}$" x $4\frac{1}{2}$" - 12 missions

   Scale: 1:1,000 to 1:10,000 (some to be determined). Three missions covered the same areas at several different altitudes.

   Overlap: 45% to 80%. Averages at least 60% on missions checked.

   Quality: Fair to very good

9. INFRARED IMAGERY:

Number of missions on file: 2

Sensor: RS-9

Format: 5"

10. RADAR IMAGERY:

Number of missions on file: 2

Sensor: APQ-86

Format: 5"

11. KEYS STATUS: One final key; two independent interpretations on 13 missions; one independent interpretation on one mission.

SOUTHEASTERN UNITED STATES
(Also one SWIFTSTRIKE mission included in Camp Drum area)

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1. PROJECT: SWIFTSTRIKE (July 1962); May-August 1963.

2. TERRAIN: Mostly flat, some hilly; nearly all rural area with many farms. Vegetation cover ranges from open fields to thick woods.

3. TARGET TYPES: Military vehicles, tents, some towed artillery, helicopters, aircraft. Distribution of targets varies from light to very heavy, with many (estimated 85%) non-target frames.

4. CONTROL: Situations uncontrolled

5. CONCEALMENT: Many targets are partly hidden by natural vegetation.

6. WEATHER: Nearly all clear; one mission partly cloudy

7. TIME: Daylight

8. CONVENTIONAL (Optical) IMAGERY:

   Number of missions on file: 12

   Cameras: KA-45; some unknown

   Type: All black-and-white; two panoramic missions; others vertical.

   Format: 9" x 9" - 2 missions; $4\frac{1}{2}$" x $4\frac{1}{2}$" - 8 missions; $4\frac{1}{4}$" panoramic - 2 missions.

   Scale: Mostly 1:1,000 to 1:3,000; some small-scale frames.

   Overlap: 30% to 90%; averages about 60%.

   Quality: Fair to good

9. INFRARED IMAGERY: None

10. RADAR IMAGERY: None

11. KEYS STATUS: Final key to mission S-00 (included with Camp Drum imagery); independent interpretations completed on two other missions.

YAKIMA FIRING RANGE, WASHINGTON

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1. PROJECT: COULEE CREST (9-16 May 1963)

2. TERRAIN: This exercise extended for many square miles in and near the Yakima firing range. Terrain is nearly all open, ranging from flat to very hilly. There are a few streams. Thickly wooded areas are few, mostly bordering the streams. There are many rocks and low scrubby vegetation, sagebrush, for example.

3. TARGET TYPES: Two entire divisions were engaged in this large-scale exercise. Target types include nearly all types of equipment (artillery--towed and SP, tanks, APC's, trucks, trailers, tents, personnel, and other items associated with an infantry division, and an infantry division (mechanized). Different target types are seen in great numbers on many exposures. Typical unit groupings are evident for unit interpretation, e.g., CP, radio unit, tank platoon.

4. CONTROL: BESRL had two ground-truth teams operating throughout the exercise, but because of the fluid nature of the operation and the limited availability of tactical air space, ground truth is limited to sketches and descriptions of less than 20 situations. Tight control was not practicable and documentation is therefore not regarded as complete.

5. CONCEALMENT: Because of the lack of vegetation, camouflage nets were used extensively, and in some instances they effectively disguise the identity of the target, although target presence is readily detected in the predominantly open areas. These missions contain the best examples of artificial camouflage held by BESRL.

6. WEATHER: Clear

7. TIME: Daylight

8. CONVENTIONAL (Optical) IMAGERY:

Number of missions on file: 28

Cameras: KA-30; KA-39; KA-45; KA-47; KS-40; KS-41

Type: Black-and-white conventional

Format: 9" x 9" - 17 missions; $4\frac{1}{2}$" x $4\frac{1}{2}$" - 11 missions

Scale: 1:900 to 1:15,000. Varies among missions, because of irregular terrain.

Overlap: Mostly 50% to 60%

Quality: Poor to excellent

9. INFRARED IMAGERY: None on file

10. RADAR IMAGERY: None on file

11. KEYS STATUS: One final key; eight consolidated interpretations; 15 more independent interpretations.

YUMA PROVING GROUND, ARIZONA

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1. PROJECT: ARRAY (2-6 November 1964)

2. TERRAIN: Gently sloping open plain with nearby mountains. Sparse desert vegetation (cactus, mesquite).

3. TARGET TYPES: Five M-48 tanks, sixteen M-114 APC, seven M-113 APC, five M-108, 105mm SP howitzers; assorted trucks (e.g., cargo, ambulance, reefer, tanker, some with trailers); personnel.

4. CONTROL: Entire project was under control. Included three fixed arrays and four controlled traffic movements. BESRL conventional coverage includes two fixed arrays and one convoy movement.

5. CONCEALMENT: All targets are in the open. No artificial camouflage was used.

6. WEATHER: Clear

7. TIME: Daylight (conventional, 3 IR missions, 7 SLAR missions); night (4 IR missions, 3 SLAR missions); mixed (2 SLAR missions).

8. CONVENTIONAL (Optical) IMAGERY:

Number of missions on file: 7

Cameras: KA-39; T-11; KA-54 (pan)

Type: All black-and-white; 4 conventional vertical; 3 panoramic

Format: 9" x 9" - 4 missions; $2\frac{5}{16}$" x $7\frac{7}{8}$" panoramic - 3 missions

Scale: 1:1,000 to 1:22,000(some to be determined)

Overlap: Averages 40% to 60% (some to be determined)

Quality: Good to excellent

9. INFRARED IMAGERY:

Number of missions on file: 7

Sensors: RFX IV - 6 missions; RS-9 - 1 mission

Format: 70mm (RFX-IV); 5" (RS-9)

10. RADAR IMAGERY:

Number of missions on file: 12

Sensors: APS-73 - 3 missions; APQ-86 - 4 missions; APD-7 - 1 mission; APQ-55 - 1 mission; APS-94 - mission; APQ-97 - 2 missions.

Format: 5" (all except APQ-97); 9" (APQ-97)

11. KEYS STATUS: Several independent interpretations; no final keys

12. REMARKS: Detailed ground truth is available for fixed arrays

13. CONTROLLED SITUATIONS COVERED BY BESRL MISSIONS:

Situation	Conventional	IR	SLAR
ARRAY No. 4	1	3	4
ARRAY No. 5	3	1	3
ARRAY No. 6	0	2	0
Vehicles on Road	3	1	4
Administrative Movement	0	0	1

SOUTHWESTERN UNITED STATES
(ARIZONA, NEW MEXICO, CALIFORNIA BORDER)

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1. PROJECT: CLOUD GAP 12 (May 1964)

2. TERRAIN: Arid, gently sloping piedmont plain. Coverage extends over area from Albuquerque, New Mexico to Kingman, Arizona, to Needles, California and from Deming, New Mexico to Casa Grande, Arizona.

3. TARGET TYPES: Predominantly wheeled vehicles, including some convoys. Two military trains. Several camps, with many tents. Some tanks and artillery.

4. CONTROL: None

5. CONCEALMENT: Targets in open; no camouflage

6. WEATHER: Clear

7. TIME: Day and night missions

8. CONVENTIONAL (Optical) IMAGERY:

Number of missions on file: 29 (some incomplete)

Cameras: KA-1 (7 missions); KA-45 (15 missions); KA-51 (6 missions); KA-50A (1 mission)

Type: 14 Black-and-white, conventional; 15 black-and-white, 15 strobe

Format: 70mm - 7 missions; $4\frac{1}{2}$" x $4\frac{1}{2}$" - 15 missions; 9" x 18" - 7 missions

Scale: 1:400 to 1:33,000. Many different scales.

Overlap: 0 to 60%; average approximately 30%

Quality: Poor to excellent

9. INFRARED IMAGERY:

Number of missions on file: 13

Sensors: AAS-14 - 12 missions; 1 mission unknown

Format: 70mm - 7 missions; 5" - 6 missions

10. RADAR IMAGERY:

Number of missions on file: 6

Sensors: APQ-55 - 2 missions; APS-94 (MTI) - 1 mission; 3 missions unknown.

Format: 5"

11. KEYS STATUS: Keys are being developed for selected portions of the above missions.

12. REMARKS: CLOUD GAP imagery comprises the greater part of the Standard Systems Test to be administered in the Information Systems Laboratory. Several rolls of Camp Drum imagery are included in the test.

MISCELLANEOUS COVERAGE

In addition to area imagery described above, the BESRL Aerial Surveillance film library also contains small holdings of miscellaneous imagery, which are briefly catalogued below.

1. CALIFORNIA-LaJOLLA TO MURRAY RESERVOIR:

One mission, 4-1/2" x 4-1/2", KA-30 Navy conventional; 15 May 1959. Small scale (1:25,000); covers urban and rural areas, including military and civilian airfields, industries, transportation, mining, electric power. Good quality; can locate individual vehicles, small boats, and other items.

2. FLORIDA-EXERCISE SOUTHWIND:

Two missions, one 9" x 18", scale 1:1,600, 29 October 1960; one 9" x 9", scale 1:8,400, 3 August 1960. Both good quality. Both missions cover sections of an airfield complex. The smaller scale mission includes many more aircraft, helicopters, hangars, buildings, and vehicles than are shown at the larger scale.

3. FLORIDA-EGLIN AFB PROJECT UNDERBRUSH:

Seven missions, 14 to 17 March 1966: One radar mission (APQ-97) CONFIDENTIAL; five infrared missions (RS-9, AAS-10, XE-1, AAS-10, XE-2) CONFIDENTIAL; one conventional black-and-white mission (DA-30) unclassified. Imagery shows simulated Vietnamese targets, with medium foliage. More details are available in the classified final report for this project.

4. TEXAS-FORT HOOD:

One mission, 9" x 9", mostly oblique, with some vertical frames; 16 October 1962. Fair to poor quality. Targets include convoys on road, tents, and a dirt airstrip.

5. KOREA:

Two missions, 9" x 9", oblique; fair quality, light target density. Three missions, 9" x 18", vertical; poor to good quality, medium target density. Missions are Korean war reconnaissance imagery. There are also three rolls of SECRET imagery, dated 1964 and 1965. These include one 9" x 9" vertical mission, one 9" x 18" oblique mission, and one 9" x 18" oblique color mission (further data classified).

6. NEW YORK STATE (NORTHWEST PORTION):

One mission, T-11 camera, 9" x 9", extremely small scale (about 1:50,000 to less than 1:100,000), 1 September 1964. Daylight; clear weather; good quality. The mission was flown in conjunction with Project ROAD, but does not cover the Camp Drum area. Towns, industries, transportation network, and rural areas are shown. Scale is too small for tactical interpretation, but the mission could be used in a plotting exercise.

7. PANAMA CANAL ZONE:

Two missions, 9" x 9", conventional, 15 May and 22 May 1962; fair to poor quality. Targets are limited to a few vehicles, shown in various positions on jungle trails. Some use of vegetation for concealment. Trucks were operating under BESRL control. This was the first cooperative image collection venture of Ft. Monmouth and BESRL.

8. SHAW AIR FORCE BASE, SOUTH CAROLINA:

Three rolls, all dated 23 January 1964; probably obtained on a single mission. One 9" x 9", conventional; one 4-1/2" x 4-1/2", conventional; one 4-1/2", panoramic. Scales range from about 1:1,000 to about 1:12,000. Poor to good quality; 50% - 60% overlap. Weather clear. Each roll covers the air base and nearby rural areas at several different altitudes. Targets include military aircraft, vehicles, airfield buildings, and other airfield installations.

9. SOUTHEAST UNITED STATES (GEORGIA, NORTH CAROLINA, AND SOUTH CAROLINA):

One mission, U. S. Air Force, 9" x 9", 9 November 1961. Fair quality; mostly oblique with some vertical frames. Coverage includes Donaldson Air Force Base, North Carolina, Greensborough-High Point Municipal Airport, North Carolina, Smith-Reynolds Airport, North Carolina, Neal Shoals Power Plant, South Carolina, and a highway bridge near Jacksonville, Georgia.

10. VIETNAM:

Air Force reconnaissance; 25 missions--15 split vertical, 9" x 18"; one 9" x 9", vertical; one forward oblique; five high panoramic; three low panoramic (all black-and-white). Most are dated May, July, or August 1967; some date from 1966. All missions are classified CONFIDENTIAL. Some have accompanying reports and/or plot maps. For many of the split vertical missions, both left and right rolls are available.